



# GOLPU

**Graham Briggs**

**15 December 2014**

[www.harmony.co.za](http://www.harmony.co.za)

# Private Securities Litigation Reform Act

## Safe Harbour Statement and competent persons statement



This presentation contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and 21E of the Securities Exchange Act of 1934, as amended, that are intended to be covered by the safe harbour created by such sections. These statements may be identified by words such as "expects", "looks forward to", "anticipates", "intends", "believes", "seeks", "estimates", "will", "project" or words of similar meaning. All statements other than those of historical facts included in this presentation are forward-looking statements, including, without limitation, (i) estimates of future earnings, and the sensitivity of earnings to the gold and other metals prices; (ii) estimates of future gold and other metals production and sales, (iii) estimates of future cash costs; (iv) estimates of future cash flows, and the sensitivity of cash flows to the gold and other metals prices; (v) statements regarding future debt repayments; (vi) estimates of future capital expenditures; and (vii) estimates of reserves, and statements regarding future exploration results and the replacement of reserves. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward-looking statements are subject to risks, uncertainties and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to, gold and other metals price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, project cost overruns, as well as political, economic and operational risks in the countries in which we operate and governmental regulation and judicial outcomes. For a more detailed discussion of such risks and other factors (such as availability of credit or other sources of financing), see the Company's latest Annual Report on Form 20-F for the year ended June 30, 2014 which is on file with the Securities and Exchange Commission, as well as the Company's other SEC filings. The Company does not undertake any obligation to release publicly any revisions to any "forward-looking statement" to reflect events or circumstances after the date of this presentation, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.

### **Competent Persons Statement**

The information in this presentation that relates to Exploration Results, Mineral Resources and Ore Reserves is based on information compiled by Gregory Job, BSc, MSc, who has 26 years' relevant experience and is a member of the Australian Institute of Mining and Metallurgy (AusIMM) and a full-time employee of Harmony. He is entitled to participate in Harmony's equity long term incentive plan, details of which are included in Harmony's 2014 Remuneration Report. Mr Job has sufficient experience which is relevant to the styles of mineralisation and types of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code"). Mr Job consents to the inclusion in this presentation of the matters based on this information in the form and context in which it appears. For details of Exploration Results, Mineral Resources and Ore Reserves refer to the Harmony website.

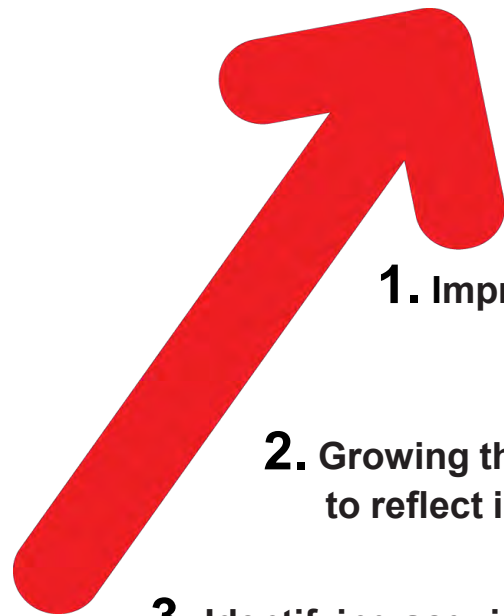
- 1 Creating value for shareholders
- 2 Background
- 3 Spectacular ore body
- 4 Mining Golpu – Stage 1
- 5 Economic value
- 6 Future flexibility – Stage 2
- 7 Conclusion





**CREATING VALUE FOR  
SHAREHOLDERS**

## A COMPETITIVE, **VALUE FOCUSED** GOLD MINING COMPANY



### 1. Improving our margins



- Safely delivering on plans
- Increase free cash flow through higher grades and cost control
- Retain flexible balance sheet

### 2. Growing the value of our PNG assets to reflect in our share price



- Complete Golpu studies
- Build a mine at Golpu

### 3. Identifying acquisition opportunities



- Open pit mines and bulk mining project opportunities will be assessed and evaluated

**EXPERIENCED TEAMS WITH STRONG VALUES; COMMITTED TO DELIVER**

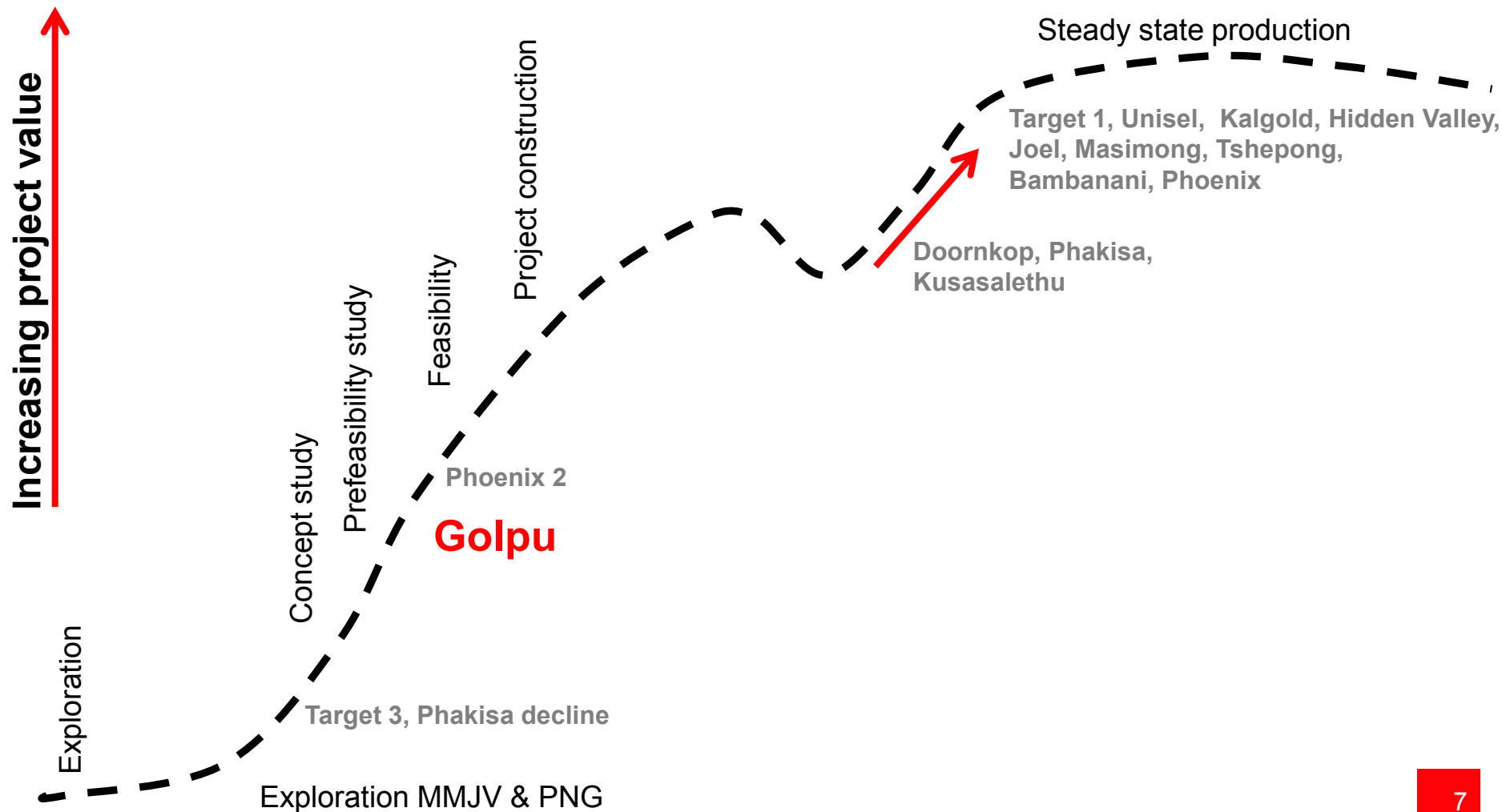


## Enhancement of definition of orebody

- 70 000 man hours were spent utilising WorleyParsons led by project team
- a total of 52 000 additional drill core samples
- 2 700 metres hydrogeology drilling (with pump and packer tests)
- 8 000 metres surface geotechnical drilling plus trenching for site infrastructure

High grades, low capital and robust returns

# Driving Golpu up the value curve



# Catalysts for an increase in our share price



- Restructuring to enhance margins
  - Doornkop Kimberley reef
  - Phakisa decline
  - Target 3
  - Kusasalethu
- Increased gold production
  - increase in grade
  - increase in productivity
- Golpu - 2014 updated PFS
  - low capital
  - high grade
  - high returns
  - affordable





