

# MOD RESOURCES (MOD)

## INITIATION: A Compelling Botswana Copper Developer

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We say

Price

Target

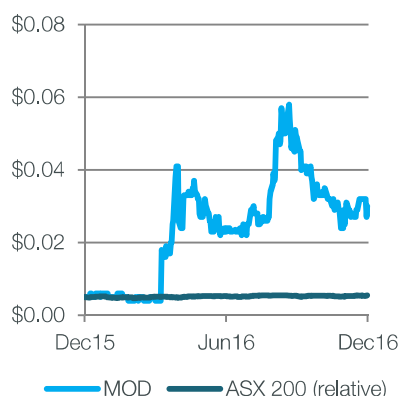
Strategic Target

# BUY

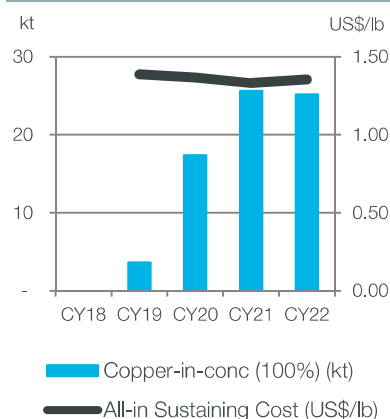
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There is a genuine shortage of quality copper exposures on the ASX and we believe MOD has all the hallmarks of becoming a globally significant copper play. In the last 9 months, MOD has discovered the game-changing T3 deposit, drilled out an impressive maiden resource and completed a Scoping Study for only ~US\$2.5m. **While T3 is a compelling project already, we believe MOD's exploration success could just be getting started.** We initiate coverage with a high conviction Buy.

### SHARE PRICE CHART



### T3 PRODUCTION & COSTS



### COMPANY DATA & RATIOS

Enterprise value	\$47m
Diluted market cap*	\$48m
Diluted shares*	1,586m
Free float	100%
12 month price range	\$0.004-0.062
GICS sector	Materials
Board & Management hold ~20% (FD)	
*Diluted for 175m options	

### IMPLIED RETURN

Implied all-in return	~200%
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## A COMPELLING SCOPING STUDY FOR T3

The Scoping Study for MOD's 70%-owned T3 project outlined a 2mtpa project producing 21ktpa Cu + 665kozpa Ag at C1 cash cost of US\$1.29/lb, over an initial mine life of 9.25 years. Initial capex is estimated at US\$135m. At US\$3/lb copper, T3 has a pre-tax NPV of US\$297m and a pre-tax IRR of 41%. We see considerable scope for improvement in the PFS due in mid CY17.

## A STRONG TEAM WITH THE RIGHT SKILL SET

MOD's MD, Julian Hanna, was the former MD of Western Areas (WSA) during its growth from \$6m junior explorer to an \$800m ASX-200 nickel producer. WSA built its Cosmic Boy plant using second hand equipment and MOD plans to do the same. The US\$135m initial capex for T3 is based on *new* equipment, thus we expect improved plant capex in the PFS.

## IMPLIED RETURN OF ~200%

Using the Scoping Study numbers, we estimate a post-tax NPV for MOD's 70% share of T3 at ~A\$140m, using a copper price of US\$2.80/lb, a silver price of US\$18/lb and a nominal discount rate of 10%. We then apply a 30% discount for development risk. We initiate with a high conviction Buy and 8c price target, an initial implied return of ~200%.

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## INVESTMENT SNAPSHOT

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### MACRO: WHY COPPER?

After hitting a 7-year low in mid-January, in the last ~6 weeks, copper prices have rallied 25% to US\$2.62/lb, which we believe is largely due to the surprise US election win by Donald Trump, and his comments relating to increased infrastructure spending.

While it is probably too early to accurately project the likely timing, magnitude and direct impact on copper markets, these events have led to a notable improvement in copper sentiment.

We believe other governments around the world may follow the lead from the US and increase government spending to stimulate growth (particularly China), and if that occurs, we believe copper could be in the early stages of a long term and more sustained recovery.

### STOCK SPECIFIC: WHY MOD RESOURCES?

In our view there is a genuine scarcity of quality copper exposures on the ASX and we believe MOD Resources has all the hallmarks of becoming an institutional grade copper exposure:

