



2020–2021 Minerals Yearbook

PAPUA NEW GUINEA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF PAPUA NEW GUINEA

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In 2020 and 2021, the economy of Papua New Guinea was largely dependent on world demand for the country's principal mineral export commodities, notably cobalt, copper, gold, liquefied natural gas, and nickel. In 2021, the country was estimated to be the 7th-ranked producer of cobalt in the world, accounting for 1.8% of global production, and the 17th-ranked producer of gold, accounting for 1.7% of global production (Bank of Papua New Guinea, 2021, p. 19–21; Sheaffer, 2023; Shedd, 2023).

The real gross domestic product (GDP) of Papua New Guinea decreased by 3.5% in 2020 and increased by 1.2% in 2021. The nominal GDP was \$24.7 billion in 2020 and \$27.3 billion in 2021. In 2020 (the most recent year for which data were available), the extraction of crude petroleum and natural gas accounted for 20% of the GDP, and other mining and quarrying activities accounted for 9.5%. The value of exports of mineral products, including cobalt, copper, gold, liquefied natural gas, nickel, crude petroleum (including condensate), and refinery products totaled PGK25.9 billion (\$7.38 billion)¹ in 2020 and \$8.44 billion in 2021, accounting for 80.6% and 80.9% of total goods exports, respectively (Bank of Papua New Guinea, 2022, p. 19; International Monetary Fund, 2022; National Statistical Office, 2023).

In 2019 (the most recent year for which data were available), approximately 20,000 people were employed in the mining and quarrying sector, which accounted for 0.45% of the total number of employed people in the country. The number of employed people in the mineral sector decreased by 28.8% in 2020 and increased by 16.8% in 2021. The decrease in 2020 was owing to the effects of the coronavirus disease 2019 (COVID-19) pandemic. The increase in 2021 was likely attributable to the commissioning and expansion of operations at the Kainatu gold mine as well as restaffing at the Ramu nickel-cobalt mine and the Ok Tedi gold mine after the easing of pandemic-related restrictions during the year (PNG Chamber of Mines and Petroleum, 2019, p. 2; Bank of Papua New Guinea, 2022, p. 14; World Bank, The, 2023).

The legislative framework for the mineral sector in Papua New Guinea is provided by the Mining (Safety) Act 1977; the Mining Act 1992; the Mineral Resources Authority Act 2005, which was amended in 2018; and the Kumul Petroleum Holdings Limited Authorisation Act 2015. The Mineral Resources Authority (MRA) is the Government entity that administers and enforces the Mining Act, the Mining Safety Act, the Mining Development Act, the Ok Tedi Acts, and the Bougainville Copper Agreement Act. The MRA is also responsible for conducting research for mineral resources, negotiating mining development contracts with domestic and foreign companies that hold exploration and mining tenements,

and promoting and developing the small-scale alluvial artisanal mining sector in Papua New Guinea (Mineral Resources Authority, 2022; 2023a, b).

Approximately 97% of land area of Papua New Guinea is under customary tenure. The Government leases the land from customary groups and transfers the rights to private companies for mining or logging concessions. The country's mineral industry is composed mostly of private companies. In December 2021, Santos Ltd. of Australia acquired Oil Search Ltd., which operated or owned the Agogo, the Hides, the Kutubu, the Gobe Main, the Southeast Gobe, and the Moran oilfields and the PNG LNG project. After the acquisition, Santos, which had various shares of ownership, depending on the oilfield, became a company that was engaged in production at all the operating oilfields in the country. Table 2 is a list of major mineral industry facilities (table 2; Kumul Petroleum Holdings Ltd., 2015; Santos Ltd., 2021; 2022, p. 34; U.S. Agency for International Development, 2024).