**BACKGROUND**

# Papua New Guinea (PNG)

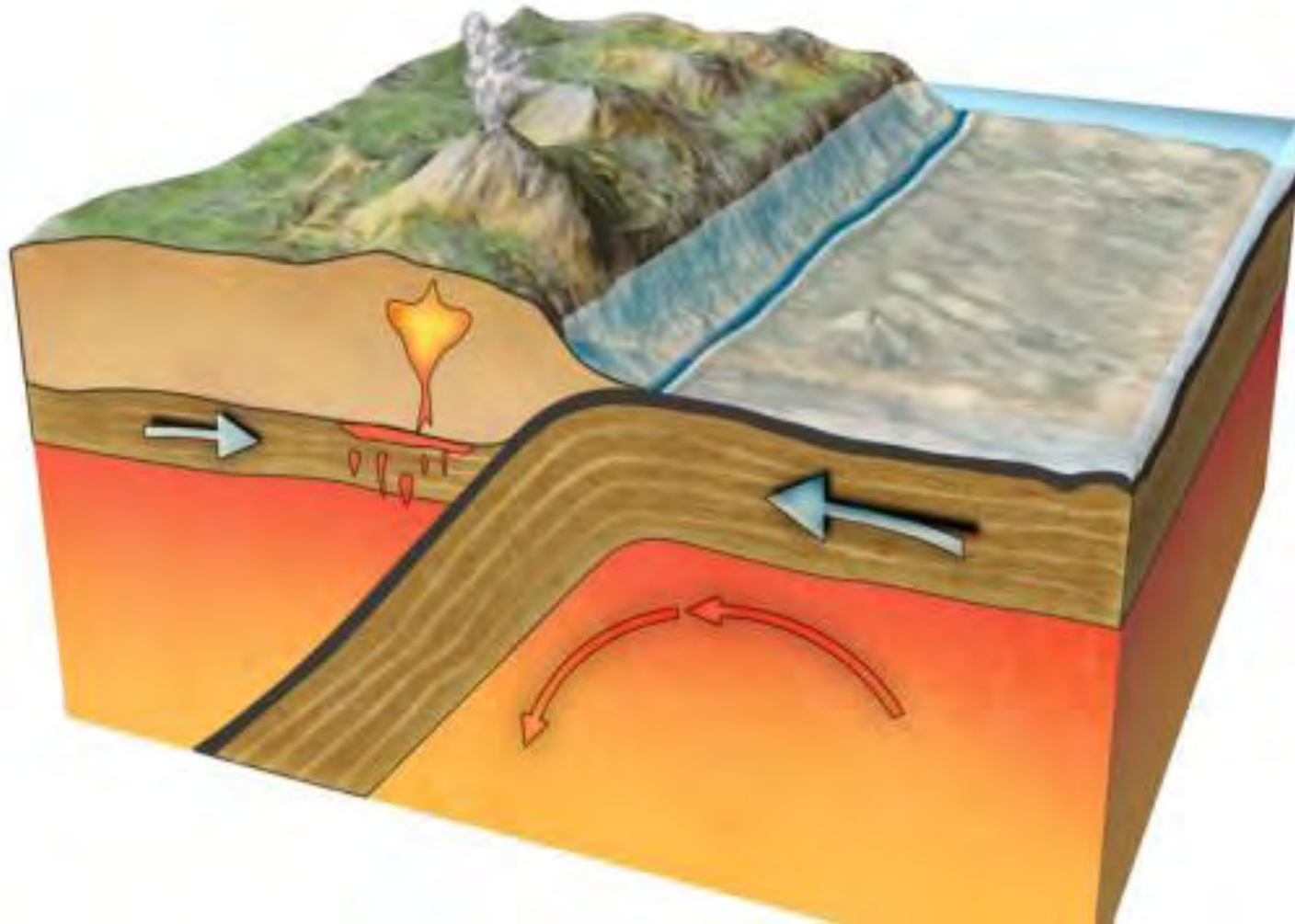




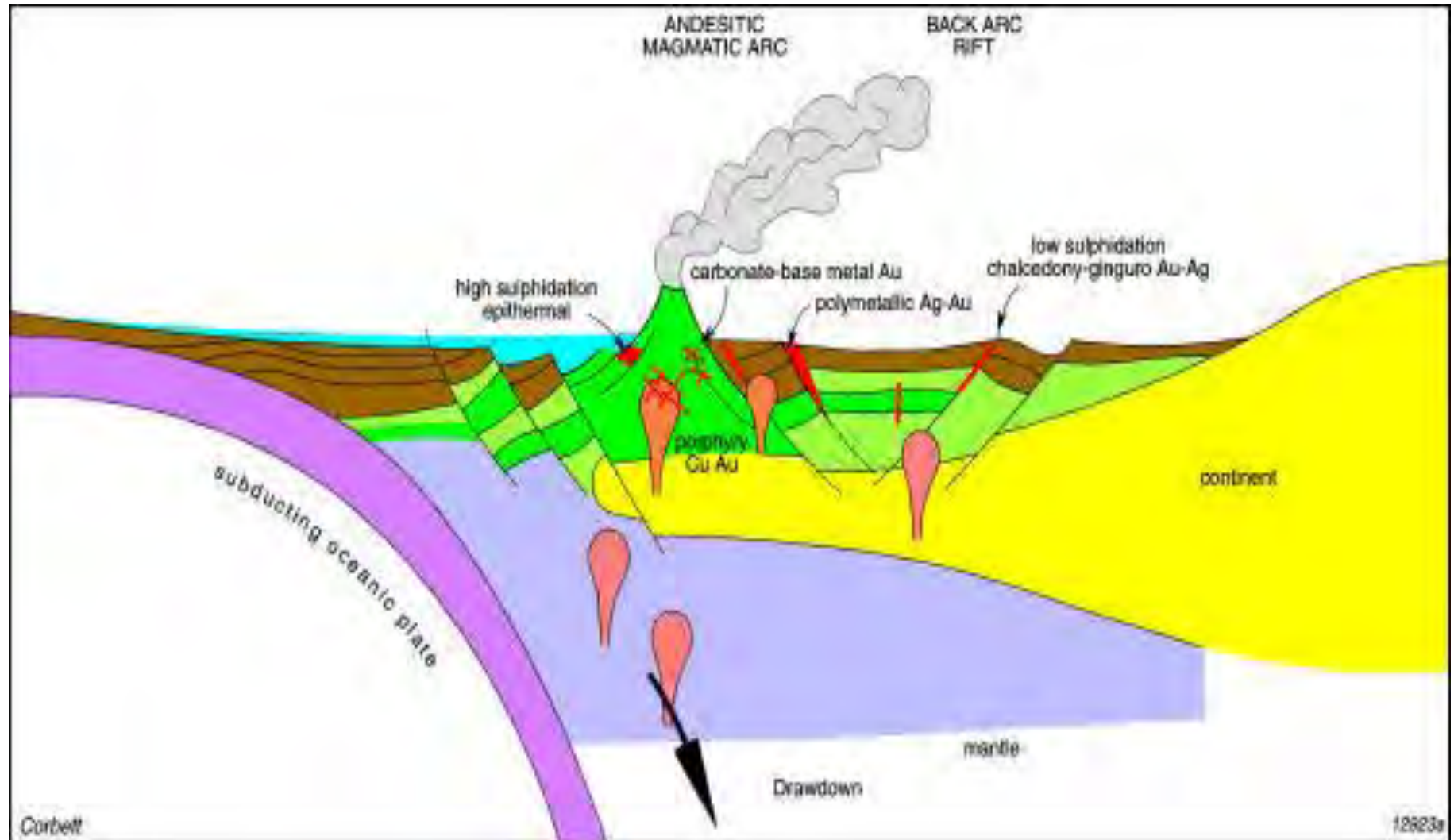
# PNG is on the Ring of Fire



# Ring of Fire consists of subduction zones

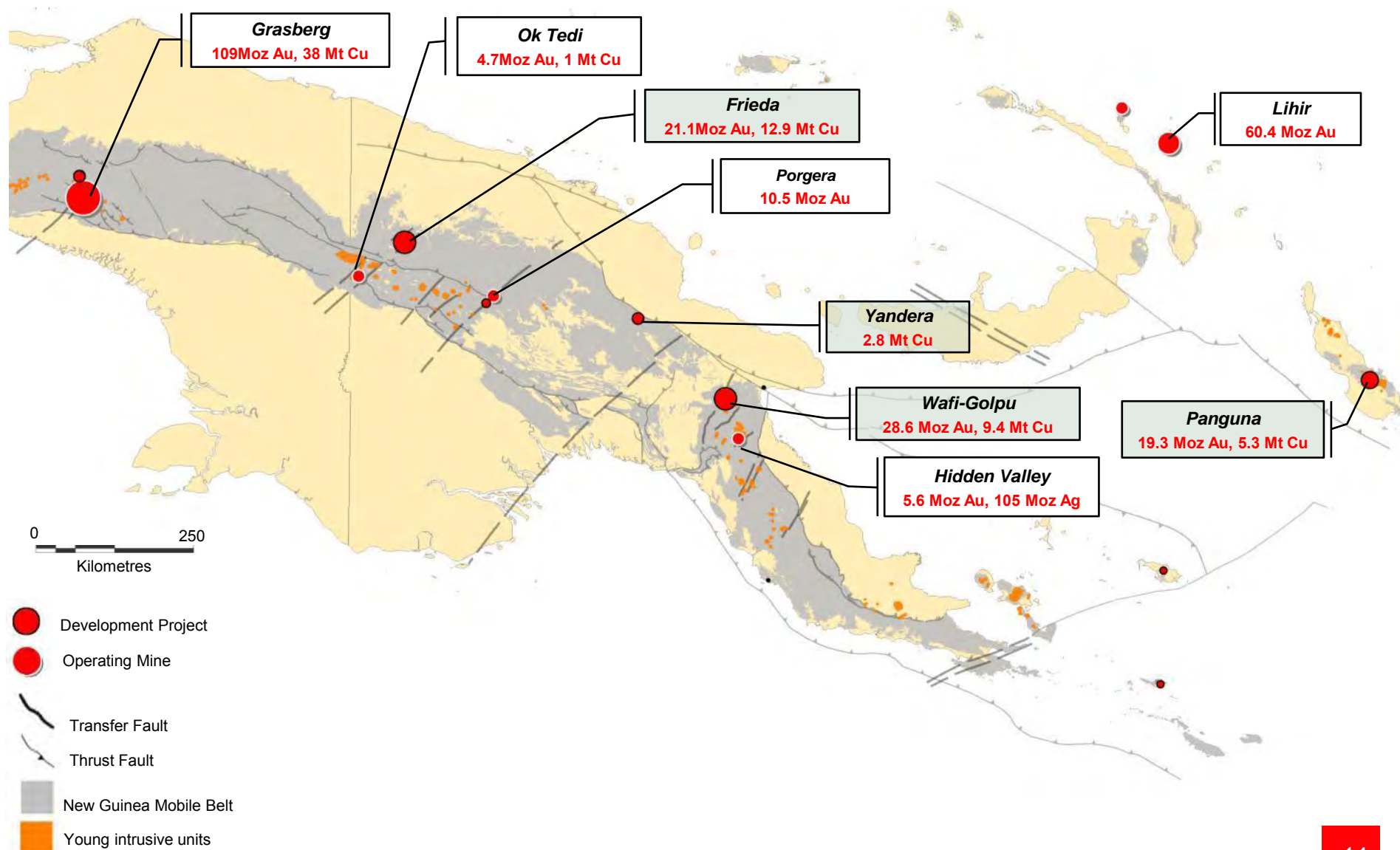


# Development of copper porphyry orebodies



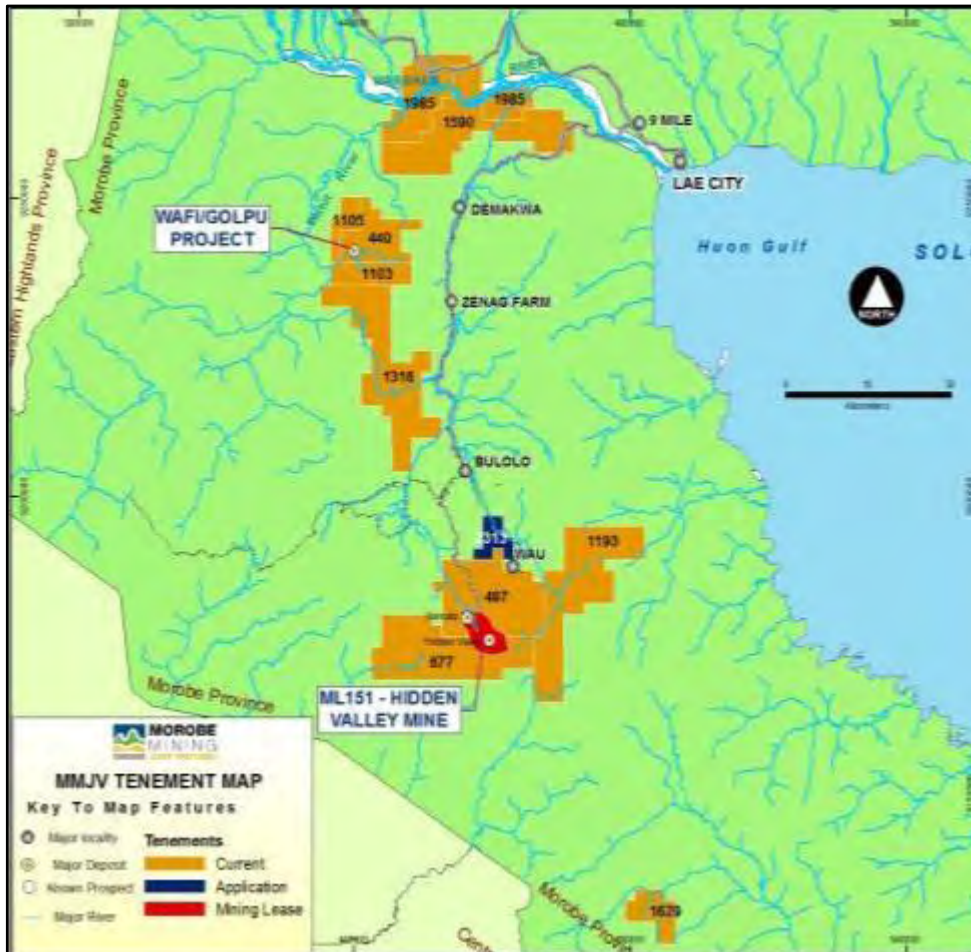


# PNG - exceptional copper gold province





# Golpu project - ownership



- Golpu owned by Wafi-Golpu Joint Venture (WGJV)
- WGJV 50/50 joint venture between Harmony and Newcrest Mining Limited
- PNG government retains right to acquire up to 30% when granting the mining lease
  - will pay for historical expenditure
  - becomes equity participant

# Advantageous project location



- Close proximity to regional infrastructure reduces capital
- Proximate flat topography reduces bulk earthworks requirements





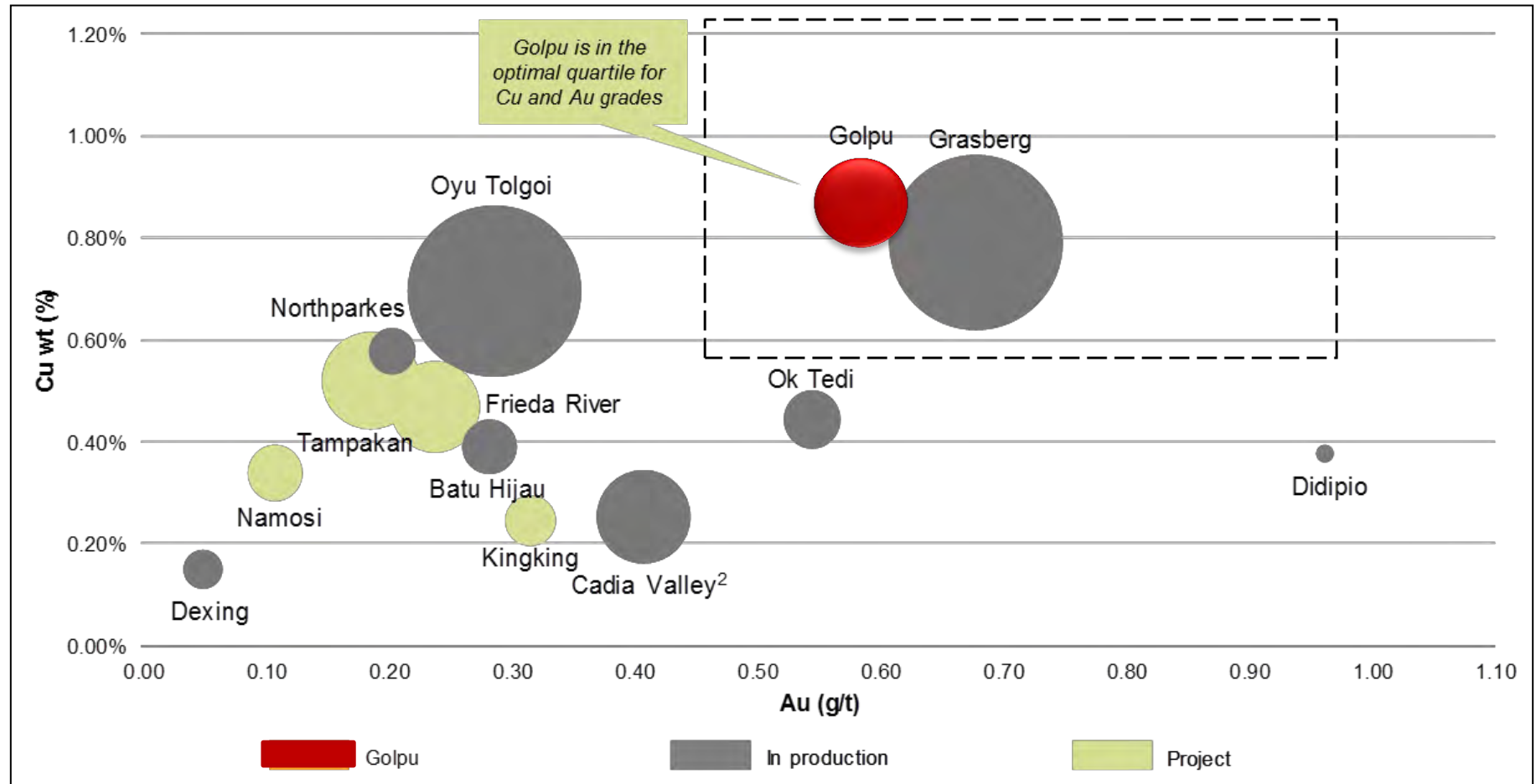
- Project located in close proximity to Lae