- **Critical mass resource base already in place**
  - In our view, the recent T3 Scoping Study confirms that MOD already has the resource base to support a compelling low-capex, high-margin operation with an initial mine life of 9-10 years
  - With the rapid payback of a 2mtpa plant already underpinned by the existing resource, further exploration success could lead to a material uplift in valuation (longer mine life, potential for a 3mtpa plant etc)
- **Located in a prolific copper district with strong exploration potential**
  - MOD has its foot on over 11,000km<sup>2</sup> of the Kalahari Copper Belt in Botswana
  - Despite more than 5mt of copper in resource being defined to date in this belt, MOD's adjacent leases are largely underexplored
  - All the resources in the belt are sediment hosted deposits. This style of mineralisation can be very persistent over large areas and is very encouraging for further exploration success. The Kamoanga project in the DRC is a sediment hosted copper deposit which covers an area of ~50km<sup>2</sup>
- **Based in one of the best jurisdictions in Africa (Botswana)**
  - According to the Belgian export credit agency, Botswana is one of the lowest risk countries in Africa and carries significantly *lower* sovereign risk to Zambia (home to the Lumwana copper project, which was owned by Equinox Minerals). See p18.
- **A strong team with the right experience (full bios p25)**
  - **Julian Hanna (MD)** co-founder and former MD of Western Areas which developed the Flying Fox and Spotted Quoll nickel mines in WA. A well-regarded geologist.
  - **Jacques Janse van Rensburg (GM Exploration)** a geologist with extensive experience exploring in Africa and one of key people behind the T3 discovery.
  - **MOD's total cost to date at T3 from discovery, to maiden 28mt resource through to completion of the Scoping Study was only ~US\$2.5m**

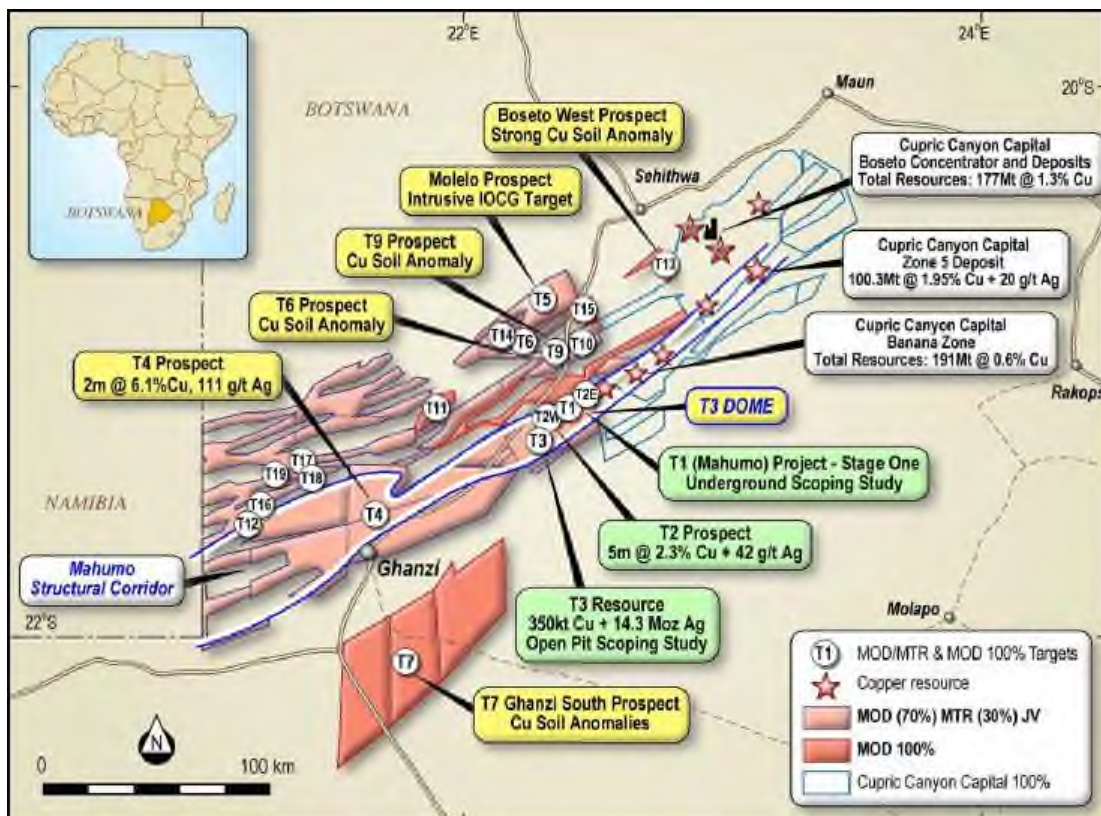
## COMPANY OVERVIEW

MOD Resources Limited is a ~A\$45m market cap copper developer through its 70%-owned T3 copper project in the Kalahari Copper Belt in northern Botswana. A Scoping Study for T3 was completed in December 2016 and the company is now focused on completing a PFS by the end of Q2 CY17. The other 30% of T3 is owned by AIM-listed Metal Tiger Plc (LON:MTR).