Copper production decreased by 20% in 2021 following a 17% decrease in 2020, gold production decreased by 15% in 2021 following a 28% decrease in 2020, and silver production decreased by 21% in 2021 following an 18% decrease in 2020. These decreases were likely attributable to pandemic-induced operation restrictions and decreased employment. Copper production at the Ok Tedi Mine decreased by 21% in 2021 owing to a 26% decrease in the copper grade of the ore processed, despite an 8% increase (to 17.6 million metric tons) of the milled ore volume compared with that in 2020. Increased production at the Ramu nickel mine was owing mainly to the measures implemented at the mine to prevent the spread of COVID-19; there were no reported cases of COVID-19 at the facility until April 2021. In 2021, Papua New Guinea's production of cement increased by 15%, whereas production of liquefied natural gas and chromite decreased by 11% and 10%, respectively. Data on mineral production are in table 1 (Nickel 28 Capital Corp., 2021, p. 2; Ok Tedi Mining Ltd., 2022, p. 18, 21).

More-extensive coverage of the mineral industry of Papua New Guinea can be found in previous editions of the U.S. Geological Survey Minerals Yearbook, volume III, Area Reports—International—Asia and the Pacific, which are available at <https://www.usgs.gov/centers/national-minerals-information-center/asia-and-pacific>.

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¹Where necessary, values have been converted from Papua New Guinea kina (PGK) to U.S. dollars (US\$) at the annual average exchange rate of PGK3.5088=US\$1.00 for 2021 and PGK3.4600=US\$1.00 for 2020.

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TABLE 1
PAPUA NEW GUINEA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2017	2018	2019	2020	2021
METALS					
Chromium, mine, chromite	78,000	92,139	115,573 ^r	117,000 ^e	105,000 ^e
Cobalt, mine, nickel cobalt hydroxide, Co content	3,308	3,275	2,911	2,941	2,953
Copper, mine, concentrates, Cu content	105,000	97,300	99,400	82,800	66,500
Gold, mine, Au content kilograms	65,246 ^r	64,532 ^r	73,900	53,000	45,000
Nickel:					
Mine, ore:					
Gross weight	3,601,000	3,710,000 ^r	3,556,000 ^r	3,572,000	3,375,000
Ni content	34,666	35,355	32,720	33,659	31,594
Nickel cobalt hydroxide	89,947	92,258 ^r	83,024 ^r	84,602	81,577
Silver, mine, Ag content kilograms	86,700	114,900	146,000 ^r	119,000	94,000
INDUSTRIAL MINERALS					
Cement, hydraulic ^e thousand metric tons	200	200	140	130	150
MINERAL FUELS AND RELATED MATERIALS					
Liquefied natural gas ^e million metric tons	8	7 ^r	9	9	8
Natural gas, marketable ^e million cubic meters	11,200	10,100 ^r	11,500 ^r	11,800	11,400
Petroleum, crude ^e thousand 42-gallon barrels	18,300	13,100	12,800 ^r	14,200	13,500

^eEstimated. ^rRevised.

¹Table includes data available through December 12, 2022. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits.

