INTERNATIONAL BASE METALS LIMITED

# **FOCUS ON**

# **COPPER IN NAMIBIA**

December 2014



### Disclaimer

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This document contains certain "forward–looking statements", including, but not limited to, statements concerning current and future drilling programmes, estimation of mineral resources, the continuing development plan, the type of mineralisation present and expected results. Information inferred from the interpretation of drilling results may be deemed to be a forward-looking statement, as it constitutes a prediction of what might be found to be present when and if a project is actually developed. Statements and estimates concerning mineral resources may also be deemed to be forward-looking statements in that they involve estimates, based on certain assumptions, regarding the mineralisation that would be encountered if and when a mineral deposit is actually developed and mined. Forward-looking statements are not historical facts, and are subject to a number of risks and uncertainties beyond management's control. There can be no assurance that such statements will prove to be accurate. Actual results and future events could differ materially from those anticipated in such statements. Risks and uncertainties that could cause results or future events to differ materially from current expectations expressed or implied by the forward–looking statements include, among other things, but without limitation, those set forth in the 2014 Annual Report and the website (www.ibml.com.au) of International Base Metals Limited (IBML).

The technical information contained in this document was compiled by Dr Ken Maiden (MAIG, FAusIMM), a Director of International Base Metals Limited. Dr Maiden is a Member of the Australian Institute of Geoscientists and a Fellow of the Australasian Institute of Mining and Metallurgy. He has sufficient experience to qualify as a Competent Person as defined in the September 2012 edition of the *"Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves"*. Dr Maiden consents to the inclusion of the matters in the form and context in which they appear.

# **Capital Structure & Shareholder Register**

#### As at 8 September 2014

#### Shares on Issue

#### 544,158,541

MAJOR SHAREHOLDERS	NUMBER OF SHARES	%
RUI KING RESOURCES LTD	150,000,000	27.6
WEST MINERALS PTY LIMITED	118,326,492	21.7
HEILONGJIANG HEILONG RESOURCES INVESTMENT CO LTD	25,022,723	4.6
CHINA KINGS RESOURCES GROUP CO LTD	22,500,000	4.1
CHINA SUN INDUSTRY PTY LTD	20,000,000	3.7
MANICA MINERALS LTD	15,000,000	2.8
PEARL GLOBAL INVESTMENT LTD	13,333,333	2.5
BLACKMANS & ASSOCIATES PTY LTD	13,000,000	2.4
MAIDEN FAMILY SUPER FUND	10,521,751	1.9
GREAT SEA WAVE INVESTMENT PTY LTD	9,167,333	1.7

# **Board of Directors**

- POSITION VACANT Chairman
- Mr Frank Bethune Managing Director Mining engineer; ex Mine Manager, Sunrise Dam, WA; ex GM, Navachab gold mine, Namibia
- **Dr Ken Maiden Executive Director & Interim Chairman** Founding director of IBML; geologist; ex CSR, MIM, Wits University
- **Mr Luo ZheHong** Chairman of Qinghai West Resources Co
- Alternate: Mr Chen Qiang Mining engineer; international commodities trader & investor

#### • Mr Alan Humphris

Corporate Advisor; ex Head of Hambros Australia; ex Director of JP Morgan Australia

#### • Mr Liu Rui

Geologist; Chairman of Heilongjiang Heilong Resources Investment Co Ltd

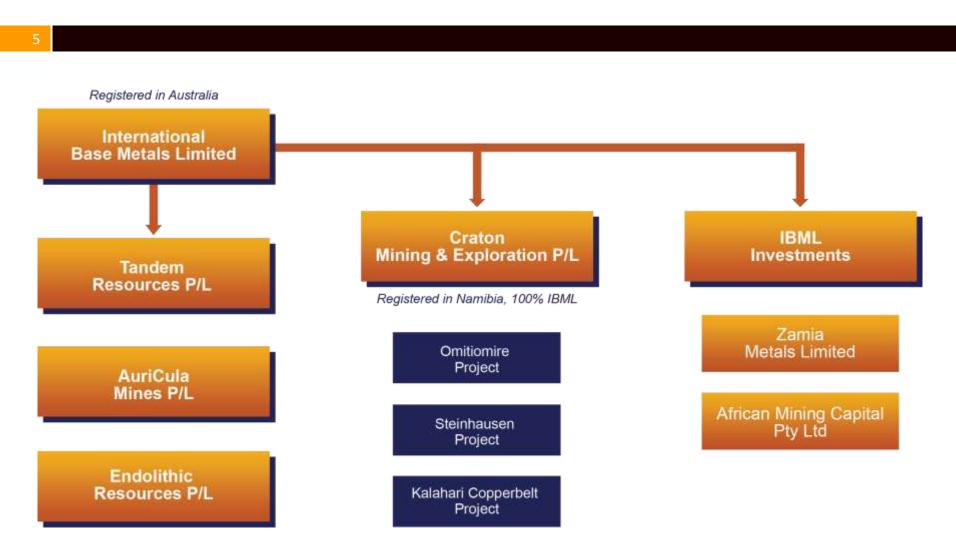
• Alternate: **Mr Yang Aidong** - Mining engineer; Deputy GM of Heilong Group; ex Sino Gold