In our view the company's Scoping Study confirms T3 already has the critical mass for a highly profitable, low-capex, high-margin copper operation. We see considerable scope for improved economics in a range of areas (outlined on p6) but most importantly through further exploration success. MOD's package covers a very large ~11,500km<sup>2</sup> in this highly prospective copper belt.

MOD also owns the Sams Creek gold project in New Zealand, although this project is non-core and a sale process is currently underway to divest this asset.

### MOD's holdings in Botswana



Source: Company release 9 October 2016

MOD was originally listed on the ASX in January 1997 as Medical Corporation Australia Limited. In Dec 2010 the company changed its focus to resource opportunities, and in March 2011 it acquired its first ground in the Kalahari Copper Belt in Botswana and was renamed MOD Resources Limited.

At the end of September, MOD had ~A\$1.9m in cash. MOD also has debt of A\$1.5m to Simon Lee, a director of MOD and major shareholder. The company plans to repay this loan from the sale of Sams Creek, which may occur near term.

Depending on the timing of the sale of Sams Creek, clearly MOD will need to raise additional capital to fund the next phase of exploration drilling and its share of the PFS costs at T3.

Our forecasts assume MOD raises A\$4-5m in new equity in the next few months.

## THE T3 COPPER PROJECT, BOTSWANA

### SCOPING STUDY

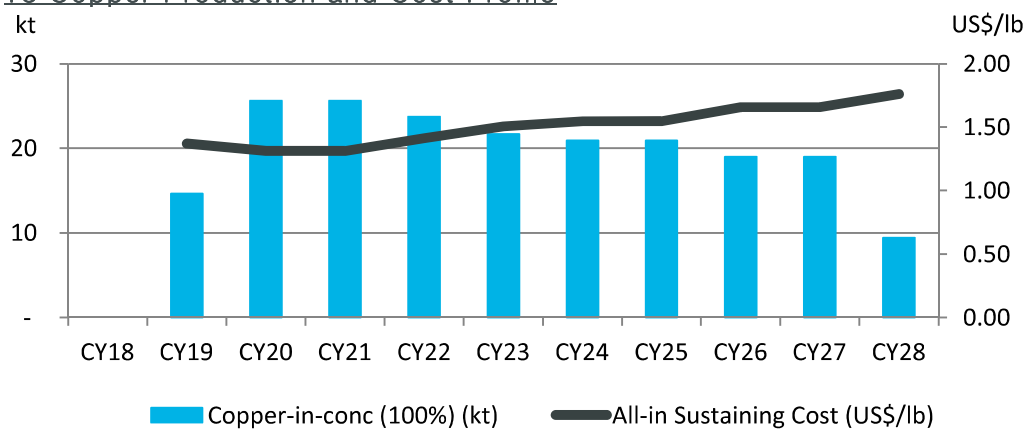
A Scoping Study on T3 was released on 6 December 2016, and was managed by Independent Metallurgical Operations (IMO) in Perth with a team of expert industry consultants. One of MOD's directors and major shareholders, Steve McGhee, is also a director of IMO. The key outcomes of the T3 Scoping Study are outlined below:

<b>T3 Scoping Study (+/-35%)</b>	
<b>Capex</b>	<b>US\$135m</b>
Mining	Conventional open pit mining
Strip ratio	6.13:1 including pre-strip, 5.6:1 post pre-strip
Initial mine life	9.25 years
Plant size	2mtpa
Diluted Head Grade	1.16% copper (post 17% dilution)
Copper Recovery	95%
<b>Production</b>	<b>21.8ktpa of copper-in-conc, 665kozpa silver</b>
<b>Cash cost pre royalties</b>	<b>US\$1.29/lb life of mine</b>

Source: Company

The chart below provides a useful overview of the production and cost profile of T3 only:

#### T3 Copper Production and Cost Profile



Source: Company, Blue Ocean estimates

The table below summarises the robust financial outcomes from the Scoping Study on T3:

<b>Financial Outcomes (100% basis)</b>	<b>Base Case</b>	<b>Upside Case</b>
Copper Price (US\$/lb)	2.53	3.00
Silver Price (US\$/oz)	19.72	19.72
Annual pre-tax cash flow (US\$m)	44	65
Pre-tax NPV (US\$m)	180	297
Pre-tax IRR	31%	42%
Payback	2.6 years	~2 years

Source: Company

While we believe the Scoping Study demonstrates T3 has the critical mass and projected return on capital to support development, we see considerable scope for improvement in the PFS, which we outline on the following page.