²In addition to the commodities listed, construction materials (common clay, sand and gravel, and stone) and refinery products may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2
PAPUA NEW GUINEA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ^{1**}	Annual capacity ^c
Cement	thousand metric tons	PNG-Taiheiyo Cement Ltd., 100%	Plant in Lae, Morobe Province	200
Chromite:				
Mine		Ramu NiCo Management (MCC) Ltd. (Metallurgical Corporation of China Ltd., 100%), 56.97%; Jilin Jien Nickel Industry Co., 11.05%; Jiuquan Iron & Steel (Group), 11.05%; Nickel 28 Capital Corp., 8.56%; others, 12.37%	Ramu Mine, Madang Province	NA
Processing plant		Ramu NiCo Management (MCC) Ltd., 85%; Nickel 28 Capital Corp., 8.56%; Government and landowners, 6.44%	Basamuk beneficiation plant, Madang Province	NA
Cobalt:				
Mine, Co content		Ramu NiCo Management (MCC) Ltd. (Metallurgical Corporation of China Ltd., 100%), 56.97%; Jilin Jien Nickel Industry Co., 11.05%; Jiuquan Iron & Steel (Group), 11.05%; Nickel 28 Capital Corp., 8.56%; others, 12.37%	Ramu Mine, Madang Province	3,000
Processing plant		Ramu NiCo Management (MCC) Ltd., 85%; Nickel 28 Capital Corp., 8.56%; Government and landowners, 6.44%	Basamuk beneficiation plant, Madang Province	NA
Copper, mine, Cu content		K92 Mining Inc.	Kainantu Mine, Eastern Highlands Province	870
Do.		Ok Tedi Mining Ltd. (Government, 100%)	Ok Tedi open pit, Western Province, 20 km northwest of Tabubil and 390 km southwest of Wewak	65,000
Gold, mine, Au content	kilograms	Asidokona Mining Resources Pte. Ltd., 100%	Tolukuma Hill open pit, Central Province, 100 km north of Port Moresby	2,000
Do.	do.	Harmony Gold Mining Co. Ltd., 100%	Hidden Valley open pit, Morobe Province, 90 km southwest of Lae	8,000
Do.	do.	K92 Mining Inc.	Kainantu Mine, Eastern Highlands Province	3,000
Do.	do.	Newcrest Mining Ltd., 100%	Lihir open pit, Niolam Island, New Ireland Province, 900 km northeast of Port Moresby	26,000
Do.	do.	New Guinea Gold Corp., 90%, and Niugini Holdings Pty Ltd., 10%	Sinivit open pit, East New Britain Province, about 50 km south southwest of Rabaul	1,000
Do.	do.	Ok Tedi Mining Ltd. (Government, 100%)	Ok Tedi open pit, Western Province, 20 km northwest of Tabubil and 390 km southwest of Wewak	6,600
Do.	do.	Porgera Joint Venture (Barrick Gold Corp., 47.5%; Zijin Mining Group Co. Ltd., 47.5%; Government, 2.5%; others, 2.5%)	Porgera open pit, underground mine, and beneficiation plant, Enga Province, 6 km west of Porgera	22,000
Do.	do.	St Barbara Ltd., 100%	Simberi Island open pit, New Ireland Province	3,000
Liquefied natural gas	thousand metric tons	PNG LNG project [Santos Ltd., 42.5%; Exxon Mobil Corp., 33.2%; Kumul Petroleum Holdings Ltd. (Government), 16.8%; JX Nippon Oil & Gas Exploration Corp., 4.7%; Mineral Resources Development Co. Ltd. (Government), 2.8%]	Liquefied natural gas plant, Central Province, 20 km northwest of Moresby	8,300
Natural gas	million cubic meters	JX Nippon Oil & Gas Exploration Corp., 31.12%; Santos Ltd. (operator), 29.8%; Kumul Petroleum Holdings Ltd. (Government), 21.4%; Marubeni Corp., 7.98%; Exxon Mobil Corp., 7.7%; Mineral Resources Development Co. Ltd. (Government), 2%	South East Gobe Field (Blocks PDL 3, PDL 4), Southern Highlands Province	340

See footnotes at the end of table.

