



# 2005 Minerals Yearbook

---

## PAPUA NEW GUINEA

---

# THE MINERAL INDUSTRY OF PAPUA NEW GUINEA

By Travis Q. Lyday and Staff

Papua New Guinea, which comprises the eastern one-half of New Guinea Island and about 600 smaller islets, atolls, and coral reefs, is located east of Indonesia and north of Australia between the Coral Sea and the South Pacific Ocean. Papua New Guinea's total area of 462,840 square kilometers (km<sup>2</sup>), which is slightly larger than the State of California, includes 452,860 km<sup>2</sup> of land area and 9,980 km<sup>2</sup> of water area. The country's population in 2005 was about 5.6 million. The country's gross domestic product (GDP) based on purchasing power parity was estimated to be \$13.6 billion in 2005, and its per capita GDP based on purchasing power parity, to be \$2,357 (International Monetary Fund, 2006<sup>§</sup>; U.S. Central Intelligence Agency, 2006<sup>§</sup>).

Papua New Guinea is rich in mineral resources, the major ones of which are cobalt, copper, natural gas, gold, nickel, crude petroleum, and silver. The major minerals produced during the past 5 years were copper, natural gas, gold, petroleum, and silver. In 2005, Papua New Guinea ranked fourth in the Asia and the Pacific region in the mine production of copper, gold, and silver (World Bureau of Metal Statistics, 2006, p. 37, 79, 119).

Mining was an important sector of Papua New Guinea's economy. Mineral production accounted for 25.3% of the country's GDP in 2000 and was estimated to have accounted for 20.8% in 2004. In 2004, the export value of minerals, which included copper, gold, petroleum, and silver, totaled \$1,863.2 million and accounted for 73% of total export earnings (International Monetary Fund, 2006, p. 38, 56). In 2005, according to an estimate by GlobalEdge, Papua New Guinea's mineral export receipts accounted for 49.7% of the country's GDP and minerals production accounted for 20% of the country's Government revenue (Australia Broadcasting Corporation, 2006<sup>§</sup>; GlobalEdge, 2006<sup>§</sup>).

In 2005, copper ore and concentrate were produced by Ok Tedi Mining Ltd. from a copper-gold ore body at Mount Fubilan in the Star Mountain region of Western Province near the border of West Papua. The total ore mined decreased by 1% to 26 million metric tons (Mt), and copper concentrates production increased by 5.8% to 664,041 metric tons (t); the grades of head grade copper and head grade gold mined were 0.89% and 0.97 grams per metric ton (g/t), respectively. The amount of copper, gold, and silver contained in copper concentrate was 192,978 t, 14,867 kilograms (kg), and 40,984 kg, respectively. Copper concentrates from the mine were exported to, in decreasing order of amount exported, Japan, the Republic of Korea, China, the Philippines, India, and Germany. As of December 2005, the estimated resources of copper at the Ok Tedi Mine totaled 854 Mt at grades of 0.63% copper and 0.78 g/t gold. Of the estimated resources, the estimated ore reserves (proven and probable) totaled 214 Mt at grades of 0.85% copper and 1.11 g/t

gold (Ok Tedi Mining Ltd., 2006<sup>§</sup>). Ok Tedi Mining was owned by PNG Sustainable Development Program Ltd. (52%), the Government (30%), and Inmet Mining Corp. of Canada (18%).

In 2005, major gold and silver mining activities took place at the Lihir and the Mt. Kare mines (gold), the Ok Tedi Mine (copper and gold), and the Porgera Mine (gold and silver). The Misima Mine, which had been operated by Placer Dome Inc. of Canada, was officially closed in 2004. The Misima open pit gold and silver mining operations had been stopped in 2001 owing to the depletion of the ore reserves but Placer Dome continued to produce gold and silver by processing low-grade stockpiled ore until 2004 (Mining-Technology.com, 2006<sup>§</sup>).

Crude petroleum was produced by Chevron Niugini Ltd. mainly from the Central Moran Oilfield, the Gobe Oilfield, and the Kutubu Oilfield in Southern Highlands Province and from onshore Papua Basin. Santos Ltd. also produced a smaller quantity of crude petroleum from the SE Gobe Oilfield in Southern Highlands Province and from Papua Basin.

In June 2004, the country's first and only oil refinery was completed and brought onstream by InterOil Corporation of Canada at an estimated cost of \$214 million. The refinery, which is located in the Port Moresby area, has a capacity of 32,500 barrels per day. The refinery consists of atmospheric distillation and a modest catalytic reformer for the production of gasoline blend stock. Prior to 2005, the country imported all its refined petroleum products from Australia and Singapore. According to the company, the refinery was capable not only of meeting the country's domestic requirements but of providing products for export as well (InterOil Corporation, 2004<sup>§</sup>; 2005<sup>§</sup>).