## **CONSIDERABLE SCOPE FOR IMPROVEMENT IN THE PFS**

While we regard the Scoping Study as a very promising start, we see significant potential for project economics to improve in the PFS in 5 key areas:

- (1) **Potential for Lower Capex:** The estimated US\$135m capex is based on *new* equipment, however MOD plans to source second hand equipment in key areas to reduce cost. The MD of MOD, Julian Hanna, was one of the founding directors and former MD of Western Areas (WSA). When WSA built its Cosmic Boy plant, it was built at significantly lower capex by sourcing second hand equipment. We believe MOD is well placed to replicate this approach at T3.
- (2) **Conservative Mining Dilution Assumptions:** The T3 Scoping Study assumes mining dilution of 17% between ore blocks, which we regard as very conservative for a bulk mining open pit operation with ore zones up to 40-50m thick. The average life of mine head grade, post dilution, is 1.16%. We would be surprised if there is not less conservative mining dilution assumptions in the PFS.
- (3) **Mine Plan Optimisation:** We see considerable potential to further optimise the T3 mine plan in the PFS. The Scoping Study assumes an ore mining rate of 2mtpa in line with the 2mtpa plant. We believe the PFS may assess potential for higher mining rates of, say 2.5-2.8mtpa or ore, with the highest grade material immediately processed and the lower grade material stockpiled for processing later in the mine life. This approach would “front end” the higher grade material, potentially enhancing early cash flow and project economics (NPV, IRR, paybacks etc)
- (4) **Ignores Potential from Mahumo:** The Scoping Study also ignores the potential for Mahumo to enhance project economics. Mahumo is a high grade deposit ~20km from T3, 100% - owned by MOD, with a resource of 2.7mt @ 2.0% Cu & 50g/t Ag. We see potential for Mahumo to be a small high-grade underground operation, which could sweeten the mill feed at T3.
- (5) **Significant Exploration Potential:** This point probably should *not* be 5th on the list... as this is probably the main area where we see upside for MOD. T3 is a sediment-hosted deposit, which to us suggests a good probability there is a lot more copper to be found here. The company is using a combination of geophysics, soil-sampling and IP to identify flat lying structures around the 50km long T3 Dome structure with a view to finding more flat lying deposits like T3. Given the company already has the mining inventory to support the rapid payback of a 2mtpa plant... further exploration success from here has potential to *materially* enhance project economics (longer mine life, potential for a larger plant, etc).

## SITE VISIT HIGHLIGHTS

One of the first things we noticed about Botswana was the [high quality roads](#) – we drove several hundred kilometres from Maun to T3 along the sealed Ghanzi Highway (LHS below). Another highlight was [the sheer size of MOD's tenement package... it took several hours to drive from one side to the other](#). MOD's exploration camp and core yard was well established and considerably more tidy and well organised than many we have visited. (RHS below).



The three primary copper sulphide minerals present at T3, are:

- Chalcopyrite ( $\text{CuFeS}_2$ ): ~35% copper by weight. Brassy to golden yellow colour
- Bornite ( $\text{Cu}_5\text{FeS}_4$ ): ~63% copper by weight. Iridescent blue to purple (peacock ore)
- Chalcocite ( $\text{Cu}_2\text{S}$ ): ~78% copper by weight. Dark-gray to black with a metallic luster

The approximate proportions are 3:1:1, i.e. 3 x chalcopyrite : 1 x bornite : 1 x chalcocite



Chalcopyrite



Bornite



Chalcocite

Source: Blue Ocean Equities site visit October 2016

## RESOURCE

MOD announced the maiden resource at T3 on 26 September 2016, only ~6 months after the initial discovery hole. The table below provides a summary:

### T3 Resource (September 2016)

JORC Category	Cutoff Cu%	Tonnes	Grade Cu%	Grade Ag g/t	Contained Cu (tonnes)	Contained Ag (oz)
Indicated	0.5	18,071,000	1.35	16.7	244,320	9,724,550
	1.0	10,103,000	1.84	24.2	186,198	7,848,794
	1.5	6,773,906	2.12	29.6	143,675	6,450,935
Inferred	0.5	10,287,000	1.03	13.7	105,853	4,546,534
	1.0	3,162,296	1.82	26.0	57,396	2,640,127
	1.5	1,706,001	2.30	34.5	39,221	1,892,814
<b>TOTAL (Indicated &amp; Inferred)</b>	<b>0.5</b>	<b>28,358,000</b>	<b>1.24</b>	<b>15.7</b>	<b>350,221</b>	<b>14,271,083</b>
	<b>1.0</b>	<b>13,265,000</b>	<b>1.84</b>	<b>24.6</b>	<b>243,678</b>	<b>10,488,664</b>
	<b>1.5</b>	<b>8,479,907</b>	<b>2.16</b>	<b>30.6</b>	<b>182,912</b>	<b>8,343,592</b>