  - 62km on highway, past airport, to proposed mine access road
  - approximately 40km from highway to mine
- Good access to regional infrastructure
  - Port of Lae – currently being upgraded
  - Nadzab airport – important regional access point
  - several regional power supply options

- Targeting higher grades
- Low capital
- Scalable, ensuring ore body can be exploited at various commodity prices
- Modular and phased expansion approach
- Minimise infrastructure footprint
- Robust returns

# SPECTACULAR ORE BODY

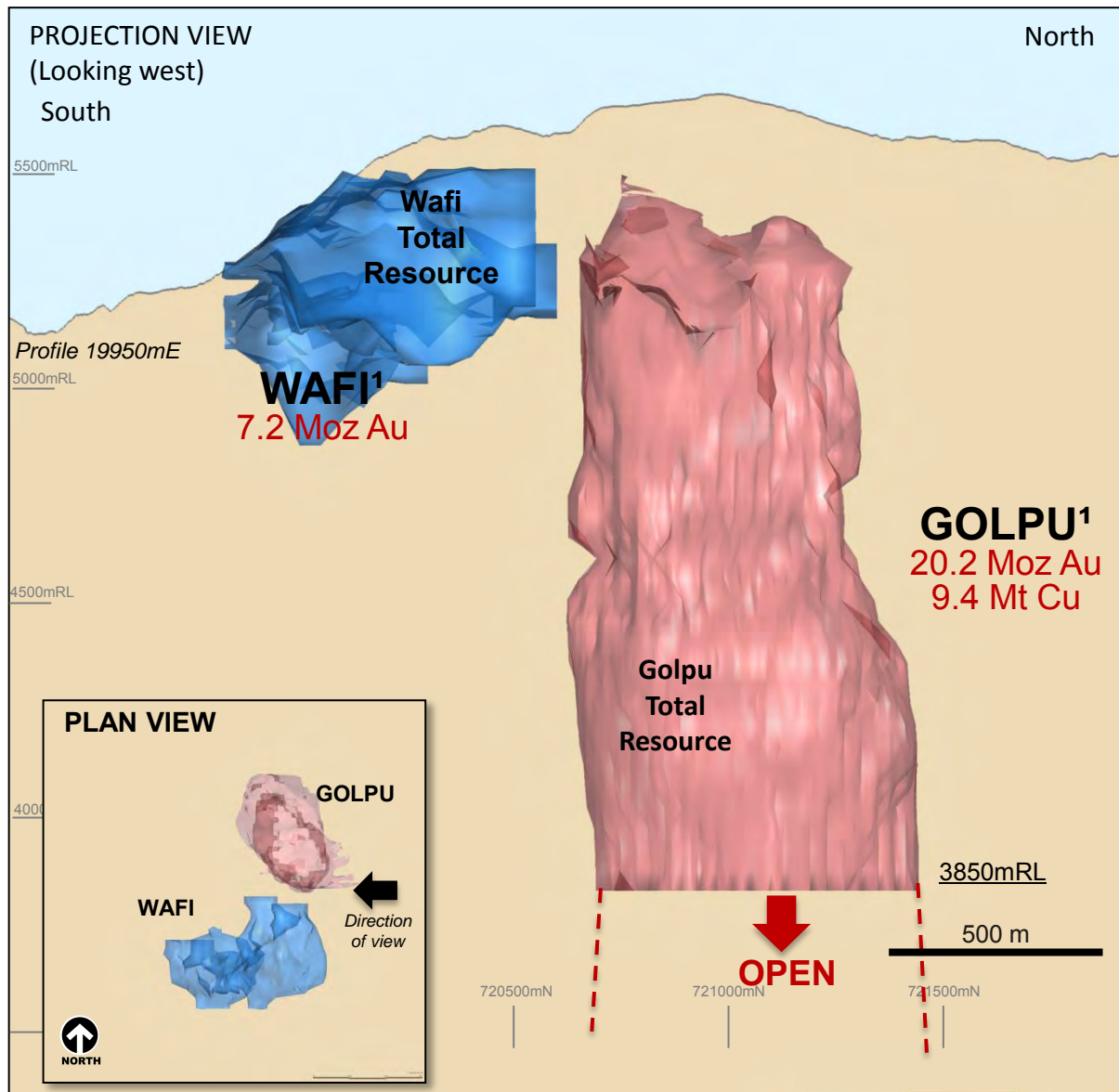
# Golpu – one of the best (100%)

Asian porphyry copper-gold deposits (bubble represents total Resource – gold equivalent ounces)





# Vast resource



- Five times the height of the Empire state building



<sup>1</sup>Refer to Harmony's Mineral Resource and Reserves statement ended 30 June 2014. Resource figures quoted on 100% basis.