#### • Mr Wang Jinhua

Mining & industrial engineer; MD of Kings Resources Group Co

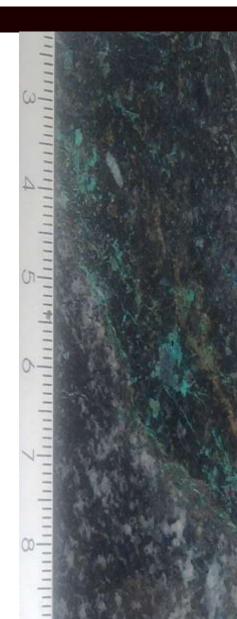
• Alternate: Mr Deng Xianwu - Mining engineer & economist; Chairman of Kings Resources Group Co

### **IBML Corporate Structure**

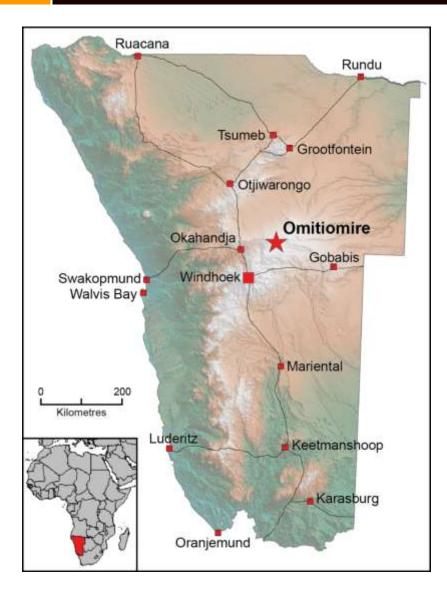


# **Company Strategy**

- 6
- Develop into a mining company
  - Construct and operate the Omitiomire oxide copper project
- Omitiomire sulphide copper resource
  - Expand the Omitiomire resource within trucking distance
  - Complete a Definitive Feasibility Study
- Other exploration projects
  - Advance projects towards resource definition
- Grow the IBML asset value
  - Seek acquisitions and JV's
- List IBML on an appropriate securities exchange



# Namibia

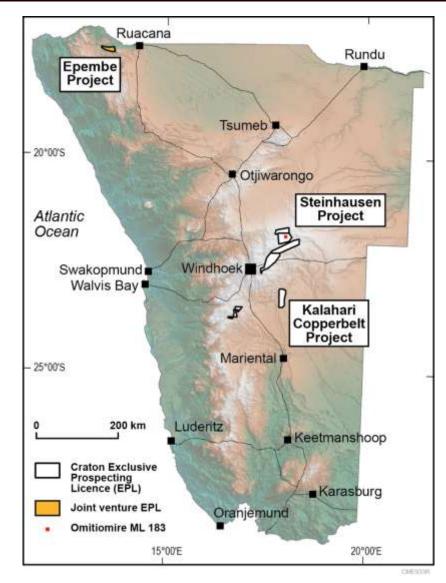


- Low political risk
- Well-developed mining industry
- Under-explored base metal trends
- Good infrastructure
- Effective mining & taxation legislation
- Transparent tenure system
- Effective bureaucracy
- Foreign investment encouraged
- Good exploration & mining support

# **Namibian Projects**

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- The Company's flagship project is the Omitiomire copper project, held in ML 183
- The Steinhausen Exclusive Prospecting Licences (EPLs) are within trucking distance of the Omitiomire processing plant
- The Kalahari Copperbelt project contains two EPLs with copper & gold targets
- The Epembe JV tenement contains a tantalum-niobium prospect