Source: Company

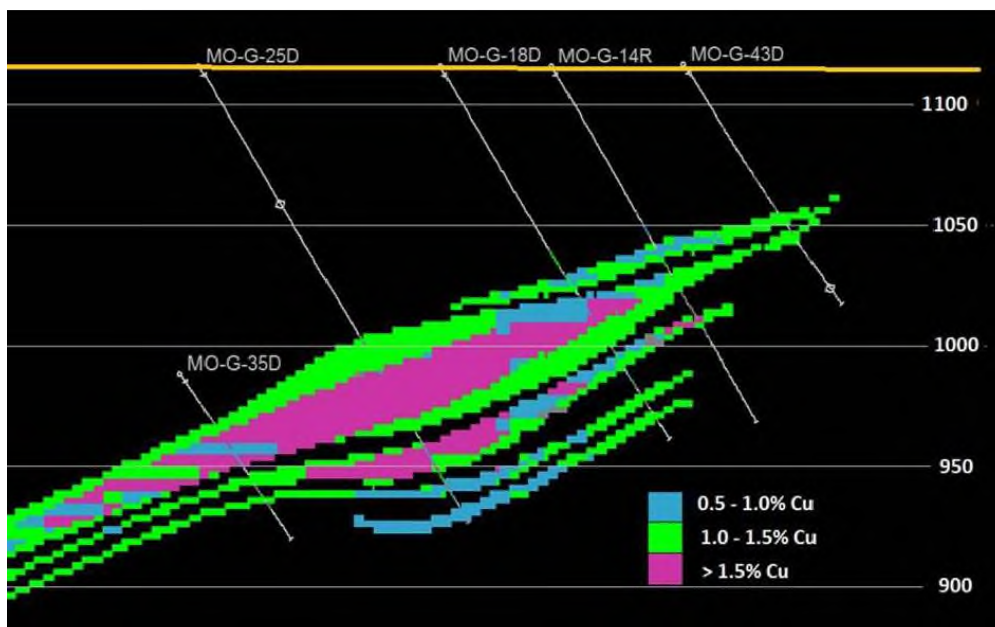
#### Resource Highlights

- 28mt @ 1.24% Cu + 15.7g/t Ag
- Includes high grade core of:  
8.5mt @ 2.16% Cu + 31g/t Ag
- 64% in Indicated category

The mineralisation at T3 consists of disseminated and vein hosted copper sulphides including chalcopyrite, bornite and chalcocite occurring within a shallow dipping sequence of sediments up to 50m true width.

The resource is open along strike west of current drilling and extension drilling is planned in early 2017. Drilling underway to test for shallow mineralization along strike from T3 and MOD is planning a 3D IP survey in early 2017 to help define deeper targets.

### T3 Cross Section highlighting grade distribution and continuity



Mineralisation begins from ~35m depth and extends to the limit of drilling at ~275m depth.

Source: Company



## WHY T3 IS *VERY* DIFFERENT TO BOSETO

Many investors will remember Discovery Metals (ASX:DML) and its Boseto copper project in Botswana. Administrators were appointed for Discovery Metals several years ago.

As is always the case, there were a number of factors which caused this corporate failure, but one of the key drivers was deeper than expected oxidation in the orebody. Process plant recoveries in the oxide and transitional zones were highly variable and much lower than required for the project to generate sufficient cash flow to service its debt.

### The mineralisation at T3 is *very* different to Boseto for 3 key reasons:

- (1) **The mineralisation at T3 is much thicker.** The ore zone at T3 is up to 50m thick whereas Boseto was only 5-15m thick
- (2) **The mineralisation at T3 is flat-lying** whereas Boseto was sub-vertical with much lower copper tonnes per vertical metre.
- (3) **T3 has a calcrete cap which, based on the drilling to date, appears to have limited ground water access to sulphide mineralisation and limited oxidation of the T3 orebody.** The two pictures below illustrate the presence of this calcrete cap.

Points (1) and (2) together are very important for project economics and mean T3 has a *much* lower strip ratio of 5.6:1 (post pre-strip) vs. Boseto at 11.5-15.9:1.

The left hand picture below demonstrates the prevalence of the near surface calcrete. The right hand picture shows the mineralisation profile of one of the holes at T3, with the first few metres comprising the white calcrete material.

