PAPUA NEW GUINEA **WAFI-GOLPU PROJECT**

INCLUDING THE GOLPU, WAFI AND NAMBONGA DEPOSITS

GOLPU, WAFI AND NAMBONGA

Wau drilling valley.

Mineral Resources (inclusive)

32.6Moz

Mineral Reserves

16.3Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Property description and location

The Golpu, Wafi and Nambonga deposits are located in eastern Papua New Guinea (PNG), approximately 60km southwest of Lae in Morobe Province. Access to the Wafi-Golpu Project site from Lae is via a combination of tarred and untarred roads with a travel time of four hours.

History

The Wafi area mineralisation was first identified in 1979 by CRA Exploration with the discovery of the underlying Golpu Porphyry by Elders Resources Limited in 1990. Since then, several companies have completed exploration and resource-definition drilling programmes with associated mine development studies.

PAPUA NEW GUINEA **WAFI-GOLPU PROJECT** continued

INCLUDING THE GOLPU, WAFI AND NAMBONGA DEPOSITS

Nature of operations

The Wafi-Golpu Project has completed a feasibility study and is in the permitting phase, with mining tenement and environment permit applications submitted to the respective regulatory authorities commencing in 2016.

The Conservation and Environment Protection Agency has concluded its assessment of the environment permit application, and an environment permit was granted to the project in December 2020.

The assessment by the Minerals Resources Authority of the Wafi-Golpu project's proposal for development that underpins its application for Special Mining Lease 10 and associated tenements is ongoing, and negotiations with the State Negotiating Team will commence upon finalisation of that assessment. No mining has occurred in the project area.

Geology

The projects fall within the New Guinea Mobile Belt of Papua New Guinea which is one of the world's pre-eminent geological terrains for porphyry copper-gold and epithermal gold mineralisation.

Wafi-Golpu includes the Golpu copper-gold porphyry deposit (ranked as a world-class deposit in terms of its size and grade), the Nambonga copper-gold porphyry deposit, and the Wafi high sulphidation epithermal gold deposit. Knowledge of the Wafi-Golpu system is limited by the extent of drilling and surface mapping and the deposit remains open for future expansion.

Mineral rights/legal aspects and tenure

The Wafi-Golpu project is a 50:50 unincorporated joint venture between wholly owned PNG-registered subsidiaries of Harmony Gold Mining Company Limited (namely, Wafi Mining Limited) and Newcrest Mining Limited (namely, Newcrest PNG2 Limited).

The Golpu, Wafi and Nambonga deposits are located on exploration licence EL440, which is jointly owned in equal shares by Wafi Mining Limited and Newcrest PNG2 Limited.

GOLPU

Geology

The Golpu deposit is the largest of the deposits and found in a block of deformed Upper Mesozoic to Middle Miocene metasedimentary rocks cut by Miocene-Pliocene calc-alkaline dioritic intrusives. Copper and gold mineralisation results from a porphyry system with the upper portion overprinted by high sulphidation epithermal alteration. The deposit is also 60km north-northwest of the porphyry-related gold-silver-base metal Hidden Valley-Kaveroi mines and other related deposits in the Bulolo Graben (eg Edie Creek, Kerimenge, Upper Ridges).

