

Papua New Guinea – Mineral resources and ore reserves

Geology: Papua New Guinea (PNG) lies at the northern end of the Australian Plate and has three major components: a continental cratonic platform, an arc of volcanic islands and a central collisional fold belt, consisting of Mesozoic sediments, ophiolite sequences, tertiary sediments and diorite intrusions. During collision, the Wau Graben, the host of major gold and silver deposits, was formed in the fold belt. It coincided with a phase of volcanic activity, resulting in precious and base metals deposits being formed. These include epithermal gold deposits at Hidden Valley, Hamata, Kerimenge and Wafi and porphyry-style copper deposits such as Golpu. Numerous other gold and copper-gold prospects, which are at various stages of exploration and evaluation, occur on Harmony's lease areas.

Note: The mineral resources and ore reserves detailed in the following tables represent Harmony's 50% equity portion of the Morobe Mining Joint Ventures.

Gold – Mineral resources

| Gold Operations | Measured | | | | Indicated | | | | Inferred | | | | Total | | | |
|-------------------------|-------------|-------------|--------------|------------|--------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|--------------|-------------|--------------|--------------|
| | Tonnes (Mt) | | Gold (000kg) | | Tonnes (Mt) | | Gold (000kg) | | Tonnes (Mt) | | Gold (000kg) | | Tonnes (Mt) | | Gold (000kg) | |
| Hidden Valley & Kaveroi | 2.8 | 2.16 | 6 | 195 | 23.1 | 1.89 | 44 | 1 409 | 14.8 | 1.53 | 23 | 730 | 40.7 | 1.78 | 73 | 2 334 |
| Hamata | 0.2 | 2.20 | – | 12 | 3.9 | 2.34 | 9 | 291 | 0.6 | 2.58 | 2 | 50 | 4.7 | 2.37 | 11 | 353 |
| Wafi | – | – | – | – | 31.9 | 1.97 | 63 | 2 017 | 19.8 | 1.73 | 34 | 1 099 | 51.7 | 1.88 | 97 | 3 116 |
| Golpu | – | – | – | – | 43.8 | 0.63 | 28 | 887 | 37.7 | 0.49 | 18 | 595 | 81.5 | 0.57 | 46 | 1 482 |
| Nambonga | – | – | – | – | – | – | – | – | 19.9 | 0.79 | 16 | 505 | 19.9 | 0.79 | 16 | 505 |
| GRAND TOTAL | 3.0 | 2.16 | 6 | 207 | 102.7 | 1.40 | 144 | 4 604 | 92.8 | 1.00 | 93 | 2 979 | 198.5 | 1.22 | 243 | 7 790 |

Modifying factors

| Operations | MCF (%) | PRF (%) |
|-------------------------|---------|---------|
| Hidden Valley & Kaveroi | 95 | 93 |
| Hamata | 95 | 93 |
| Golpu | 100 | 56 |

MCF = Mine call factor

PRF = Plant recovery factor

Gold – Ore reserves

| Operations | Proven | | | | Probable | | | | Total | | | |
|-------------------------|-------------|-------------|--------------|------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|
| | Tonnes (Mt) | | Gold (000kg) | | Tonnes (Mt) | | Gold (000kg) | | Tonnes (Mt) | | Gold (000kg) | |
| Hidden Valley & Kaveroi | 1.4 | 2.34 | 3 | 105 | 17.6 | 1.99 | 35 | 1 126 | 19.0 | 2.02 | 38 | 1 231 |
| Hamata | 0.1 | 2.05 | 0 | 7 | 1.9 | 2.69 | 5 | 164 | 2.0 | 2.66 | 5 | 171 |
| Golpu | – | – | – | – | 35.4 | 0.61 | 22 | 694 | 35.4 | 0.61 | 22 | 694 |
| GRAND TOTAL | 1.5 | 2.32 | 3 | 112 | 54.9 | 1.12 | 62 | 1 984 | 56.4 | 1.16 | 65 | 2 096 |