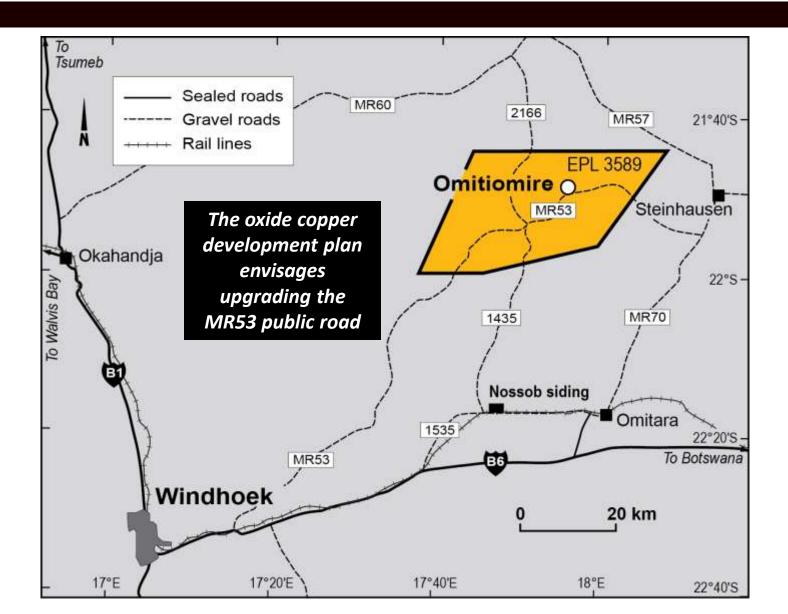
### **OMITIOMIRE COPPER PROJECT**

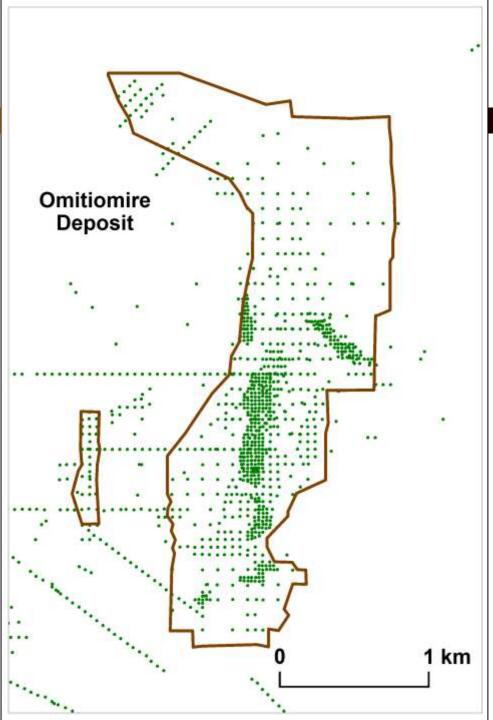




#### **Location & Infrastructure**







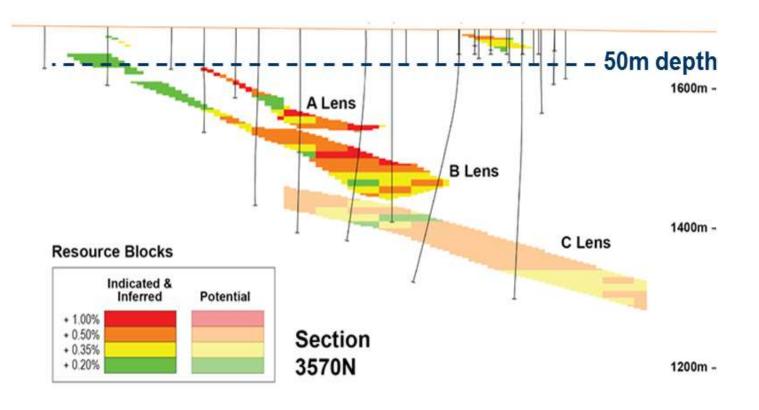
# **Omitiomire Deposit**

- Extends 3,500m north-south
- Dips east at a shallow angle
- Plunges to NNE
- Up to 100m thick
- "Open" to north & northeast

Omitiomire resource showing drill hole locations. The clusters of closely-spaced holes show oxide copper zones proposed for early mine development

#### **Omitiomire - West to East Section**





Drill section showing 2012 resource blocks and exploration targets

- Three main lenses & several smaller ones
- 50m line shows planned maximum depth of Phase 1 oxide copper mining

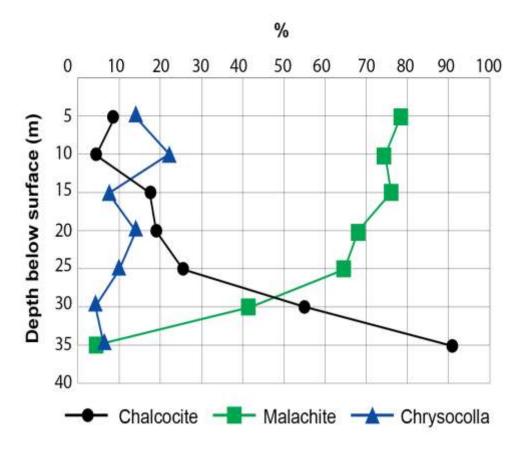
#### **Omitiomire Resource**

Indicated + Inferred Resource		Indicated + Inferred Resource Exploration Target Mate		/laterial		
Resource	Grade	Metal		Exploration Target	Grade	Metal
(Mt)	(% Cu)	(tonnes)		(Mt)	(% Cu)	(tonnes)
185	0.45	834,000		111	0.5	569,000
160	0.50	795,000		103	0.5	557,000
137	0.54	741,000		96	0.6	541,000
120	0.58	697,000		90	0.6	523,000
Approx 71% JORC (2012) Measured and Indicated Status				Not sufficiently drilled to be included in Resource		
	Resource   (Mt)   185   160   137   120   Approx 71% J	Resource Grade   (Mt) (% Cu)   185 0.45   160 0.50   137 0.54   120 0.58	Resource   Grade   Metal     (Mt)   (% Cu)   (tonnes)     185   0.45   834,000     160   0.500   795,000     137   0.544   741,000     120   0.58   697,000	ResourceGradeMetal(Mt)(% Cu)(tonnes)1850.45834,0001600.50795,0001370.54741,0001200.58697,000Approx 71% C(2012) Kes ured and brites	ResourceGradeMetalExploration Target(Mt)(% Cu)(tonnes)(Mt)1850.45834,00011111600.50795,00010331370.54741,000961200.58697,00090Approx 71% Ct 2012) West of the statusMetalMetal	Resource Grade Metal Exploration Target Grade   (Mt) (% Cu) (tonnes) (Mt) (% Cu)   185 0.45 834,000 111 0.5   160 0.50 795,000 103 0.5   137 0.54 741,000 96 0.6   120 0.58 697,000 Not sufficient/Juled to be