Stage 1 - mined ore (100%)					
Tonnes (mt)	Au Grade (g/t)	Gold produced (moz)	Cu grade (%)	Copper produced (kt)	Gold Equivalent* (moz)
146	1.02	3.7	1.6	2 203	15.7

- Stage 1 targets higher grades upper portion
  - 30% of the tonnes and 40% of the metal content
  - underground infrastructure flexible to cater for potential extension of life
- Stage 2 optimises resource extraction
  - 70% of the tonnes and 60% of the metal content
  - updated PFS planned
  - orebody open at depth

\*Gold equivalent based on a gold price of 1250 US\$/Oz and a copper price of 3.10 US\$/lb



# MINING GOLPU

## Stage 1

# Major updated PFS findings (100%)



- Two block caves (BC 1 & BC 2) targeting higher grade zones
  - scalable operation from 3Mtpa (BC 1) to 6Mtpa (BC 2)
- Common path access (twin declines) to the orebody allows future flexibility and expansion
- Improved gold and copper recoveries
  - average copper and gold recoveries respectively 94% and 77%
- Infrastructure on the Watut flats to minimise earthworks and footprint
- Three bulk power options available (two are independent power producers in PNG)
- Two block caves producing 146Mt ore at average grades of 1.6% copper and 1.02 g/t gold
  - 3Mtpa BC1
  - 6Mtpa BC2
- Attributable annual production for Harmony (50%) is significant – averages at 500 000<sup>1</sup> gold equivalent ounces per year in years 2024 to 2029
- Operating cost US\$34.6/tonne and total costs including capital (C3) US\$1.42/lb

<sup>1</sup> Equivalent gold ounces converted by using a copper price of US\$3.10/lb and a gold price of US\$1250/oz

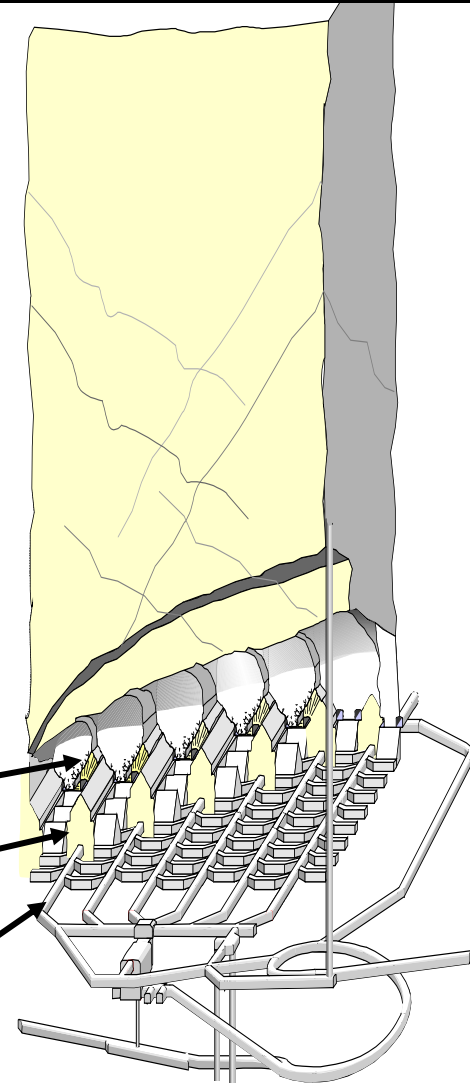


# Preferred mining method - Block caving

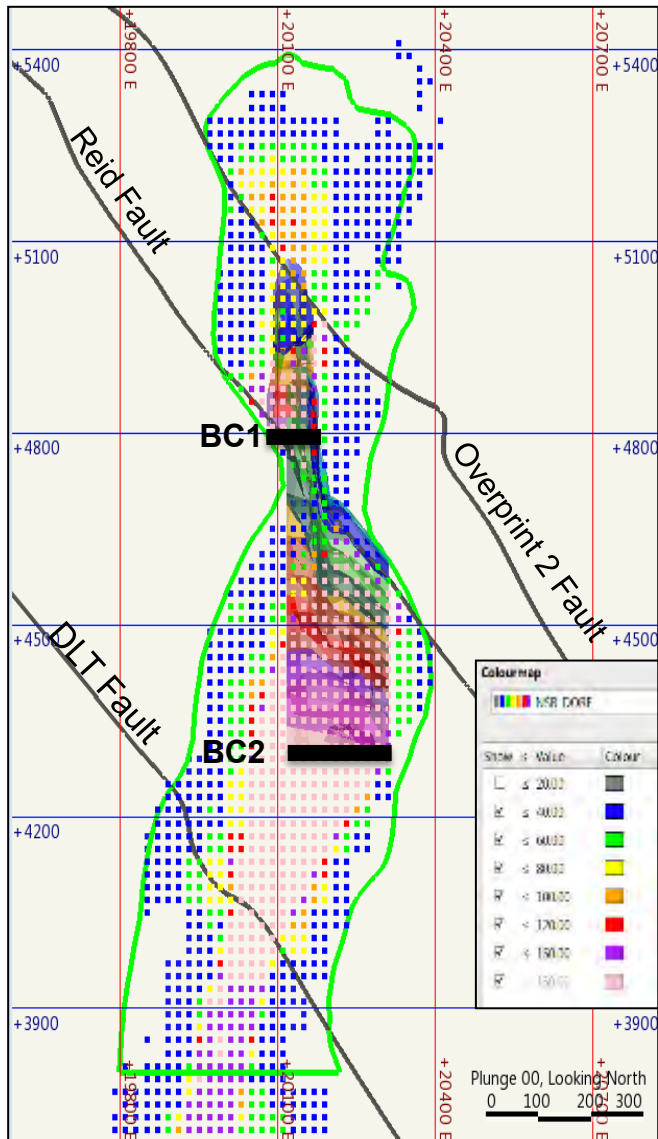


- Rock mass characteristics of near vertical orebody suitable for block caving
- A high establishment cost but a low operating cost
- Preferred to sub level caving due to lower operating costs, ventilation and support requirements

**Undercut**  
**Draw bell**  
**Extraction level**



# Mining higher grades first

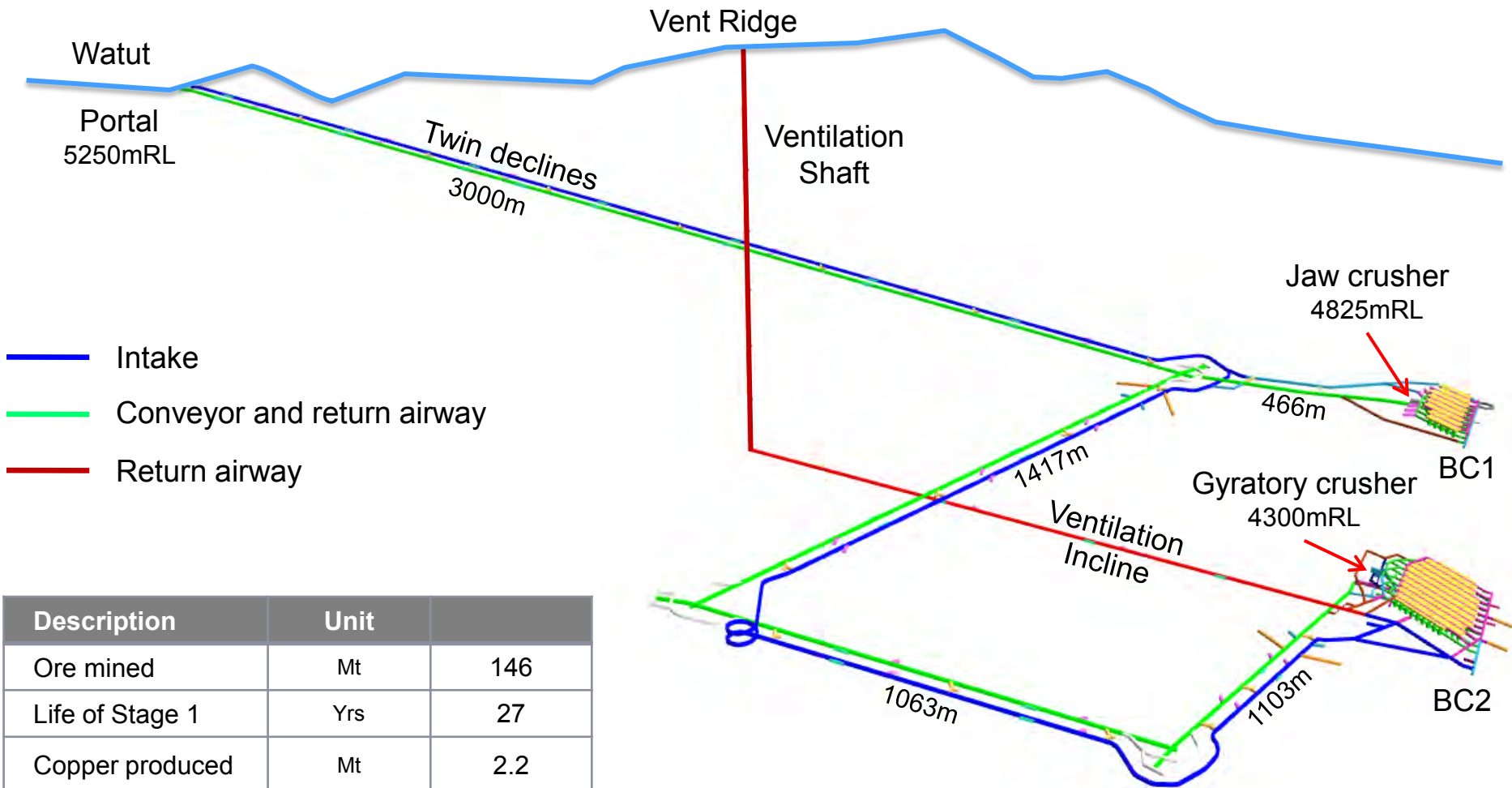


- Block Cave 1 (BC1) – 3Mtpa
  - Early production cash flow target
  - 12Mt at 1.12g/t Au, 2.18% Cu
  - Average NSR\* US\$143/t
- Block Cave 2 (BC2) – 6Mtpa
  - The high grade “sweet-spot” business case driver
  - 134Mt at 1.01g/t Au, 1.55% Cu
  - Average grades first 10 years 1.66g/t Au and 2.3% Cu
  - Average NSR\* US\$107/t