Silver – Mineral resources

| Silver Operations | Measured | | | | Indicated | | | | Inferred | | | | Total | | | |
|-------------------------|-------------|--------------|----------------|--------------|-------------|--------------|----------------|---------------|-------------|--------------|----------------|---------------|-------------|--------------|----------------|---------------|
| | Tonnes (Mt) | | Silver (000kg) | | Tonnes (Mt) | | Silver (000kg) | | Tonnes (Mt) | | Silver (000kg) | | Tonnes (Mt) | | Silver (000kg) | |
| Hidden Valley & Kaveroi | 2.8 | 40.52 | 114 | 3 668 | 23.1 | 33.95 | 785 | 25 246 | 14.8 | 27.38 | 406 | 13 054 | 40.7 | 32.01 | 1 305 | 41 968 |
| GRAND TOTAL | 2.8 | 40.52 | 114 | 3 668 | 23.1 | 33.95 | 785 | 25 246 | 14.8 | 27.38 | 406 | 13 054 | 40.7 | 32.01 | 1 305 | 41 968 |

Modifying factors

| Operations | MCF (%) | PRF (%) |
|-------------------------|---------|---------|
| Hidden Valley & Kaveroi | 95 | 81 |

MCF = Mine call factor

PRF = Plant recovery factor

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Silver – Ore reserves

| Operations | Proven | | | | Probable | | | | Total | | | |
|-------------------------|-------------|--------------|----------------|----------------|-------------|--------------|----------------|----------------|-------------|--------------|----------------|----------------|
| | Tonnes (Mt) | g/t | Silver (000kg) | Silver (000oz) | Tonnes (Mt) | g/t | Silver (000kg) | Silver (000oz) | Tonnes (Mt) | g/t | Silver (000kg) | Silver (000oz) |
| Hidden Valley & Kaveroi | 1.4 | 39.00 | 55 | 1 755 | 17.6 | 36.70 | 646 | 20 767 | 19.0 | 36.87 | 701 | 22 522 |
| Grand Total | 1.4 | 39.00 | 55 | 1 755 | 17.6 | 36.70 | 646 | 20 767 | 19.0 | 36.87 | 701 | 22 522 |

Copper – Mineral resources

| Operations | Measured | | | | Indicated | | | | Inferred | | | | Total | | | |
|--------------------|-------------|----------|-----------|------------|-------------|-------------|------------|--------------|-------------|-------------|------------|------------|--------------|-------------|------------|--------------|
| | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) |
| Golpu | – | – | – | – | 43.8 | 1.39 | 609 | 1 343 | 37.7 | 0.72 | 272 | 599 | 81.5 | 1.08 | 881 | 1 942 |
| Nambonga | – | – | – | – | – | – | – | – | 19.9 | 0.21 | 42 | 92 | 19.9 | 0.21 | 42 | 92 |
| Grand Total | – | – | – | – | 43.8 | 1.39 | 609 | 1 343 | 57.6 | 0.54 | 314 | 691 | 101.4 | 0.91 | 923 | 2 034 |

Modifying factors

| Operations | MCF (%) | PRF (%) |
|------------|---------|---------|
| Golpu | 100 | 88 |

MCF = Mine call factor PRF = Plant recovery factor

Copper – Ore reserves

| Operations | Proven | | | | Probable | | | | Total | | | |
|--------------------|-------------|----------|-----------|------------|-------------|-------------|------------|------------|-------------|-------------|------------|------------|
| | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) | Tonnes (Mt) | % | Cu (M kg) | Cu (M lbs) |
| Golpu | – | – | – | – | 35.4 | 1.13 | 400 | 882 | 35.4 | 1.13 | 400 | 882 |
| Grand Total | – | – | – | – | 35.4 | 1.13 | 400 | 882 | 35.4 | 1.13 | 400 | 882 |

Molybdenum – Mineral resources

| Operations | Measured | | | | Indicated | | | | Inferred | | | | Total | | | |
|--------------------|-------------|----------|-----------|------------|-------------|---------------|-----------|------------|-------------|---------------|-----------|------------|-------------|---------------|-----------|------------|
| | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) |
| Golpu | – | – | – | – | 43.8 | 110.00 | 5 | 11 | 37.7 | 157.00 | 6 | 13 | 81.5 | 131.75 | 11 | 24 |
| Grand Total | – | – | – | – | 43.8 | 110.00 | 5 | 11 | 37.7 | 157.00 | 6 | 13 | 81.5 | 131.75 | 11 | 24 |

Modifying factors

| Operations | MCF (%) | PRF (%) |
|------------|---------|---------|
| Golpu | 100 | 36 |