### Examples of the calcrete cap at T3



Source: Blue Ocean Equities site visit October 2016

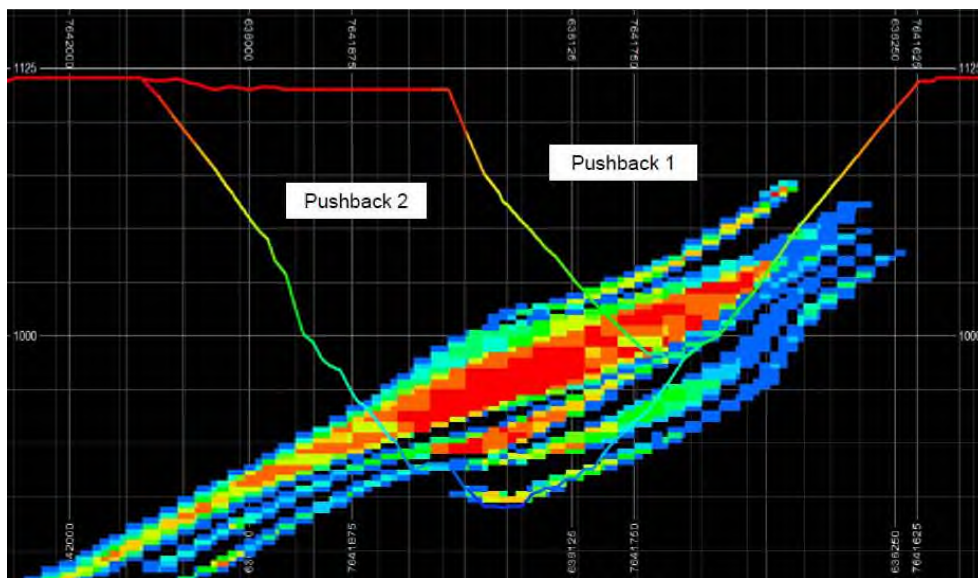
## MINING

The flat lying nature of the T3 deposit, along with its wide and continuous zones make it ideally suited for low cost, open pit mining. The Scoping Study is based on contract mining and a conventional drill, blast, truck and shovel operation.

The Scoping Study assumes 95% ore recovery plus an additional unplanned dilution of 10%. This results in total ore dilution of 17%, a diluted life of mine grade of 1.16% and a life of mine strip ratio of 6.13:1 (including the 9.5mt of pre stripping).

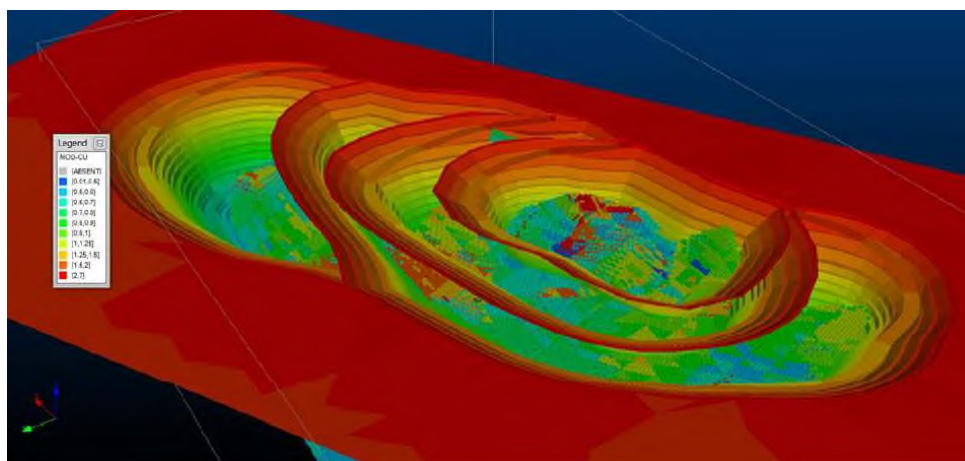
In our view, 17% dilution for a bulk mining operation with ore zones up to 50m wide appears conservative and we would not be surprised to see improved head grades (and less dilution) in the PFS in mid CY17.

### T3 Resource Cross Section with Outline of Proposed Pit



Source: Company

### T3 Proposed 4-Stage Pit Looking South



Source: Company

The Scoping Study outlined a 4-stage pit to a vertical depth of ~220m

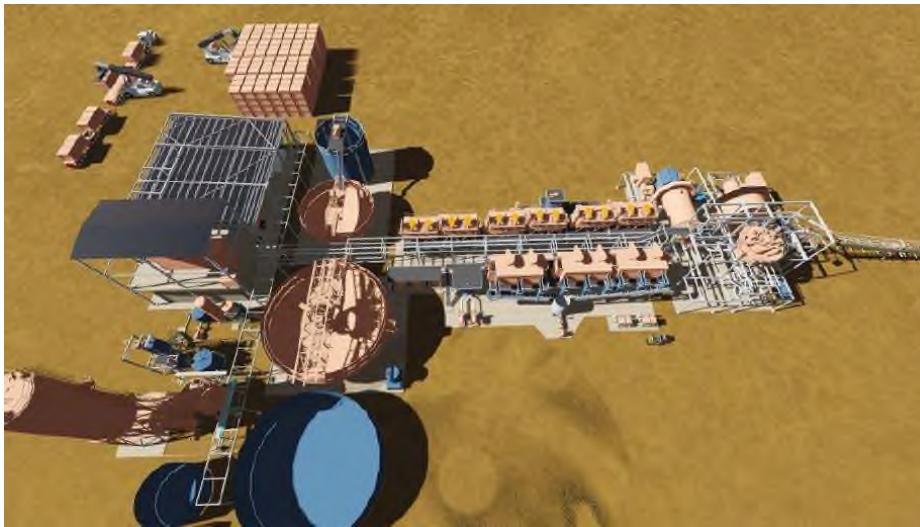
## PROCESSING

As a result of the promising metallurgical testwork to date (see below), the planned process route for T3 comprises a relatively conventional 2mtpa crush, grind, rougher and flotation circuit.