Resource estimate by Bloy Resource Evaluation, August 2014

# **Weathering & Oxidation**

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- Primary sulphide copper (chalcocite Cu<sub>2</sub>S) is oxidised to 20m depth and partly oxidised to 40m depth
- Oxide copper is mainly malachite (green hydrated copper carbonate) with subordinate chrysocolla (blue hydrated copper silicate) and minor tenorite (black copper oxide)
- The oxide minerals are soluble in acid
- The proportion of primary chalcocite increases with depth



Graph shows proportion of copper minerals in relation to depth below surface

# **Development Proposal**

IBML plans a two-stage approach to bring Omitiomire into production:

- Phase 1 a small project based on near-surface oxide copper resource
- Phase 2 a larger project based on deeper sulphide copper resource



Oxide copper (blue-green) exposed in the bulk sample pit

### Phase 1: Key Project Outcomes

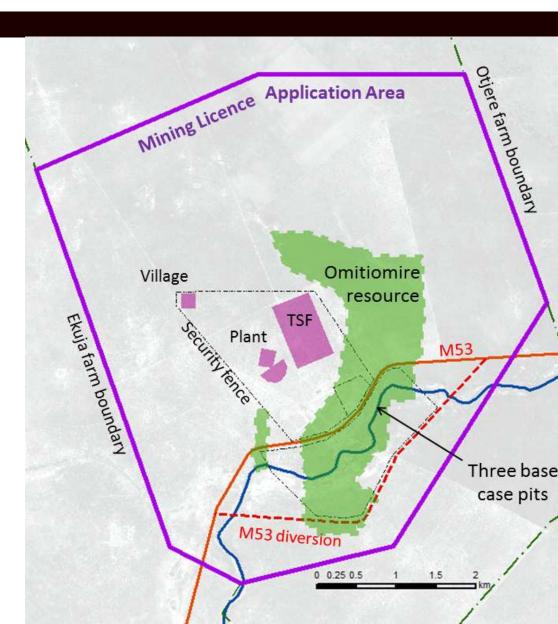
- Copper produced: 25,570 tonnes
- NPV<sub>0</sub> (pre tax): US\$ 42.5 M; (after tax): US\$ 30.0 M
- NPV<sub>10</sub> (after tax): US\$ 12.0 M
- IRR (pre tax): Real: 26.6%; (after tax): Real: 21.6%
- Capital and pre strip funds: US\$ 38.5 million
- Pay-back period: 3.6 years
- Break-even copper price (incl. capital & 50% hedge assumption)

- NPV<sub>0</sub>: US\$ 1.61 /lb - NPV<sub>10</sub>: US\$ 2.29 /lb

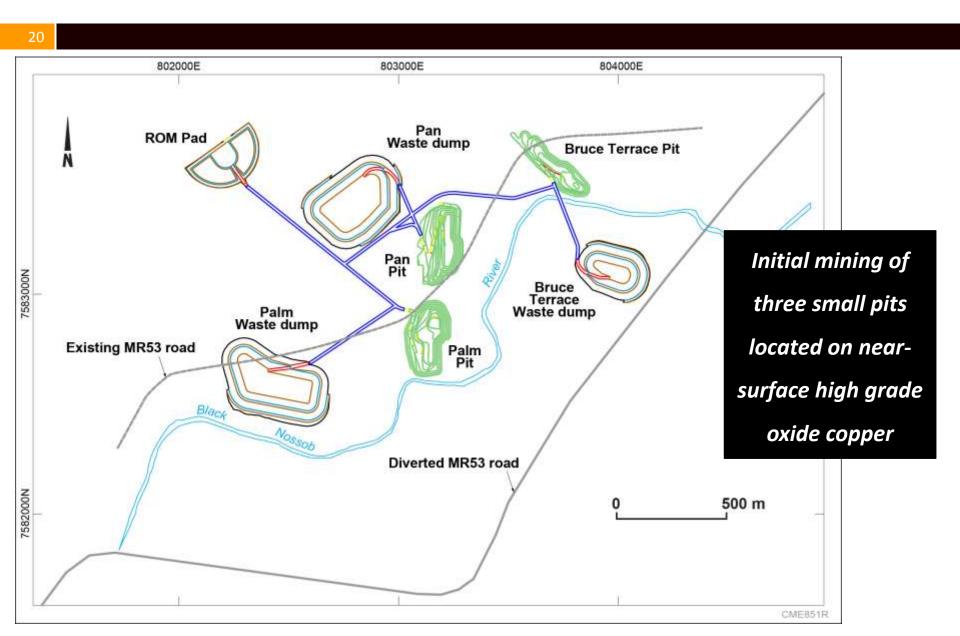


#### **Mining Licence**

- ML 183 covers the whole (primary + oxide) Resource
- ML 183 covers the proposed road diversion
- ML 183 is entirely within the farm Omitiomire