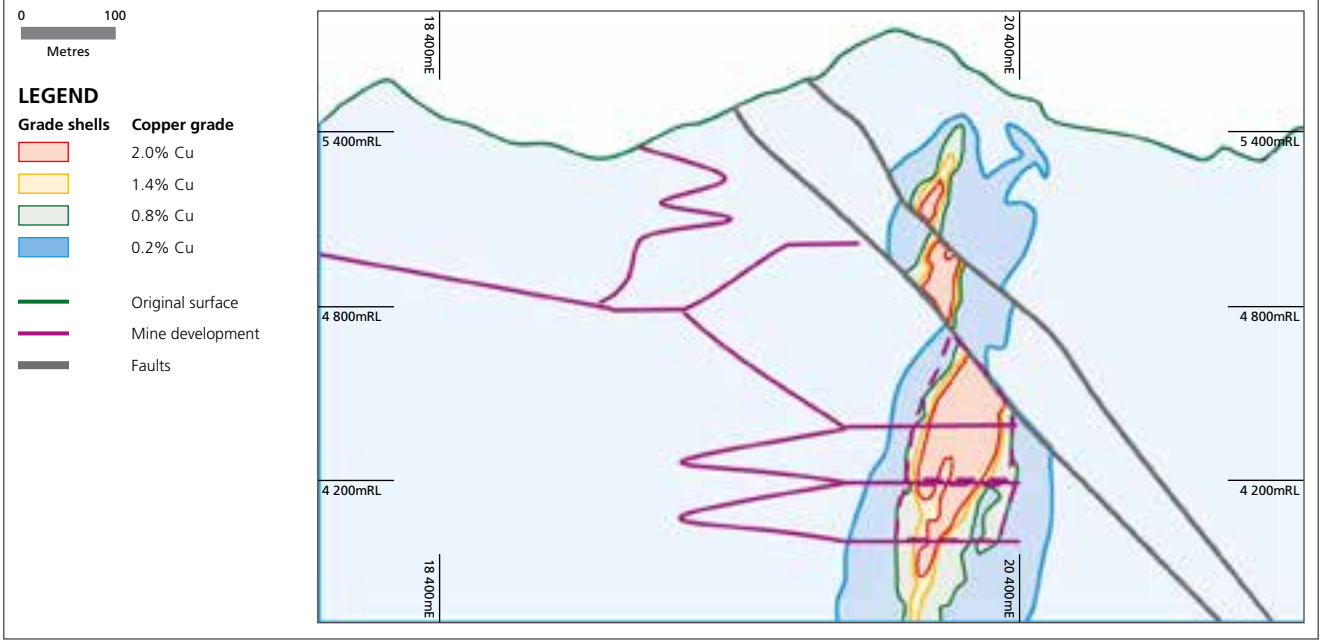
The Golpu Mineral Resource is approximately 800m by 400m elliptical in plan and extends from 200m below surface to a depth of more than 2 000m. The deposit remains open at depth.

The system consists of multiple, hornblende-bearing diorite porphyries intruded into host sediments. Intrusives range from small dykes to small stocks and apopheses. Hydrothermal alteration related to the porphyry copper-gold mineralisation forms a predictable zonal arrangement grading from potassic core to propylitic margins. A high sulphidation epithermal system is "telescoped" over the upper portion of the porphyry system forming a central alunite-quartz (advanced argillic) core grading out to dickite-kaolinite (argillic) with an outer margin of sericite alteration. This results in either epithermal-dominant, interaction (mixed) or porphyry-only zones.

Drilling update

Drill evaluation of the Golpu deposit was completed in 2014 with only limited and select drilling progressed in 2015 through to 2020 associated with decline access, site geotechnical investigations and near-term geotechnical interpretation. The underlying geology and the grade model remain essentially unchanged from that used in the December 2014 Mineral Resource. The Golpu resource is constrained within a marginal breakeven shell using Wafi-Golpu joint venture 2015 gold and copper revenues and the estimated long-term cost structure developed in the 2016 Golpu stage 2 prefeasibility study.

Golpu – section 721 060mN



Golpu feasibility study update

The Golpu Mineral Reserve was updated following the release of the feasibility study update in March 2018. The feasibility study update informed the finalisation of the environment impact statement submitted to the Conservation and Environment Protection Agency in July 2018. The feasibility study update also informed the proposal for development in support a Special Mining Lease application submitted to the Mineral Resource Authority in March 2018.