\*NSR: Net smelter return

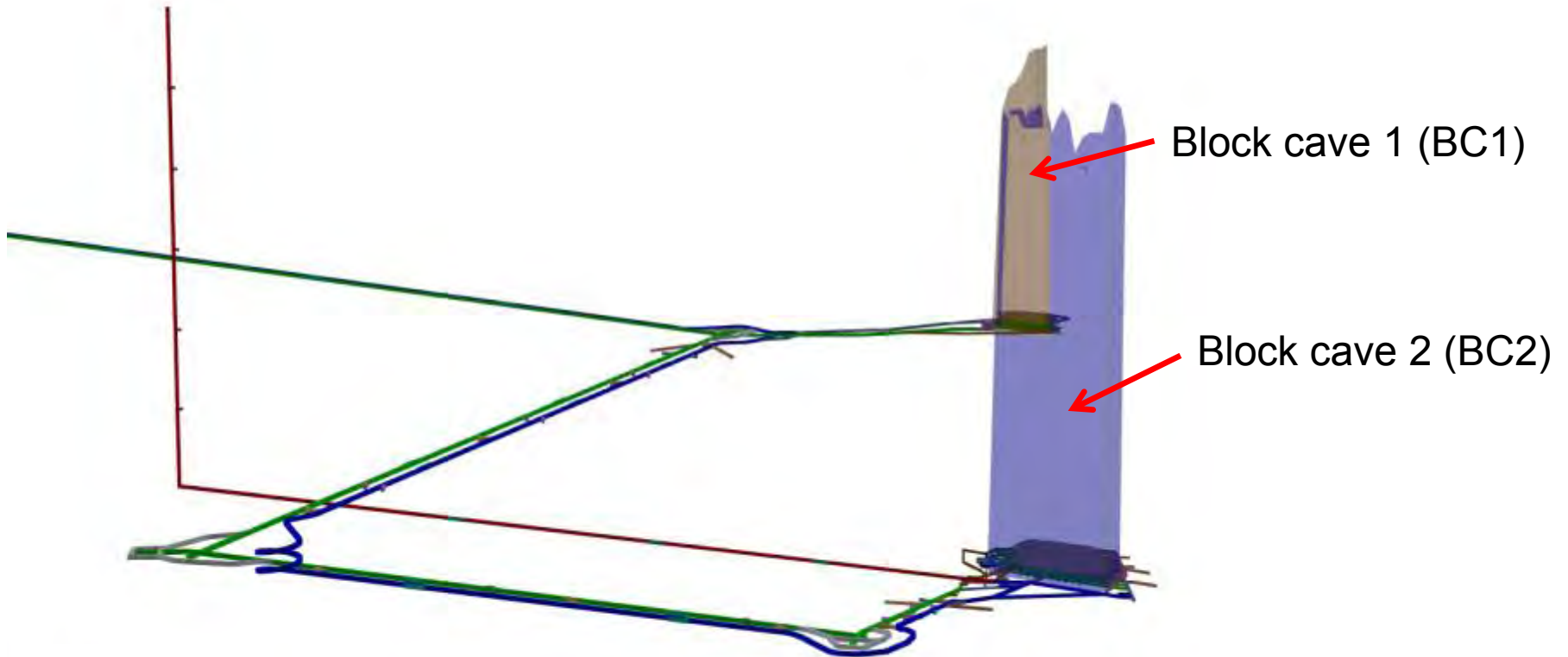


# Stage 1 design

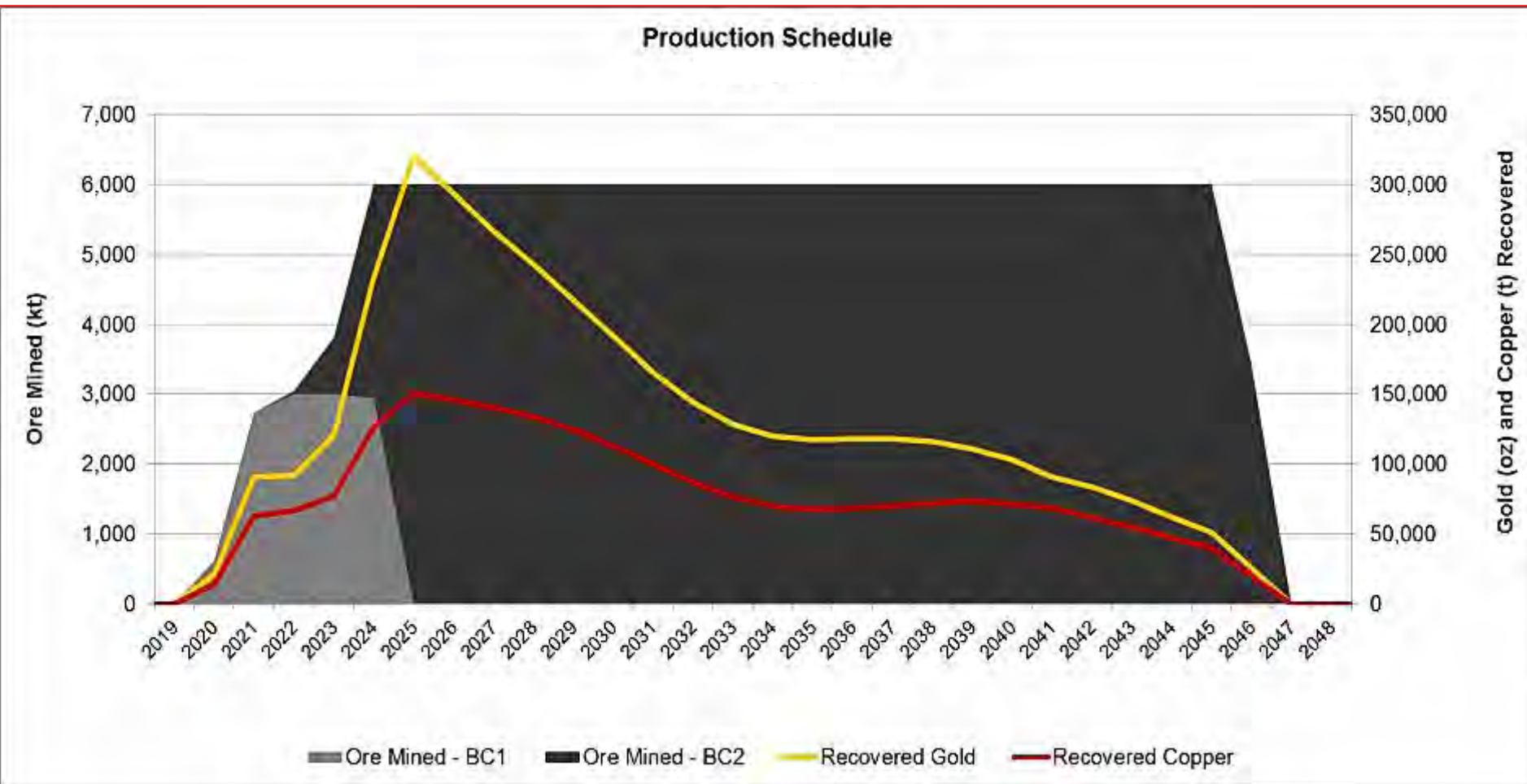


Description	Unit	
Ore mined	Mt	146
Life of Stage 1	Yrs	27
Copper produced	Mt	2.2
Gold produced	Moz	3.7
First ore	Yr	2020

# Block cave 1 and 2



# Production profile (100%)



- Block Cave 1 (BC1) average grades for 5 years (life of BC1) - 1.12g/t Au and 2.18% Cu
- Block Cave 2 (BC2) average grades first 10 years - 1.66g/t Au and 2.3% Cu



1538-40

R-2.70

**ECONOMIC VALUE**

# Stage 1 (100%) – mining Golpu



Description	Unit	6Mtpa Block cave
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## Production

First ore	Date	2020
Steady-state production	Date	2024
Ore mined	Mt	146
Life of Stage 1	Years	27
Copper produced	Mt Cu	2.2
Gold produced	Moz Au	3.7
Peak gold production (Year 2025)	koz pa	320
Peak copper production (Year 2025)	kt pa	150
Gold recoveries	%	77
Copper recoveries	%	94

## Economic assumptions

Gold price	US\$/oz	1 250
Copper price	US\$/lb	3.10
Exchange rates	AU\$/US\$	0.90
	PGK/US\$	2.58

# Stage 1 (100%) – mining Golpu, cont'd



Description	Unit	6Mtpa Block cave
<b>Capital</b>		
Project capital	US\$bn	2.3
Sustaining capital	US\$bn	0.8
Total life of Stage 1 capital	US\$bn	3.1
Maximum negative cash flow	US\$bn	1.6

## Operating

Total operating cost (real)	US\$/t	34.6
Cash cost (C1) (after gold credits)	US\$/lb Cu	0.78
Total production costs* (after gold credits)	US\$/lb Cu	1.42
Cash costs (after copper credits)	US\$/oz Au	~ negative 1 700
Total production cost* (after copper credits)	US\$/oz Au	~ negative 950