Concentrate will be thickened, filtered and stockpiled prior to being loaded into containers for storage and subsequent transport to third-party smelters.

The plant also has potential to be scaled up to ~3mtpa in the event of additional exploration success at T3 or from additional ore from satellite prospects in the region (like Mahumo, see p14).

### Proposed 2mtpa sulphite flotation plant



Source: Company

Copper mineral proportions across the deposit are assumed to be 3:1:1 for chalcopyrite, bornite, chalcocite respectively. On this basis and using metallurgical testwork data outlined below, recoveries are estimated at 95.6% Cu and 75.3% Ag; yielding concentrates grading approximately 36.5% Cu and 370ppm Ag.

Importantly, testwork to date has confirmed T3's concentrates are low in deleterious elements (e.g. arsenic up to 279ppm As) and are generally well below smelter penalty levels.

Preliminary results of Bond Work Index tests indicate that power requirements for grinding the ore are expected to be relatively low.

### T3 Flotation Testwork Results

Composite	Mass Pull %	Calc Head		Copper		Silver		Bond WI kWh/t
		Cu %	Ag ppm	% Rec	Conc Grade %	% Rec	Conc Grade ppm	
Chalcopyrite	4.1	1.40	7	96.5	33.0	65.9	111	14.5
Bornite	3.1	1.54	38	94.7	47.3	90.2	1101	12.3
Chalcocite	3.3	1.26	17	93.8	36.0	88.8	453	14.1
HG* Chalcopyrite	11.3	4.09	40	98.0	35.5	96.3	340	-
HG* Bornite	8.6	4.25	93	96.3	47.6	92.3	996	-
HG* Chalcocite	11.2	6.86	149	98.7	60.6	97.5	1304	-

Source: Company. \*Note HG = high grade Cu composite samples



## INFRASTRUCTURE

In this section we briefly discuss the key infrastructure elements for T3. We expect a more detailed overview on infrastructure in the PFS, due for completion in Q2 CY17.

**Power:** The Scoping Study assumes on site diesel gensets with a total installed capacity of 12.5MW. MOD has been advised by Botswana Power Corporation that grid power is planned to be extended along the Ghanzi Highway in mid-2019 (only ~12km from T3). The Scoping Study assumes T3 is able to connect to lower cost grid power from CY20.

**Water:** Preliminary water studies have identified multiple areas as potential supply options for process water. Key risks relating to water supply are associated with the nature of the aquifers and the sustainable drawdown capacity. Current work has highlighted a water resource (Ghanzi aquifer) in the area surrounding the T3 project as a potential supply that requires early fieldwork to establish sustainable supply capacity. At this stage we don't believe water is likely to be an issue.

**Tailings:** Tailings capex is assumed at US\$0.5m establishment and US\$0.50/t storage capacity.

**Access:** T3 is ideally located within 12km of the Ghanzi Highway in an area of freehold cattle farms.

**Labour:** The Scoping Study assumes personnel will be based in the town of Ghanzi ~85km west of T3 along the Ghanzi Highway. MOD is considering options to build a more substantial operations base in Ghanzi.

## PERMITTING

Permitting in Botswana is relatively straight forward compared to other jurisdictions and at this stage we don't expect permitting to become a critical path item for the project.

The Scoping Study identified a number of required activities to ensure the project is in compliance with the Equator Principals and the IFS Performance Standards – this is important for a number of reasons, including being a requirement of most international project finance banks.

Baseline Studies for the Environmental and Social Impact Assessment (ESIA) and permitting requirements have been largely defined as part of the Scoping Study and will be progressed further for the PFS.

## FISCAL REGIME

We assume the following Botswana taxes apply to T3:

- 30% income tax
- 3% Govt royalties on copper revenue
- 5% Govt royalties on silver revenue

The company has yet to negotiate a stability agreement with the Botswana Government, however based on other projects, it believes it is likely to receive a 2-year holiday on copper royalties (which @ US\$2.80/lb on our forecasts represents an incentive worth approximately US\$8-10m).

A stability agreement may also include other incentives like accelerated depreciation or income tax holidays. However, for now, our forecasts do not include any of these potential benefits.