Mining methods and mine planning

In March 2018 the feasibility study update proposed the following mining approach:

- Secondary/initial underground access via the Nambonga decline to provide earlier and quicker access to underground drill platforms, a second means of egress and ventilation
- Primary underground access is via the Watut portal and the twin Watut declines to the underground block cave mine. The Watut declines also form part of the primary ventilation circuit and materials handling system conveying ore to the Watut process plant
- A "cave engineering level" established above the Reid Fault at 4 870mRL for data gathering, further refinement of the rock mass, monitoring of the cave and potentially for dewatering
- Ore extracted via three block caves producing at a rate of 17Mtpa (design capacity).

Mineral processing

The proposed processing method has been based on known technology utilising testwork results gathered in the feasibility study update and previous studies. A copper and gold concentrate will be produced from a conventional crush, grind, float processing plant. Concentrate will be shipped from the port of Lae as a final product. Gold will also be produced as doré for delivery to a precious metal refinery.

Infrastructure

No major infrastructure is currently located at Golpu, besides the exploration camp and access roads. The feasibility study update completed in March of 2018 discusses:

- Access road
- Ventilation and refrigeration plant
- Processing plant (copper concentrator)
- Deep sea tailings placement system including tailings pipeline from site to the discharge point near Lae
- Concentrate export pipeline plus associated dewatering and loading facilities at the existing port of Lae
- Accommodation camp
- On-site power station.

The Golpu Mineral Resource is estimated by ordinary kriging within alteration and lithological domains for gold, copper, silver, molybdenum and sulphur elements. The Mineral Resource is reported within a breakeven value shell that applies the 2016 stage 2 prefeasibility study block-cave mining, treatment and general and administration costs with metallurgical recovery models and associated non-site realisation (TCRC) costs of the copper concentrate product. Revenue of gold and copper are the only economic elements included in the value estimate. The Mineral Resource reports contained metal content of silver and molybdenum but revenues are not included in the estimation of the reporting cut-off. The prefeasibility study assumes no silver and molybdenum payable recovery, however, both elements have been included in the Mineral Resource as there are reasonable prospects of eventual economic extraction with limited changes to the metallurgical flow-sheet and operational procedures.

WAFI

The Wafi deposit is centred on high sulphidation epithermal mineralisation within a larger epithermal and porphyry-related complex in granted exploration licence EL440, approximately 60km southwest of Lae, Papua New Guinea. The Wafi deposit outcrops less than 1km to the south of the top of the Golpu porphyry deposit.

The Wafi Mineral Resource is the 2019 estimate using an ordinary kriging method. Non-refractory gold (NRG) material is reported at a 0.4g/t cut-off where NRG is defined as greater than 70% cyanide soluble gold as gold-cyanide assays within the database. Refractory material below the NRG surface and within the spatial constraining pit shell is reported at a cut-off of 0.9g/t gold.

The Wafi mineralisation has been defined over a surface area of 1 100m x 800m and up to 600m below surface, with the majority of the material potentially exploitable by open-pit mining methods. No Mineral Reserve is declared and no mining has been undertaken in the project area to date.

NAMBONGA

The Nambonga deposit is located 700m east of Golpu and is hosted in a diorite porphyry stock, termed the Nambonga Porphyry. Chalcopyrite is the dominant copper mineral in the porphyry, which is associated with silicification, either pervasive or as veins. Gold is thought to be intergrown with the chalcopyrite or pyrite.

The approximate extents of the system are 500m x 400m x 1 000m vertically.

The Nambonga Mineral Resource is an ordinary kriged estimate based on a domained geological model and is reported within a 0.5g/t grade shell to provide a broad consistent mineralised zone.

The Nambonga Mineral Resource contains estimates for gold, silver, copper, lead, zinc and sulphur. Estimation domains are based on a combination of lithology, alteration and mineralisation. The Nambonga deposit is an advanced exploration target. No Mineral Reserve is declared and no mining has been undertaken in the project area to date.

Permitting

The process of permitting the Wafi-Golpu project commenced in 2016, with the lodgement with the Mineral Resources Authority of a Special Mining Lease and related tenements application, supported by a proposal for development and feasibility study.