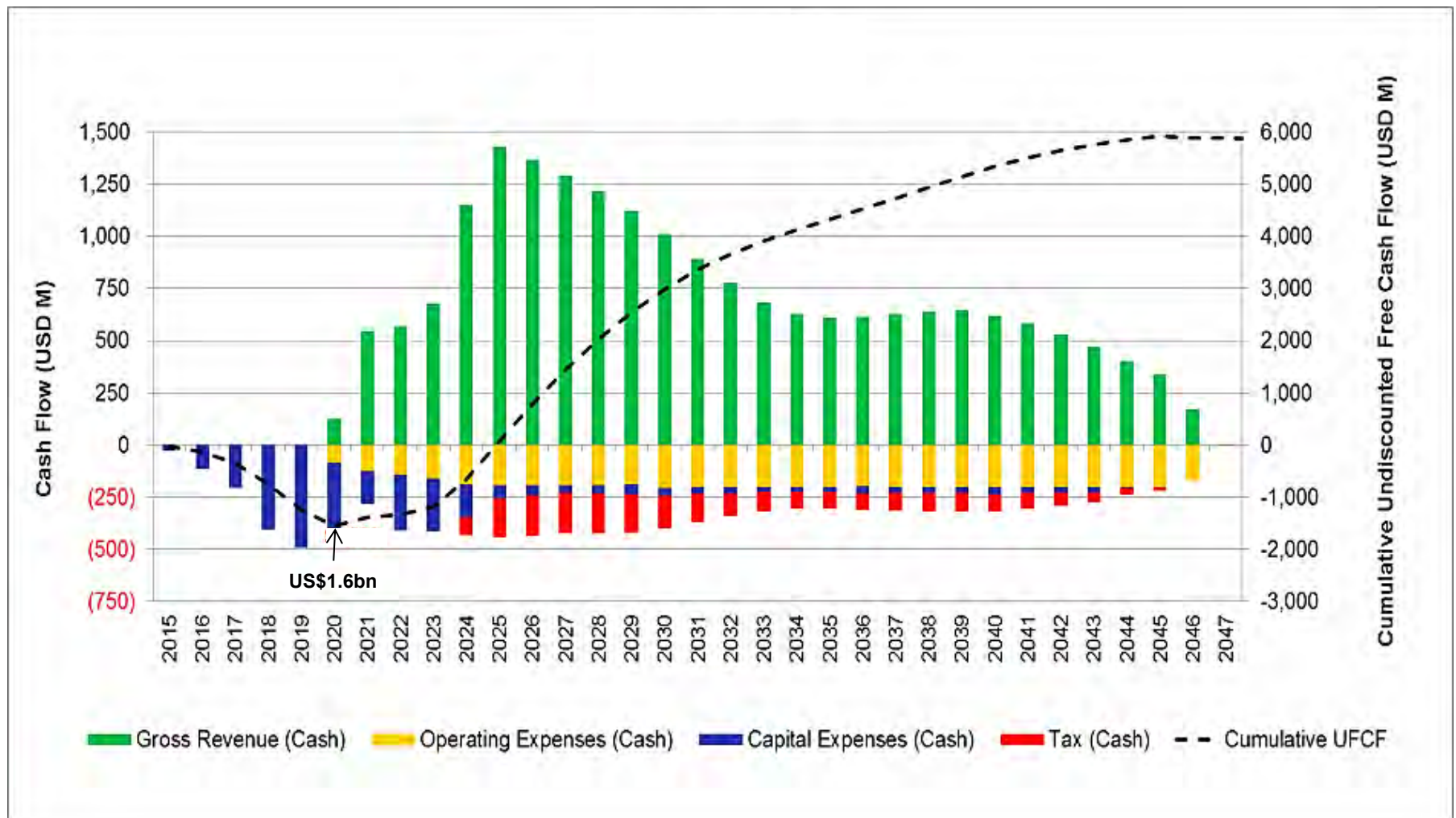
## Stage 1 outcomes

Percentage of reserve utilised	%	~40
Internal Rate of Return	%	17
Net present value (at a discount rate of 8.58%)	US\$bn	1.1

\*Includes capital



# Stage 1 – maximising free cash flow (100%)



- Cumulative undiscounted free cash flow of US\$5.8bn over life of Stage 1

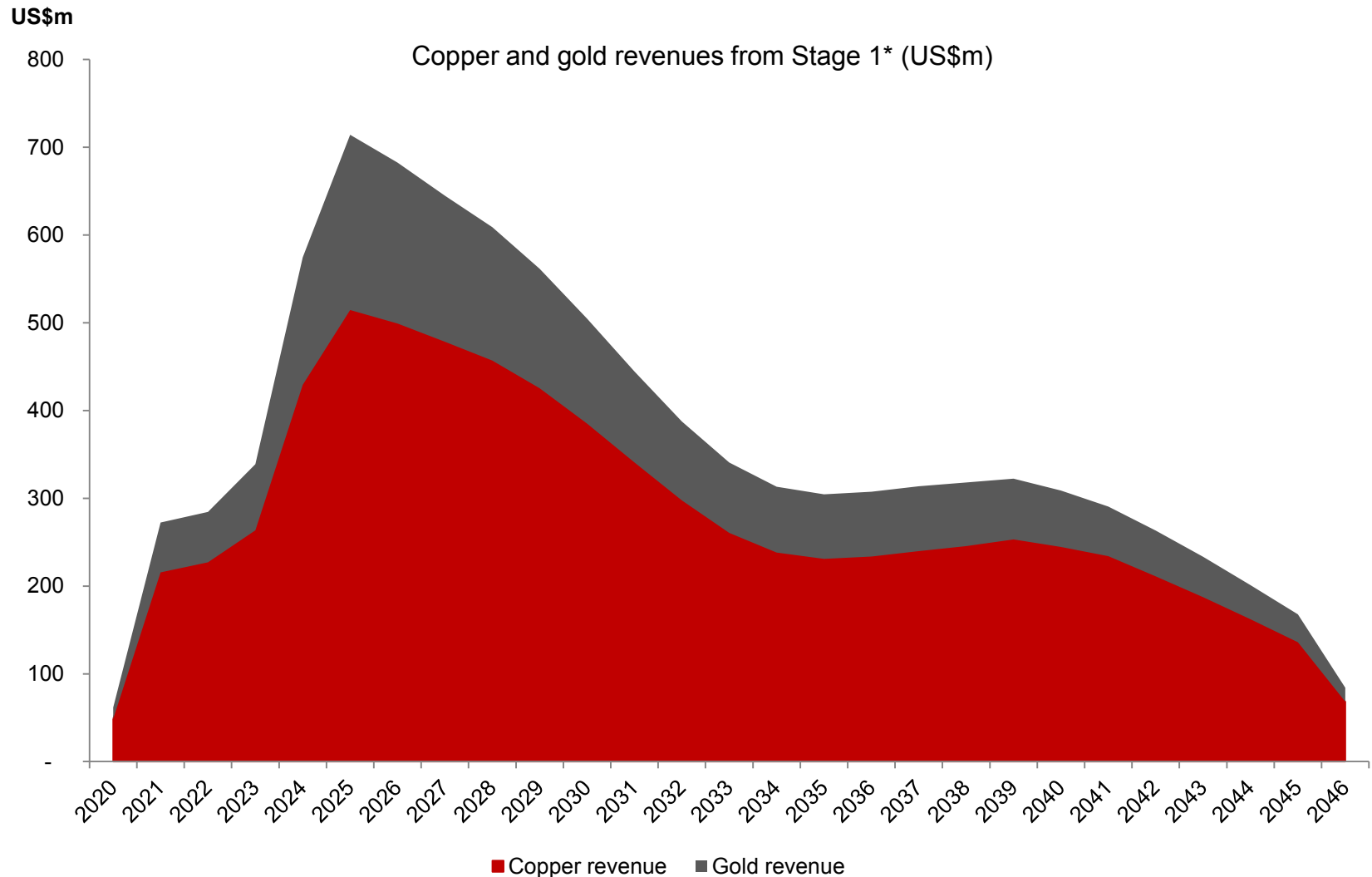
# Attributable low cost, quality ounces (Stage 1 at 50%)



Average value per year		Average production 2024-2029	Life of Stage 1 (averages)
Gold produced	oz/year	130 000	69 000
Copper metal produced	t/year	70 000	41 000
Gold equivalent* produced	oz/year	500 000	292 000
Gross copper revenue	US\$/year	480m	280m
Gross gold revenue	US\$/year	160m	86m

\* Gold equivalent based on a gold price of US\$1 250/oz and a copper price of US\$3.10/lb

# Increasing Harmony's gross revenue (50%)



\*Copper price US\$3.10/lb and gold price US\$1250/oz

# Capital expenditure - Stage 1 (100%)



Area	US\$m
<b>Direct costs</b>	
Mine	893
Process plant	155
Infrastructure	554
<b>Total direct costs</b>	<b>1602</b>
<b>Indirect costs</b>	
Project management	284
Owners' costs	127
<b>Total indirect costs</b>	<b>411</b>
Contingency	287
<b>Total project capital</b>	<b>2 300</b>



- Acquire additional detailed underground data
- Achieves first production in 2020
- Scope comprises work required up to the grant of a special mining lease
  - new access road, portal, power station, accommodation and ancillary facilities to support and develop the twin declines
  - costs of advanced exploration work included in total capital
- Start of work is subject to regulatory and permitting discussions with the PNG government

# Stage 1- infrastructure requirements



- Available regional infrastructure reduces capital requirement
- Mine infrastructure situated on Watut River flats to minimise requirement for bulk earthworks
- Five quotes obtained for decline access and conservative rate of advance applied (105 meters/month)
- Level of engineering considered high for PFS
- Industry standard delivery management benchmarks applied
- Capital estimate reviewed and approved by industry expert
- Decide on viable power supply option

# Capital and funding scenario's (attributable)

	Harmony equity (50%)	Harmony equity (35%) PNG Government buy-in	Funding options for Harmony
Year	Project capital US\$m	Project capital US\$m	
2H FY15	(15)	(15)	Internal cash flows
FY16	(55)	(55)	
FY17	(105)	45*	
FY18	(205)	(140)	<ul style="list-style-type: none"> <li>• Internal cash flows</li> <li>• Debt finance</li> <li>• Copper funding</li> </ul>
FY19	(250)	(175)	
FY20	(155)	(110)	
<b>Total</b>	<b>(785)</b>	<b>(450)</b>	

- From FY21 Stage 1 will be cash flow positive after capital expenditure

\*Assuming PNG government buys a 30% interest in the project

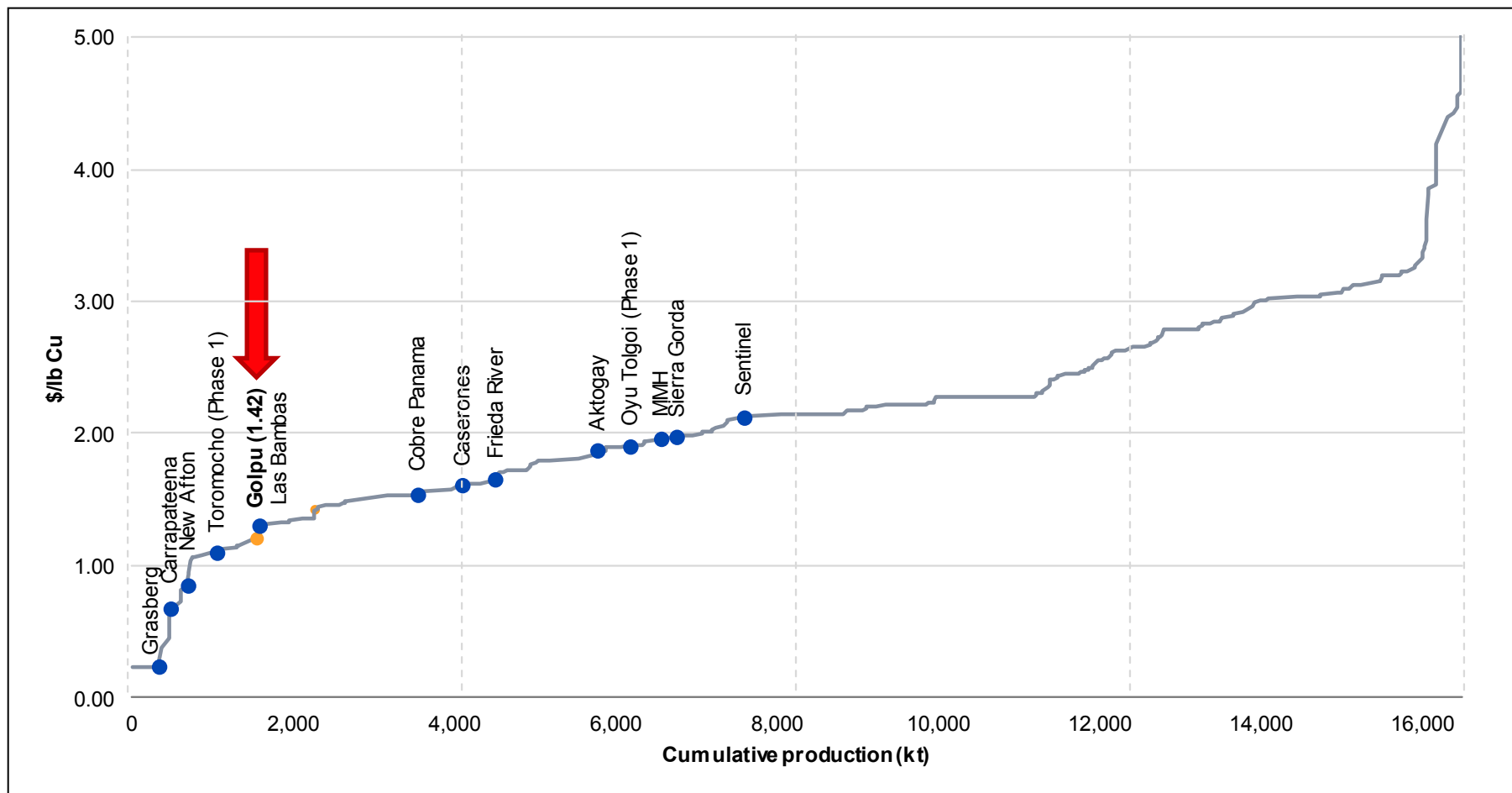
# Operating cost summary for Stage 1

Process	6Mtpa Block cave (US\$/t)
Underground mining	11.83
Treatment	12.86
Infrastructure	3.17
General and administration costs	6.78
<b>Total</b>	<b>34.64</b>