## Outlook

Papua New Guinea's economy was forecasted to grow steadily at a rate of 4.5% in 2006 and 5.0% in 2007 (International Monetary Fund, 2006<sup>§</sup>). The future activities of the mining sector, however, could be negatively affected by increasing mining-related pollution and tribal attacks against multinational mining, oil, and gas installations in highlands areas. After the 2005 expansion in the mining sector because of higher metals prices, copper and gold production are expected to stagnate during the next 2 years because of the depleting ore reserves of copper and gold at the Ok Tedi copper mine and at the Porgera gold mine. A future decline in the price of copper would have a negative impact on the continued growth of the mining sector (Asian Development Bank, 2005<sup>§</sup>).

## References Cited

- International Monetary Fund, 2006, Papua New Guinea—Selected issues and statistical appendix: International Monetary Fund Country Report No. 06/105, March, 62 p.
- World Bureau of Metal Statistics, 2006, World metal statistics: Ware, Hertfordshire, United Kingdom, World Bureau of Metal Statistics, May, 150 p.

---

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

## Internet References Cited

Asian Development Bank, 2005, Asian development outlook 2005—Papua New Guinea, accessed January 15, 2007, at URL <http://www.adb.org/documents/books/ado/2005/png.asp>.

Australia Broadcasting Corporation, 2006, Country profile—Papua New Guinea—Economy, accessed January 15, 2007, at URL [http://www.radioaustralia.net.au/news/countries/papuanewguinea\\_to.htm](http://www.radioaustralia.net.au/news/countries/papuanewguinea_to.htm).

GlobalEdge, 2006, Country insights—Economy of Papua New Guinea, accessed January 15, 2007, at URL <http://www.globaledge.msu.edu/ibrd/countryeconomy.asp?countryid=162&regionid=6>.

International Monetary Fund, 2006, Papua New Guinea, World Economic Outlook Database, accessed April 26, 2006, via URL <http://imf.or/external/pubs/ft/weo/2006/01/data/bdcoutm.cfm>.

InterOil Corporation, 2004 (June 15), InterOil announces arrival of first crude oil shipment for the refinery, News Release, accessed January 25, 2007, via URL <http://www.interoil.com/press.asp>.

InterOil Corporation, 2005, Refinery location and project summary, accessed January 29, 2007, via URL <http://www.interoil.com>.

Mining-Technology.com, 2006, Placer Dome Inc.—Misima gold and silver, Papua New Guinea, accessed November 19, 2006, at URL <http://www.mining-technology.com/project/misima>.

Ok Tedi Mining Ltd., 2006, Annual report for 2005, accessed January 24, 2007, via URL <http://www.oktedi.com>.

U.S. Central Intelligence Agency, 2006, Papua New Guinea, World Factbook 2006, accessed August 14, 2006, via <http://www.cia.gov/cia/publications/factbook/ggeos/html>.

TABLE 1  
PAPUA NEW GUINEA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

Commodity <sup>2</sup>		2001	2002	2003	2004	2005
Copper, mine output, Cu content	metric tons	203,762	204,000	205,500	177,200	193,000
Gas, natural	million cubic meters	1,434	1,450 <sup>e</sup>	1,450 <sup>e</sup>	1,450 <sup>e</sup>	1,365
Gold, mine output, Au content	kilograms	67,043	61,379 <sup>r</sup>	67,832 <sup>r</sup>	69,027 <sup>r</sup>	66,700
Natural gas liquids <sup>e</sup>	42-gallon barrels	186,190 <sup>3</sup>	200,000	200,000	200,000	200,000
Petroleum, crude	thousand 42-gallon barrels	20,423	21,722 <sup>r</sup>	17,340	16,790	16,800
Silver, mine output, Ag content	kilograms	69,368	63,349 <sup>r</sup>	61,900 <sup>r</sup>	53,800 <sup>r</sup>	62,600

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits. <sup>r</sup>Revised.

<sup>1</sup>Includes data available through November 1, 2006.

<sup>2</sup>In addition to the commodities listed, cement and crude construction materials (common clays, sand and gravel, and stone) are produced, but available information is inadequate to make reliable estimates of output.

<sup>3</sup>Reported figure.

Sources: U.S. Geological Survey, Minerals Questionnaire 2001-03. British Geological Survey, World Mineral Production 2000-04. International Copper Study Group, Copper Bulletin, July 2006. Oil & Gas Journal, Worldwide Look at Reserves and Production, v. 101, no. 49, December 22, 2003; v. 103, no. 47, December 19, 2005, and Statistics—Worldwide Crude Oil and Gas Production, March 12, 2006.