A feasibility study update was submitted to the Mineral Resources Authority in March 2018, and an environmental impact study supporting the project's application for an environment permit was lodged with the Conservation and Environment Protection Agency (CEPA) in July 2018.

In December 2018, the Wafi-Golpu joint venture entered into a memorandum of understanding (MOU) with the State of PNG, establishing a framework for the parties to progress the permitting of the Wafi-Golpu project. In May 2019, the permitting process was injuncted pursuant to a stay order given in an action for judicial review of the MOU brought by the Governor of the Morobe Province, which injunction remained in place until May 2019 when the State withdrew from the MOU and the judicial review was dismissed on that basis.

In December 2020, the Conservation and Environment Protection Agency concluded its assessment of the Wafi-Golpu project's environment permit application and granted an environment permit

PAPUA NEW GUINEA **WAFI-GOLPU PROJECT** continued

INCLUDING THE GOLPU, WAFI AND NAMBONGA DEPOSITS

approving deep sea tailings placement as the project's tailings management method. In March 2021, the Governor of Morobe Province and the Morobe Provincial Government commenced legal proceedings seeking judicial review of the grant of the environment permit, and for interim orders to stay the environment permit and restrain the State of PNG from granting a special mining lease for the Wafi-Golpu project. The legal proceedings are continuing.

As a consequence of the above mentioned litigation and the requirement of the State Negotiating Committee that the National Executive Committee must first endorse its proposed negotiating position, there has been no engagement with the State Negotiating Team since July 2020.

Further, there is ongoing uncertainty with regard to the timing and content of a potential revision of the Mining Act 1992 (PNG) and/or the tabling of an "Organic Law on Papua New Guinea's Ownership and Development of Hydrocarbons and Minerals and the Commercialisation of State Businesses". Either of these legislative changes (if adopted) may potentially significantly adversely impact the economics of the Wafi-Golpu project.

The targeted grant of a Special Mining Lease for the Wafi-Golpu project by June 2021 has not been achieved, and the project permitting roadmap and timeline is presently uncertain.

Environmental impact

The Golpu, Wafi and Nambonga projects are in various stages of exploration, feasibility study and permitting, and as such have only minor environmental impacts. Environmental aspects are regulated by the Conservation and Environment Protection Agency (CEPA) and the Wafi-Golpu joint venture participants report regularly to this agency.

MATERIAL RISKS

Material risks that may impact the Wafi, Golpu and Nambonga Mineral Resource and Mineral Reserves statements:

Significant risks

- Permitting delays which could impact the project's capital, operational cost and economic assumptions
- Changes to legislation, in particular the Mining Act, and the introduction of the Organic Law on Minerals
- Geotechnical conditions impact production and/or total amount of ore recoverable
- Objection to the proposed tailings management solution (deep sea tailing placement).

Remedial action

- Negotiating team in place
- Secure agreement with the State for the project to be permitted and grandfathered under the current mining and fiscal regime
- Demonstrate to various stakeholders the economic benefits of project per current proposal for development. Detailed geotechnical studies and monitoring systems to be implemented including further drilling from underground drill platforms
- Ongoing data collection on deep sea tailings placement and related modelling, demonstrating quality of scientific work and confidence in modelled outcomes, and communication and engagement with relevant stakeholders.

COMPETENT PERSON

GOLPU – MINERAL RESOURCE

Senior Resource Geologist Exploration Targeting, Newcrest Mining Limited

David Finn
AusIMM
More than 15 years' experience.

GOLPU – MINERAL RESERVE

Group Manager Mining Projects, Newcrest Mining Limited

Pasqualino Manca
AusIMM
More than 30 years' experience.

WAFI AND NAMBONGA – MINERAL RESOURCE

Executive general manager: Growth and resource development, Harmony South-east Asia

Greg Job
AusIMM
More than 30 years' experience.