Element	6Mtpa Block cave (US\$/t)
Labour	5.15
Fixed overheads	6.84
Utilities	12.31
External services	1.40
Materials and supplies	8.94
<b>Total</b>	<b>34.64</b>



# Total costs including capital (C3) (US\$/lb)



C3 costs include all capital  
Source: Wood McKenzie

# Commodity price sensitivity (100%)



	Base case -20%	Base case	Base case +20%
Gold price (US\$/oz)	1 000	1 250	1 500
Copper price (US\$/lb)	2.48	3.10	3.72
Internal rate of return	12%	17%	21%
NPV* (US\$)	386m	1.1bn	1.8bn

\* At a discount rate of 8.58%



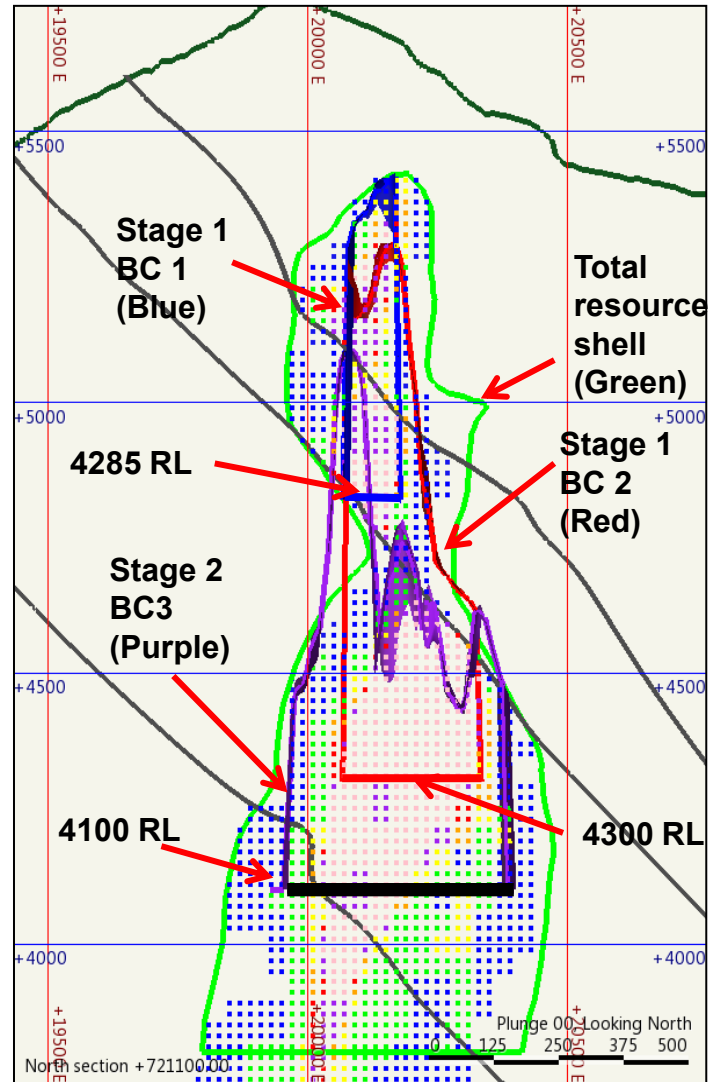
# FUTURE FLEXIBILITY

## Stage 2

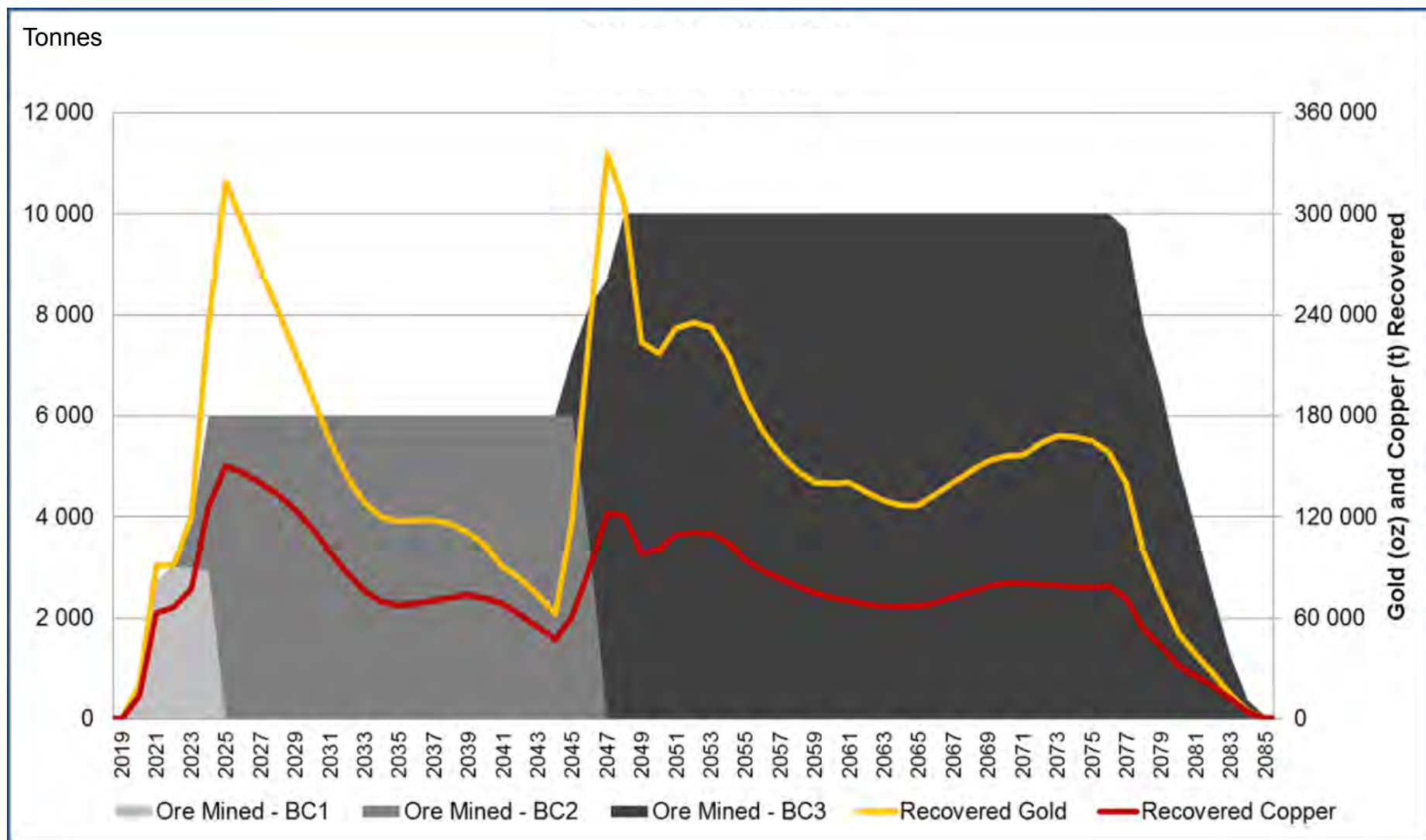
- Further optimises resource extraction (60% of the reserve)
- Optionality of larger operations to follow Stage 1
- Block caves of 10 Mtpa and 22 Mtpa production rate considered
- Ability to respond to changing market conditions
- Commencement of Stage 2 after Stage 1 payback is a future investment decision



# Stage 2 – future potential of Golpu



# Stage 1 and Stage 2 production rates





CONCLUSION

- Advanced exploration work
  - detailed engineering to be completed towards mid 2015
  - level 2B environmental permit submitted
  - engaging PNG government regarding pre-mine development agreement
  - commencement of new access road, portal, power station, accommodation and ancillary facilities to support and develop the twin declines
- Completion of Stage 1 feasibility study by end December 2015
- Completion of Stage 2 updated prefeasibility study by end December 2015



Our strategy	Our performance to date	
Safely delivering on plans	<ul style="list-style-type: none"> <li>• Safety record improved</li> <li>• Production improved</li> </ul>	✓
Increase free cash flow through higher grades and cost control	<ul style="list-style-type: none"> <li>• Free cash flow improved</li> <li>• Grades higher</li> <li>• Costs contained</li> <li>• Restructuring for profitability</li> </ul>	✓
Retain flexible balance sheet	<ul style="list-style-type: none"> <li>• Net debt decreased</li> </ul>	✓
Complete Golpu studies and build mine	<ul style="list-style-type: none"> <li>• Low capital</li> <li>• High grades</li> <li>• Staged development</li> <li>• Robust returns</li> <li>• Lowest quartile C3<sup>1</sup> costs</li> </ul>	✓

<sup>1</sup>C3 costs include capital

# QUESTIONS?

## CONTACT US

Email: [HarmonyIR@harmony.co.za](mailto:HarmonyIR@harmony.co.za)

[www.harmony.co.za](http://www.harmony.co.za)

## OUR KEY VALUE DRIVERS

1. We are efficient miners
2. We fund our capital to ensure future growth and profitability
3. We are experienced explorers, mine developers and operators in emerging economies
4. Golpu will develop into a world-class copper-gold mine