MCF = Mine call factor PRF = Plant recovery factor

Molybdenum – Ore reserves

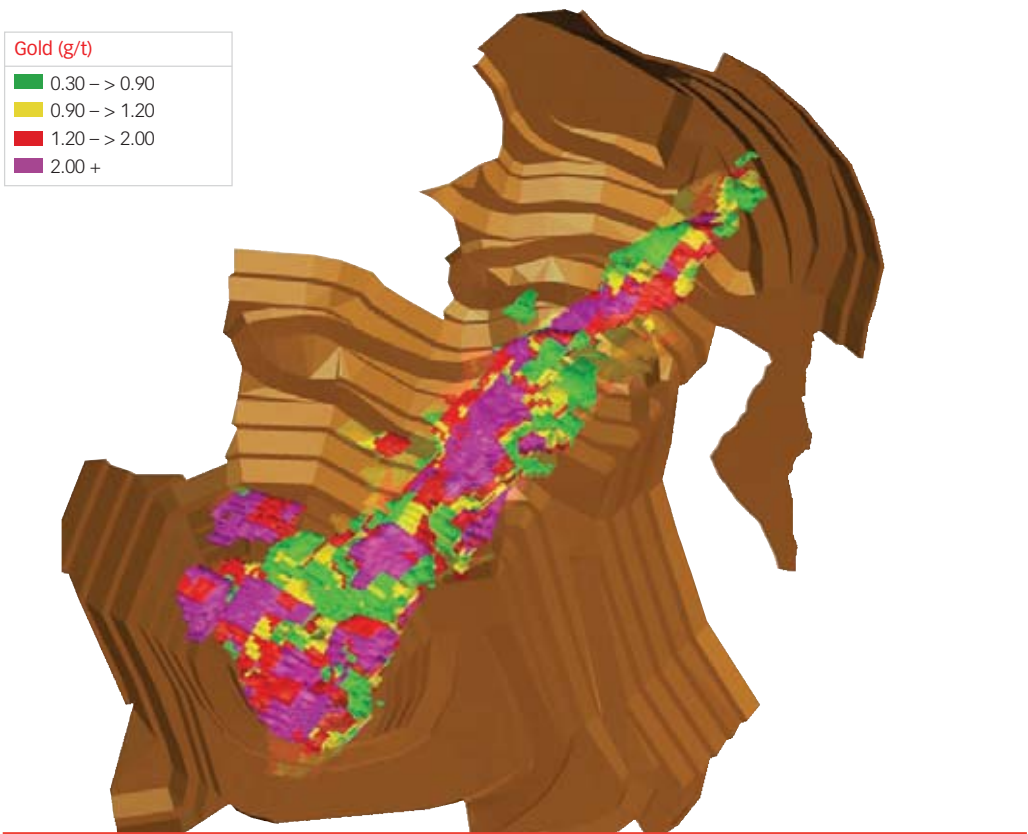
| Operations | Proven | | | | Probable | | | | Total | | | |
|--------------------|-------------|----------|-----------|------------|-------------|---------------|-----------|------------|-------------|---------------|-----------|------------|
| | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) | Tonnes (Mt) | ppm | Mo (M kg) | Mo (M lbs) |
| Golpu | – | – | – | – | 35.4 | 121.00 | 4 | 9 | 35.4 | 121.00 | 4 | 9 |
| Grand Total | – | – | – | – | 35.4 | 121.00 | 4 | 9 | 35.4 | 121.00 | 4 | 9 |

Mineral resources and ore reserves cont.