WAFI (Harmony 50% portion)

Gold – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Wafi	–	–	–	–	54.0	1.66	89	2 800	20.0	1.37	26	800	74.0	1.58	114	3 600

GOLPU (Harmony 50% portion)

Gold – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	–	–	–	–	340	0.71	245	8 000	70.0	0.63	44	1 400	410.0	0.70	289	9 300

Modifying factors

Golpu	MCF (%)	Dilution (%)	PRF (%)	Cut-off (% Cu)
2020	100	–	61	0.30
2021	100	–	61	0.30

Gold – Mineral Reserve estimates at 30 June 2021

	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	–	–	–	–	200.0	0.86	171	5 500	200.0	0.86	171	5 500

Silver – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Ag		Tonnes		Ag		Tonnes		Ag		Tonnes		Ag	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	–	–	–	–	340.0	1.30	449	14 000	70.0	1.10	77	2 300	410.0	1.30	526	17 000

Copper – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Golpu	–	–	–	–	340	1.10	3 750	8 250	70.0	0.85	600	1 250	410.0	1.00	4 300	9 500

Copper – Mineral Resources as gold equivalents estimates at 30 June 2021 (inclusive)

	Measured	Indicated	Inferred	Total
	(000oz)	(000oz)	(000oz)	(000oz)
Golpu	–	16 482	2 548	19 030

Modifying factors

Golpu	MCF (%)	Dilution (%)	PRF (%)	Cut-off (% Cu)
2020	100	–	92	0.30
2021	100	–	92	0.30

PAPUA NEW GUINEA **WAFI-GOLPU PROJECT** continued

INCLUDING THE GOLPU, WAFI AND NAMBONGA DEPOSITS

Copper – Mineral Reserve estimates at 30 June 2021

	Proved				Probable				Total			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Golpu	–	–	–	–	200.0	1.20	2 450	5 400	200.0	1.20	2 450	5 400

Copper – Mineral Reserves as gold equivalents estimates at 30 June 2021

	Proved	Probable	Total
	Au (000oz)	Au (000oz)	Au (000oz)
Golpu	–	10 814	10 814

Molybdenum – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Mo		Tonnes		Mo		Tonnes		Mo		Tonnes		Mo	
	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)
Golpu	–	–	–	–	340.0	94	32	70	70.0	72	5	11	410.0	90	37	81

NAMBONGA (Harmony 50% portion)

Gold – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Nambonga	–	–	–	–	–	–	–	–	24.0	0.69	16	500	24.0	0.69	16	500

Copper – Mineral Resource estimates at 30 June 2021 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Copper		Tonnes		Copper		Tonnes		Copper		Tonnes		Copper	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Nambonga	–	–	–	–	–	–	–	–	24.0	0.20	47	104	24.0	0.20	47	104

Copper – Mineral Resources as gold equivalents estimates at 30 June 2021 (inclusive)

	Measured	Indicated	Inferred	Total
	(000oz)	(000oz)	(000oz)	(000oz)
Nambonga	–	–	207	207

Rounding of figures may cause some slight computational discrepancies in totals.

PAPUA NEW GUINEA

KILI TEKE

Typical remote Heli rig set-up.

Mineral Resources

5.3Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Location

Kili Teke is located some 50km north-northwest of the Tari Township (which is the provincial capital of the Hela Province in the Highlands of Papua New Guinea) and approximately 40km west-northwest of Porgera.

History

Outcropping mineralised breccia and copper gold skarn mineralisation at Kili Teke was initially identified in historic reconnaissance work undertaken in the early 1990s. An exploration licence application over the area was granted in May 2014 and field work programmes by Harmony defined a broad (kilometre scale), copper-gold anomaly at Kili Teke, indicative of the zonal geochemical distribution and alteration footprint associated with a major mineralised porphyry copper-gold system.

Nature of operation

Kili Teke is at an advanced exploration stage. The operation is currently on care and maintenance, and has been marked for divestment.