# Phase 1 Project: Pit Layouts

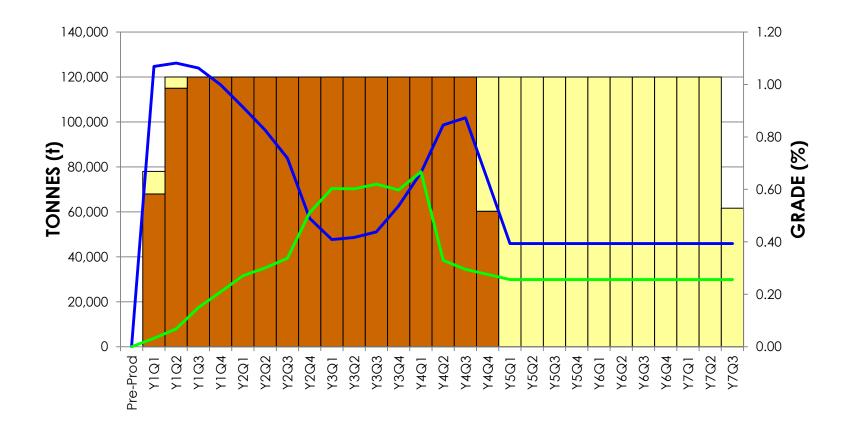


#### Phase 1 Project : Reserve Summary

Pit		Ore				
	Tonnes	Oxide %Cu	Sulphide %Cu	Waste tonnes	Total tonnes	Strip Ratio
Bruce Terrace	603,830	0.73	0.12	1,314,354	1,918,184	2.2
Pan	1,068,370	0.68	0.32	3,328,084	4,396,454	3.1
Palm	1,467,427	0.50	0.42	3,009,912	4,477,339	2.1
Total Pits	3,139,627	0.60	0.33	7,652,350	10,477,339	2.4



#### Phase 1 Project: Mill Feed Schedule



Orange = High grade

Yellow = Low grade

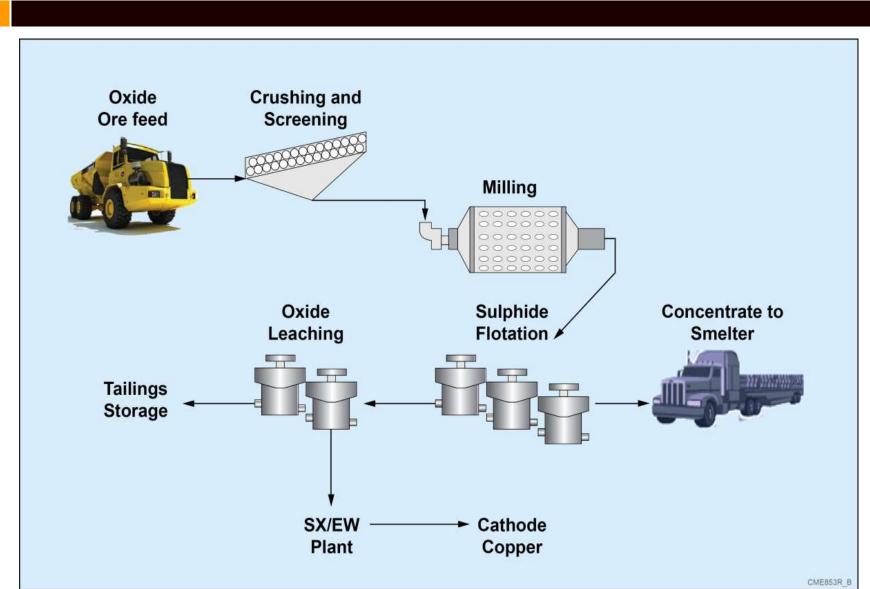
Blue line = Oxide copper % Green line = Sulphide copper %

# Phase 1 Project: Ore Processing

- The initial ore feed will be entirely oxide copper material
- This will be processed via acid leach solvent extraction electrowinning (SX-EW) to produce cathode copper (at least 99.9% Cu)
- Increasing amounts of chalcocite will be extracted as mining progresses. This will be processed via flotation to produce copper concentrate