TABLE 2—Continued
PAPUA NEW GUINEA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities ^{1**}	Annual capacity ^c
Natural gas—Continued	million cubic meters	Santos Ltd., 100%	Hides GTE plant and associated wells, Hela Province	150
Do.	do.	Santos Ltd. (operator), 60.05%; JX Nippon Oil & Gas Exploration Corp., 14.89%; Exxon Mobil Corp., 14.50%; Mineral Resources Development Co. Ltd. (Government), 6.75%; Marubeni Corp., 3.81%	Agogo Field (Block PDL 2), Southern Highlands Province	670
Do.	do.	PNG LNG project [Santos Ltd., 42.5%; Exxon Mobil Corp., 33.2%; Kumul Petroleum Holdings Ltd. (Government), 16.8%; JX Nippon Oil & Gas Exploration Corp., 4.7%; Mineral Resources Development Co. Ltd. (Government), 2.8%]	Hides conditioning plant and eight associated wells, Laite, Hela Province	10,300
Nickel:				
Mine, Ni content		Ramu NiCo Management (MCC) Ltd. (Metallurgical Corporation of China Ltd., 100%), 56.97%; Jilin Jien Nickel Industry Co., 11.05%; Jiuquan Iron & Steel (Group), 11.05%; Nickel 28 Capital Corp., 8.56%; others, 12.37%	Ramu Mine, Madang Province	32,000
Processing plant		Ramu NiCo Management (MCC) Ltd., 85%; Nickel 28 Capital Corp., 8.56%; Government and landowners, 6.44%	Basamuk beneficiation plant, Madang Province	NA
Petroleum				
Crude, including condensate	thousand 42-gallon barrels	JX Nippon Oil & Gas Exploration Corp., 58.49%; Marubeni Corp., 14.99%; Exxon Mobil Corp., 14.52%; Santos Ltd. (operator), 10%; Mineral Resources Development Co. Ltd. (Government), 2%	Gobe Main Field (Block PDL 4), Southern Highlands Province	270
Do.	do.	JX Nippon Oil & Gas Exploration Corp., 31.12%; Santos Ltd. (operator), 29.8%; Kumul Petroleum Holdings Ltd. (Government), 21.4%; Marubeni Corp., 7.98%; Exxon Mobil Corp., 7.7%; Mineral Resources Development Co. Ltd. (Government), 2%	South East Gobe Field (Blocks PDL 3, PDL 4), Southern Highlands Province	140
Do.	do.	Santos Ltd. (operator), 60.05%; JX Nippon Oil & Gas Exploration Corp., 14.89%; Exxon Mobil Corp., 14.50%; Mineral Resources Development Co. Ltd. (Government), 6.75%; Marubeni Corp., 3.81%	Agogo Field (Block PDL 2), Southern Highlands Province	730
Do.	do.	do.	Kutubu oilfield (Block PDL 2), Southern Highlands Province	1,460
Do.	do.	Santos Ltd. (operator), 49.5%; Exxon Mobil Corp., 26.8%; Kumul Petroleum Holdings Ltd. (Government), 11.3%; JX Nippon Oil & Gas Exploration Corp., 6.61%; Mineral Resources Development Co. Ltd. (Government), 4.1%; Marubeni Corp., 1.69%	Moran Field (Blocks PDL 2, PDL 5, PDL 6), Southern Highlands Province	260
Do.	do.	PNG LNG project [Santos Ltd., 42.5%; Exxon Mobil Corp., 33.2%; Kumul Petroleum Holdings Ltd. (Government), 16.8%; JX Nippon Oil & Gas Exploration Corp., 4.7%; Mineral Resources Development Co. Ltd. (Government), 2.8%]	Hides conditioning plant and eight associated wells, Hela Province	11,000
Refinery		Puma Energy PNG Ltd. (Puma Energy International S.A., 100%)	Napa Napa oil refinery, Roku, Central Province	124

See footnotes at the end of table.

TABLE 2—Continued
 PAPUA NEW GUINEA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities ^{1**}	Annual capacity ^e
Silver, mine, Ag content	Harmony Gold Mining Co. Ltd., 100%	Hidden Valley open pit, Morobe Province, 90 km southwest of Lae	124
Do.	K92 Mining Inc.	Kainantu Mine, Eastern Highlands Province	2
Do.	Ok Tedi Mining Ltd. (Government, 100%)	Ok Tedi open pit, Western Province, 20 km northwest of Tabubil and 390 km southwest of Wewak	30
Do.	Porgera Joint Venture (Barrick Gold Corp., 47.5%; Zijin Mining Group Co. Ltd., 47.5%; Government, 2.5%; others, 2.5%)	Porgera open pit, underground mine, and beneficiation plant, Enga Province, 6 km west of Porgera	4

^eEstimated. Do., do. Ditto. NA Not available.

¹Abbreviations used for units of measure in this table are as follows: km—kilometers.

^{**}First-order administrative division names conform to spellings in the U.S. Central Intelligence Agency's "The World Factbook" (<https://www.cia.gov/the-world-factbook/field/administrative-divisions/>) and may include the use of anglicized forms of the names.