Geology

The Kili Teke deposit comprises porphyry style copper-gold mineralisation hosted in a multiphase calc-alkaline dioritic to monzonitic intrusive complex. Host rocks comprise interbedded siliciclastics and limestone of the Papuan Fold Belt. Overall the geometry of the deposit reflects a relatively steeply plunging,

pipe-like body, with mineralisation decreasing away from the central high grade stockwork zones of copper-gold mineralisation. Intense marbleisation and copper-gold skarn mineralisation is developed around the peripheral contact with the host sequence, and variably developed skarn mineralisation also occurs along internal structural and contact zones within the complex.

Legal aspects and tenure

The Kili Teke deposit is located on exploration licence EL2310, which is 100%-owned by Harmony Gold (PNG) Exploration Limited. The tenement encompasses an area of 252km^2.

The Papua New Guinea Government issues and administers mining tenements under the Mining Act 1992, through the offices of the Mineral Resources Authority. Exploration licences are issued for a term not exceeding two years, and are renewable for further two-year terms subject to compliance with expenditure and other conditions. Each licence contains a condition conferring on the Papua New Guinea Government the right to make a single purchase up to 30% equitable interest in any mineral discovery under the licence at a price pro rata to the accumulated exploration expenditure.

The tenement is current and expires on 23 May 2022, prior to which time a further extension may be applied for.

Mining methods and mine planning

Kili Teke is at the concept study level of work. This work has confirmed technically viable solutions exist for mining, processing, infrastructure and logistics at Kili Teke, and no fatal flaws were identified.

Mining options consider open-pit and bulk underground mining options.

Mineral processing

First pass rougher kinetic test work for metallurgical recovery shows that copper recovers extremely well (90%) and gold recovers well (65%) through standard copper flotation process.

Mineral resource estimation

The resource at Kili Teke is the same as reported in 2020 and has been generated from over 22 000m of drilling, along with detailed surface mapping, sampling and airborne geophysical survey data. Estimation has been constrained by a 0.125% copper shell, which represents the approximate natural break to mineralisation from the surrounding host sequence and unmineralised intrusive phases.

Modelling is based on estimation by ordinary kriging of 4m composites utilising a three-pass search ellipse into a regular block model comprising 60m x 60m x 60m parent blocks and 20m x 20m x 20m sub-blocks. An Inferred Mineral Resource has been reported from the resulting resource model and is based on a 0.2% Cu cut-off along with sample support criteria. The Mineral Resource estimate is constrained approximately 650m below surface at the 780mRL, although mineralisation remains open at depth.

Environmental impact

Kili Teke is in exploration and feasibility study stage, and as such has only minor environmental impacts. All environmental issues are regulated by CEPA (Conservation and Environment Protection Agency) and Harmony Gold (PNG) Exploration reports regularly to this agency.

COMPETENT PERSON

Mineral Resources – Group resource geologist, Harmony South-east Asia

Ronald Reid
Australian Institute of Geoscientists (AIG)
More than 20 years' experience.

Chalcopyrite rich mineralisation in drill core KTDD025.

KILI TEKE

Gold – Mineral Resource estimates at 30 June 2021

	Measured				Indicated				Inferred				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Kili Teke	–	–	–	–	–	–	–	–	237.0	0.24	56	1 810	237.0	0.24	56	1 810

Copper – Mineral Resource estimates at 30 June 2021

	Measured				Indicated				Inferred				Total			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Kili Teke	–	–	–	–	–	–	–	–	237.0	0.34	802	1 767	237.0	0.34	802	1 767

Copper – Mineral Resource estimates at 30 June 2021

	Measured	Indicated	Inferred	Total
As gold equivalents	(000oz)	(000oz)	(000oz)	(000oz)
Kili Teke	–	–	3 538	3 538

Molybdenum – Mineral Resource estimates at 30 June 2021

	Measured				Indicated				Inferred				Total			
	Tonnes		Mo		Tonnes		Mo		Tonnes		Mo		Tonnes		Mo	
	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)
Kili Teke	–	–	–	–	–	–	–	–	237.0	168	40	88	237.0	168	40	88

Kili Teke – section 688 790mE