#### **Phase 1 Project: Flow Sheet**



### **Phase 1 Project: Expected Products**

- Two products over 6.75 years
  - Copper plate Grade A & B (16,200 t copper)
  - Copper concentrate (9,370 t copper)
- Copper Cathode
  - 90% Grade A (99.99%)
  - 10% Grade B (99.9%)
  - 2-3 t cathode bundles
- Copper Concentrate
  - 30% Cu by weight
  - 10% moisture
  - Low sulphur / high silicon
  - No deleterious elements
  - Minor Au, Ag, Pt, Pd

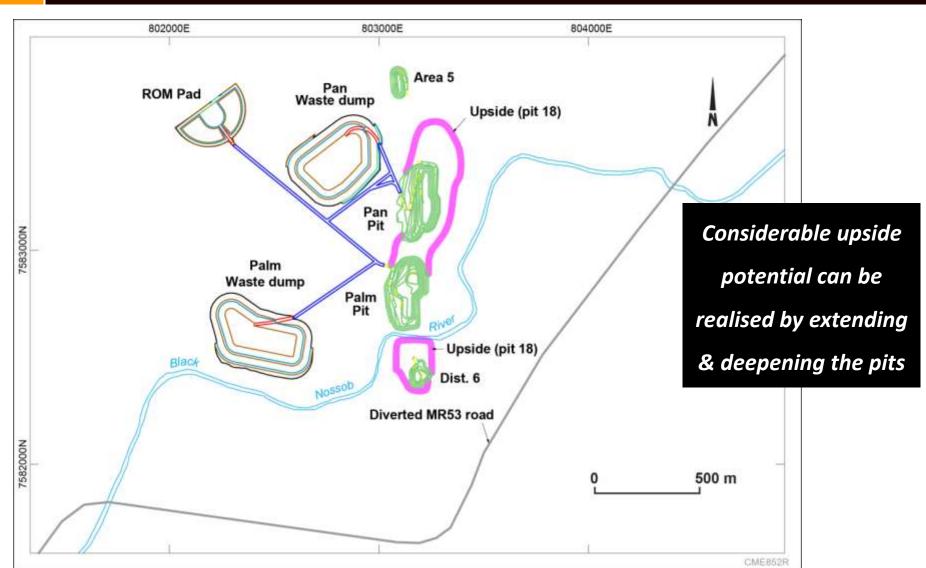


# Phase 1: Potential Sources of Funds

- Require about US\$40 million for construction & stripping
- Probably mix of equity & debt
- May need to give:
  - Off take; or
  - Parent company guarantee; or
  - Hedging
- Possible debt providers
  - Banks and/or commodity traders
  - Relationship banks in China
  - Development banks
  - Resource funds

### Phase 1 Project - Upside Potential





# Phase 1 Project: Upside Estimation

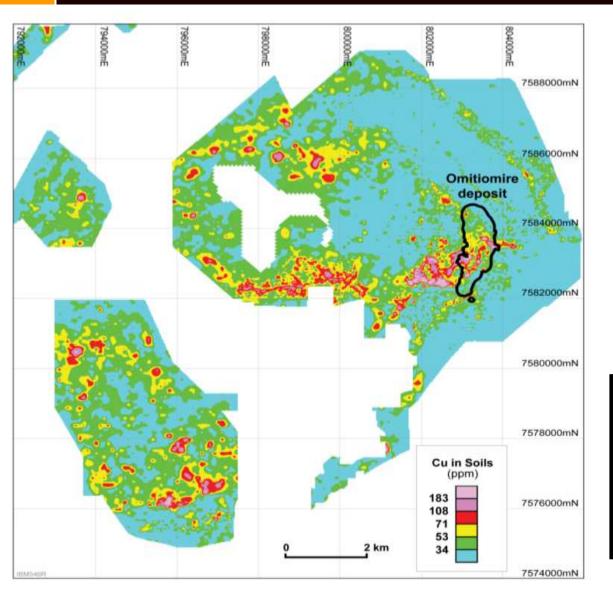
Description	Phase 1 DFS	Upside Potential
Pit size (Mt)	10.8	25.7
Ore tonnes (Mt)	3.1	6.3
Strip ratio	2.4	3.0
Oxide copper (Cu%)	0.60	0.42
Sulphide copper (Cu%)	0.33	0.44
Total copper (Cu%)	0.93	0.86
Pit life (years)	4.8	9.2
Plant life (years)	7.8	13.1

The upside potential scenario was not the subject of the DFS

and has not been presented as a financial case

#### **Additional Discovery Potential**

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Multiple copper targets have been identified within trucking distance of the Omitiomire deposit

Detailed soil geochemistry of Ekuja Dome. "Warm" colours show geochemical anomalies