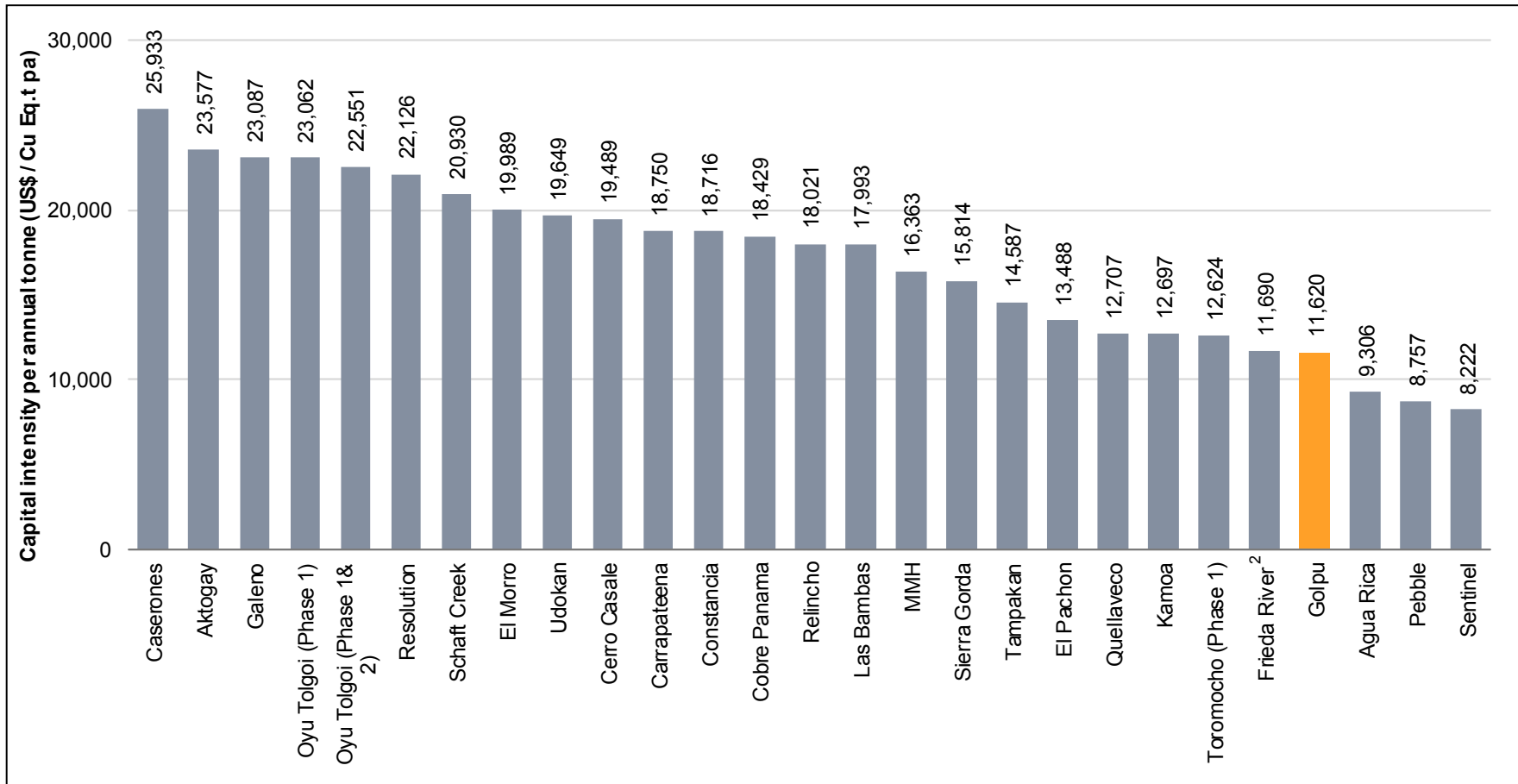
JSE (HAR)  
NYSE (HMY)



# APPENDIX



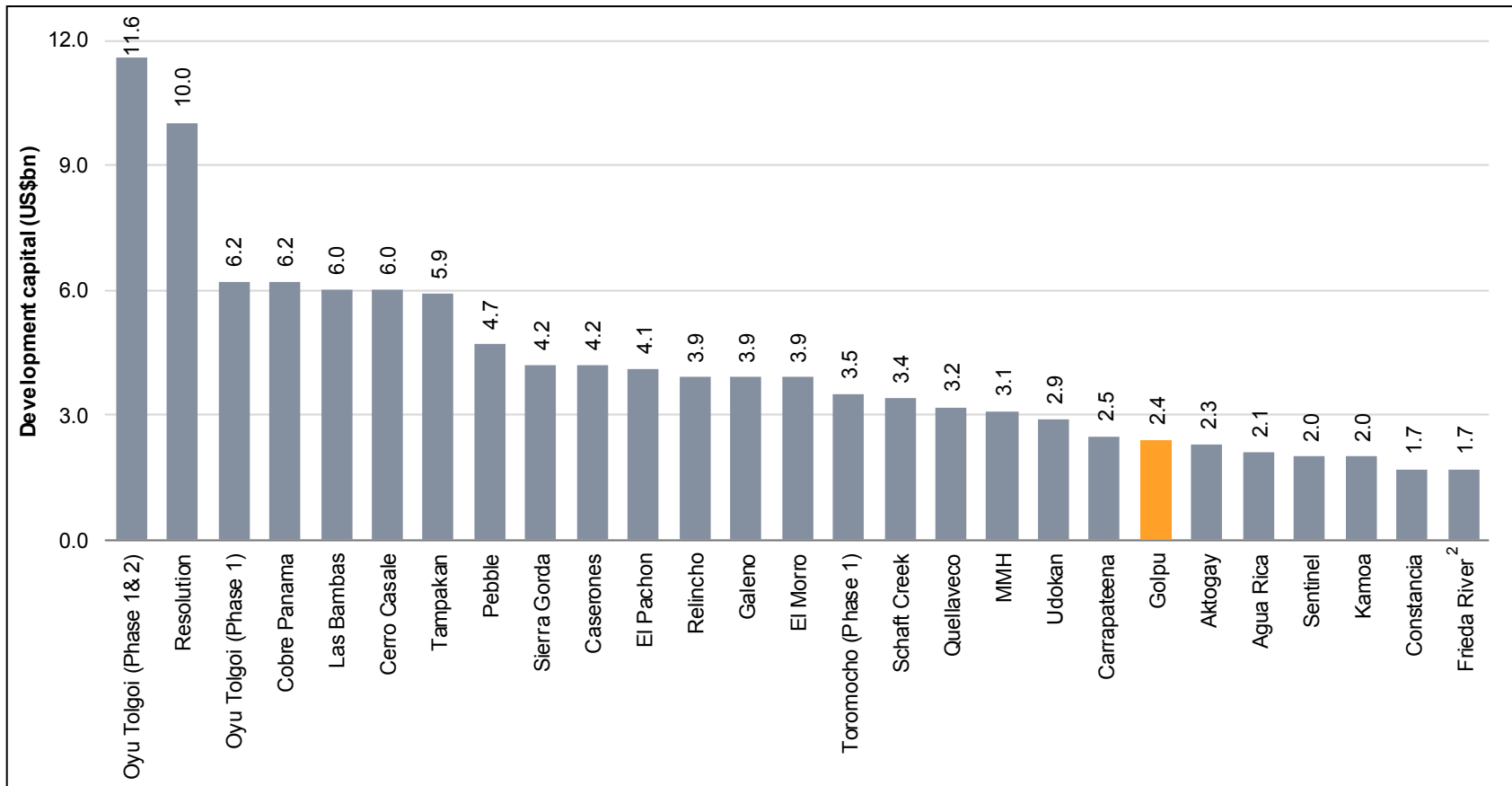
# Capital intensity per annual tonne produced



- Capital intensity is calculated as development capital divided by annual average ('run rate') copper equivalent production (US\$/Cu equivalent tonne per annum)

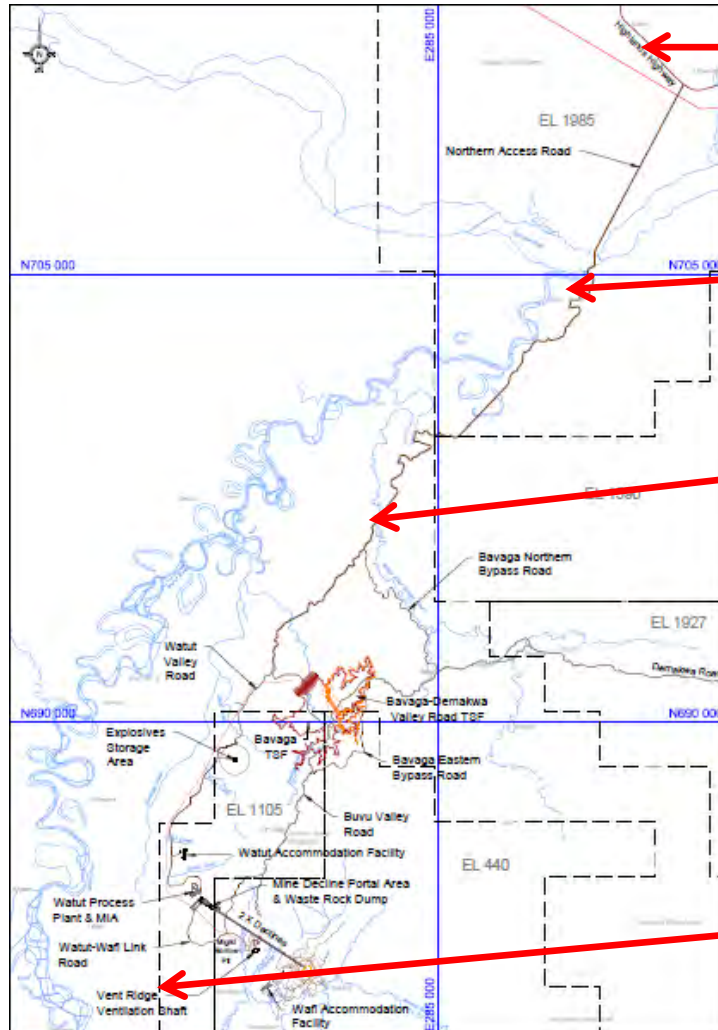


# Development capital (US\$ billion)



- Development capital is defined as total capital required to reach full production levels, and excludes sustaining capital
- Sustaining capital is defined as capital expenditure that is used for improvements to, and major renewals of, existing assets, to maintain existing operations

# Northern access road to Golpu



Highlands Highway

New bridge site

New road

Mine Site

- Company tax rate is 30%
- Mining royalty 2% of revenue less shipping and refining costs
- Interest withholding tax is 0% (approved resource projects only)
- PNG government retains the right to acquire up to 30% of the project up to the grant of the special mining lease
  - payment based on historical expenditure
  - full equity participant thereafter

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