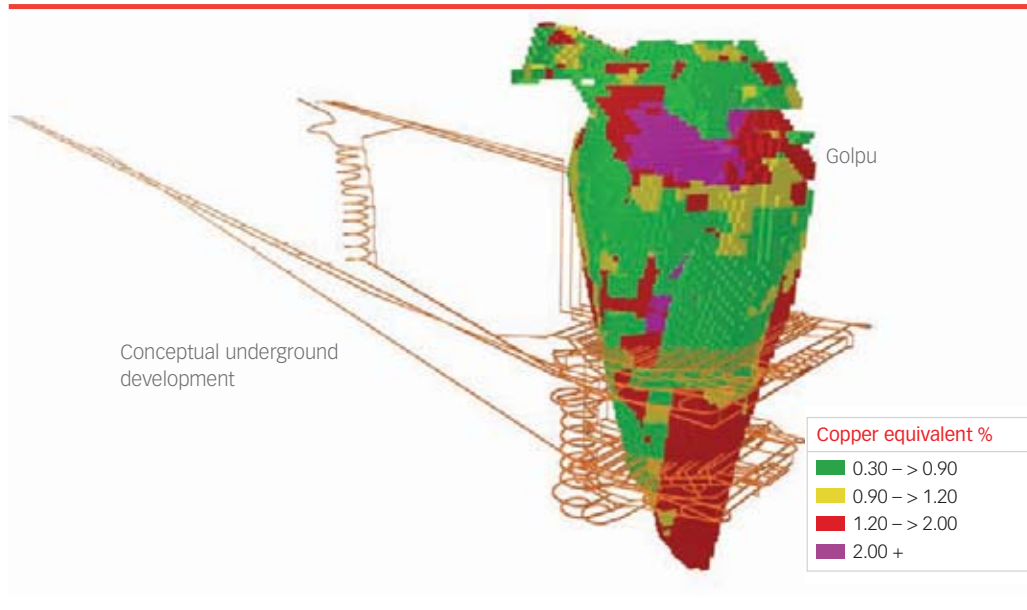
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Hamata open pit Hidden Valley



Wafi-Golpu project
Golpu block cave, Wafi Project



Mineral resources and ore reserves cont.

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Appendix

Reporting Code

Harmony uses the South African Code for the Reporting of Exploration Results, mineral resources and ore reserves (SAMREC Code), which sets out the internationally recognised procedures and standards for reporting of mineral resources and ore reserves in South Africa. This code was developed by the South African Institute of Mining and Metallurgy and is the recommended guideline for reserve and resource reporting for companies listed on the JSE Limited. Harmony's reporting of its Australian and PNG mineral resources and ore reserves also complies with the Australian Code for the Reporting of mineral resources and ore reserves (JORC code) of the Australian Institute of Mining and Metallurgy. This code is materially the same as the SAMREC code. In reporting reserves, distinct cognisance has also been taken of Industry Guide 7 of the United States Securities Exchange Commission. Harmony uses the term 'ore reserves,' which has the same meaning as 'mineral reserves', as defined in the SAMREC code.

Definitions as per the SAMREC code

Mineral resources

A mineral resource is a concentration (or occurrence) of material of economic interest in or on the earth's crust in such form, quality and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a mineral resource are known, estimated from specific geological evidence and knowledge, or are interpreted from a well constrained and portrayed geological model.

Mineral resources are sub-divided in order of increasing confidence in respect of geoscientific evidence into inferred, indicated and measured categories. An **inferred mineral resource** is that part of a mineral resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and sampling, and assumed but not verified geologically and/or through analysis of grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited or of uncertain quality and reliability.

An **indicated mineral resource** is that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and the testing of information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

A **measured mineral resource** is that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

Ore reserves

An ore reserve is the economically mineable material derived from a measured and/or indicated mineral resource. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a pre-feasibility study for a project, or a life of mine plan for an operation, must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors (the modifying factors). Such modifying factors must be disclosed.

A **probable ore reserve** is the economically mineable material derived from a measured and/or indicated mineral resource. It is estimated with a lower level of confidence than a proved ore reserve. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a pre-feasibility study for a project, or a life of mine plan for an operation, must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Such modifying factors must be disclosed.

A **proven ore reserve** is the economically mineable material derived from a measured mineral resource. It is estimated with a high level of confidence. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a pre-feasibility study for a project, or a life of mine plan for an operation, must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Such modifying factors must be disclosed.

Harmony reporting in compliance with SAMREC

In order to meet the requirements of the SAMREC code that the material reported as a mineral resource should have "reasonable and realistic prospects for eventual economic extraction", Harmony has determined an appropriate cut-off grade which has been applied to the quantified mineralised body according to a process incorporating a long-term view on future economic modifying factors. In applying this process, Harmony uses a gold price of R350 000/kg at a derived cut-off grade to determine the mineral resources at each of its South African underground operations. Mineral resources have been estimated on the basis of geoscientific knowledge with input from the company's ore reserve managers, geologists and geostatistical staff. Each mine's mineral resources are categorised blocked-out and ascribed an estimated value. At most mines computerised geostatistical estimation processes are used.