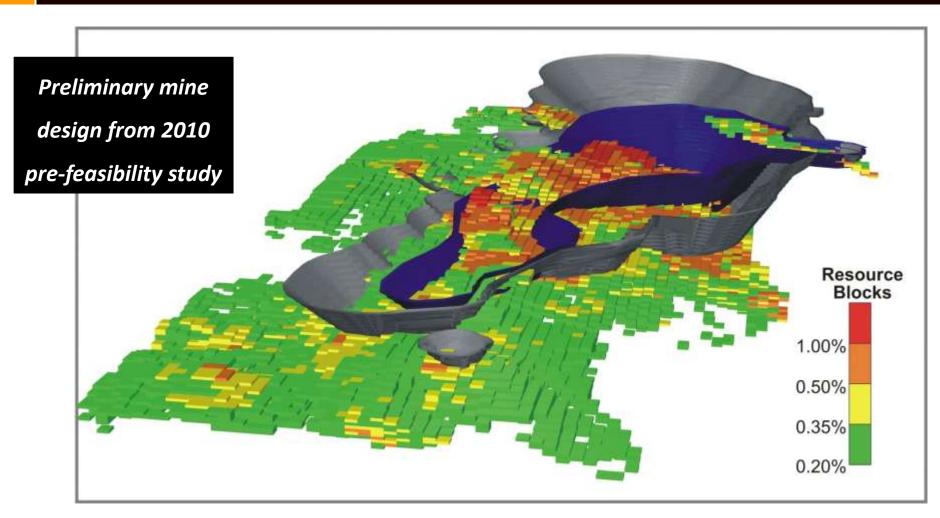
## **Phase 1 Project: Conclusions**

- The oxide copper project is financially viable under the DFS study assumptions
- The main sensitivities are copper price and exchange rate
- Upside potential has been identified
- A 20-year Mining Licence has been issued
- The Environmental Clearance Certificate has been issued
- An EPCM Implementation Team is being appointed
- The project requires about US\$ 40 million for development



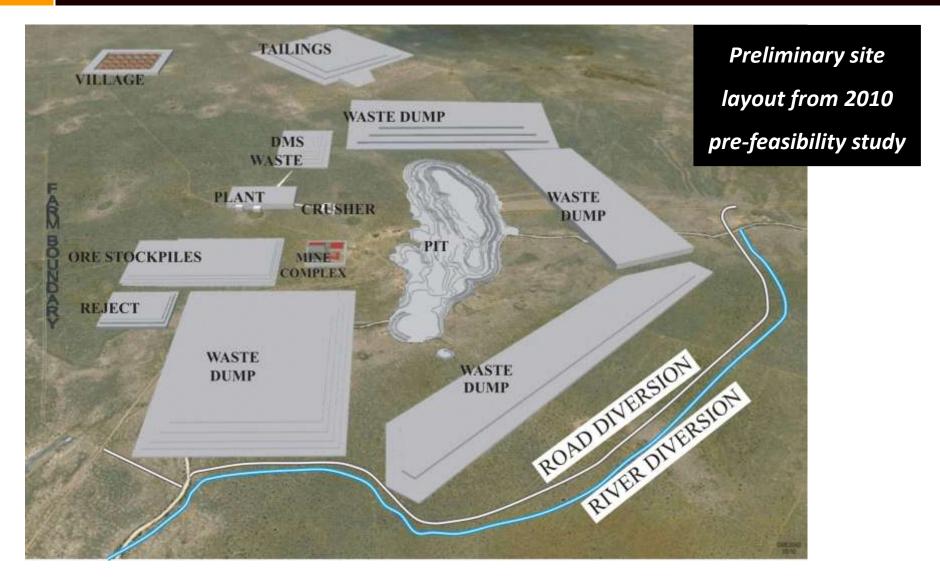
### **Omitiomire Phase 2 Project - Mine Planning**





#### **Omitiomire Phase 2 Development**

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#### **Proposed Sulphide Copper Pre-Concentration**



Coarse-grained chalcocite (steel grey) in bands of mafic schist

- Copper-bearing mafic schist is soft (< 150 MPa) & heavy (> 2.8 g/cm<sup>3</sup>)
- Barren felsic gneiss is hard (> 200 MPa) & light (< 2.7 g/cm<sup>3</sup>)
- Cheap & effective pre-concentration by dense medium separation ('DMS')
- This process doubles the grade of mill feed to +1% Cu

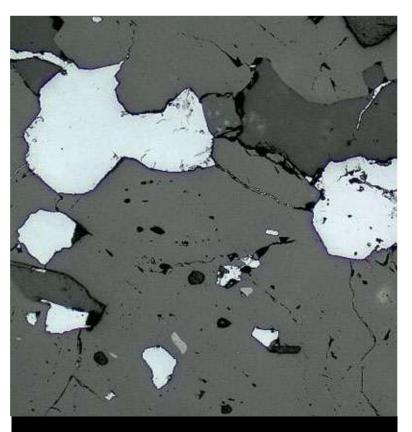
#### Sulphide Copper - Mineralogy & Mineral Processing

#### **Primary copper mineralogy**

- Mainly chalcocite ( $Cu_2S 79\% Cu$ )
- Minor bornite (Cu<sub>5</sub>FeS<sub>4</sub>)
- No iron sulphide (pyrite or pyrrhotite)

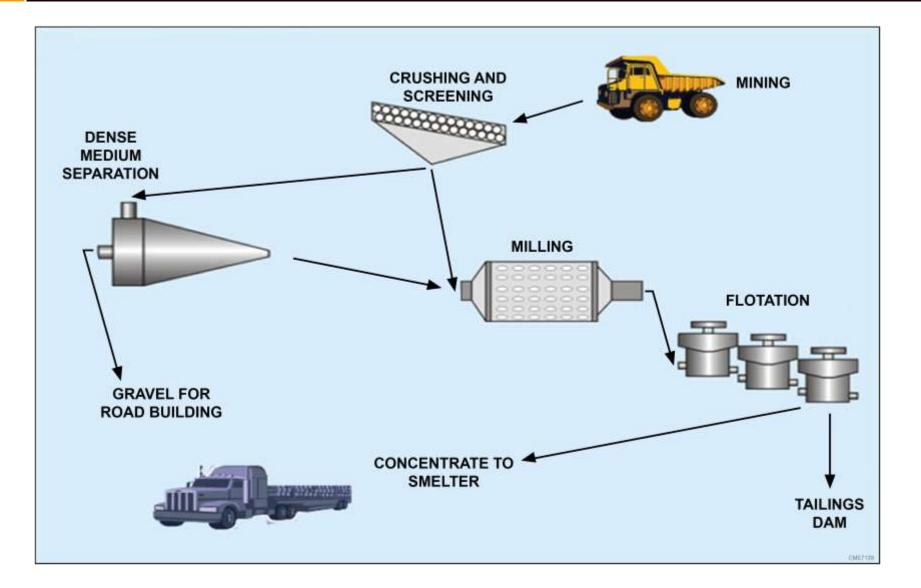
#### **Mineral processing**

- DMS followed by grinding & sulphide flotation
- Tests show +50% Cu concentrate
- No deleterious elements (As, Bi, etc.)
- Very minor Ag, Au, Pd, Pt by-products
- Overall 90% sulphide copper recovery

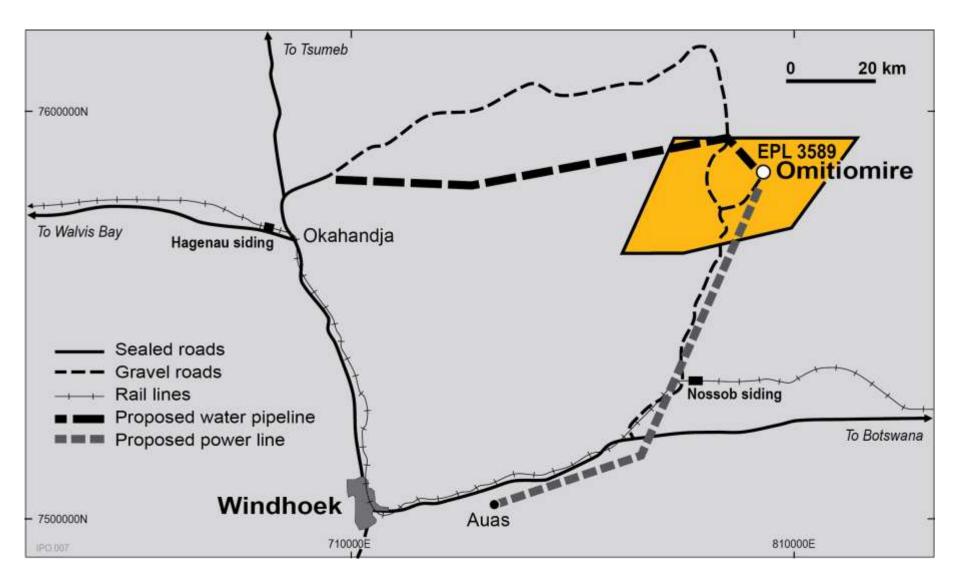


Microscopic view of chalcocite (pale blue) in mafic schist

#### **Phase 2 Project - Process Flow Sheet**

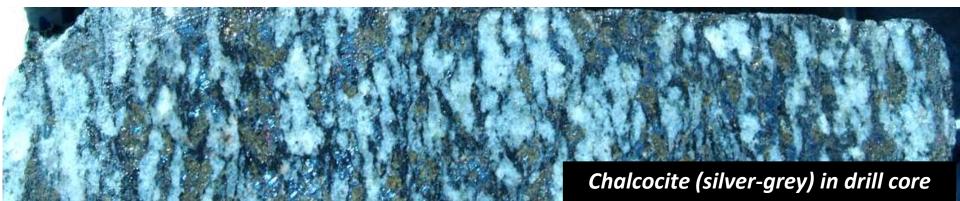


#### Phase 2 Project – Infrastructure



### Phase 2 Project - Current Status

- Ongoing exploration of targets within trucking distance of Omitiomire
- Geological studies to enhance understanding of ore distribution
- Review of 2010 Pre-Feasibility Study: new cost data and a more realistic copper price
- To be followed by a definitive feasibility study
- Likely development cost ~US\$300 million



#### **IBML Contact Details**

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