## BREAKDOWN OF CAPEX & OPEX

The table below provide a breakdown of the capex for T3, to an accuracy of +/-35%. The initial capex estimate of US\$135m includes US\$17.6m for pre-stripping and a further 16% for contingency or US\$18.3m.

### T3 Initial Capex

Activity	US\$(m)
Mining	2.0
Processing	62.7
Tailings storage	3.8
Infrastructure	23.0
Contingency	18.3
Owner's costs	7.6
Mining pre-strip	17.6
<b>Total</b>	<b>135.0</b>

Source: Company

The Scoping Study estimated:

- life of mine cash costs pre royalties at US\$1.29/lb
- including a US25c/lb credit for silver in concentrate (at a silver price of US\$19.72/oz); and
- including TC/RC costs of \$0.4/lb (including transport)

We endorse the company's cost assumptions (see p20), and our forecasts assume:

- Mining cost of US\$2.80/t material (or US\$18.51/t ore, using 5.61:1 strip post pre strip)
- Processing cost of US\$8.0/t ore
- G&A of US\$1.50/t ore
- Concentrate transport cost of US\$80/t (800km to Botswana smelter @ US10c/t/km)
- Copper TC/RCs of US\$100/t conc & US10c/lb payable copper
- Concentrate marketing costs of US\$10/t conc

## DEVELOPMENT TIMETABLE

Our forecasts assume the following development timetable for T3:

- PFS complete in Q2 CY17 (estimated cost for MOD's 70% share US\$1m)
- DFS complete by Q1 CY18 (estimated cost for MOD's 70% share US\$1.9m)
- Finance in place by Q3 CY18 (both debt and equity)
  - there is potentially some buffer in this 6-month period, although in our experience documenting project finance loan agreements *can* take up to ~6 months from completion of final studies
- 12 month construction period from Q4 CY18 to Q3 CY19
- First Production in Q1 CY19

This schedule is in line with the company's schedule provided in the Scoping Study:

Milestone	Target Timeline (CY)
Commence PFS	Q1 2017
Completion of PFS	Q2 2017
Completion of DFS	Q1 2018
Decision to Mine	Q1 2018
Target Date to Commence Production	Q4 2019

Source: Company

## MAHUMO: A MODEST HIGH GRADE DEPOSIT

MOD released its maiden resource for its 100%-owned Mahumo copper project in April 2015:

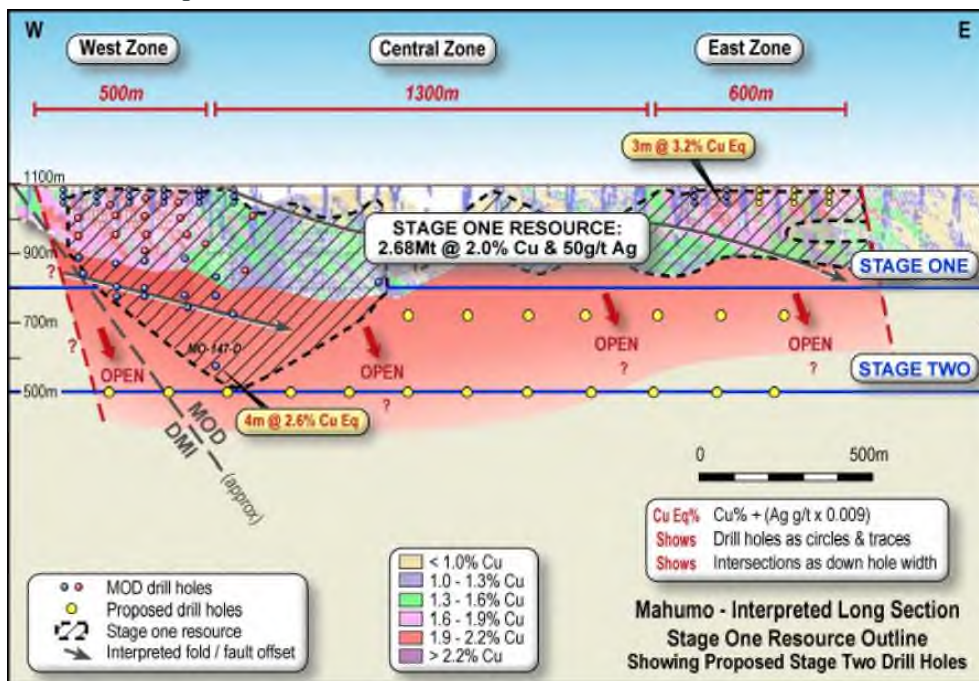
### Mahumo Resource (April 2015)

Total Resources @ 1.0% Cu cut-off						
JORC Category	Tonnes	Cu%	Ag g/t	CuEq%	Cu Tonnes	Ag Ounces
Measured	518,000	1.93	48.8	2.37	10,000	813,000
Indicated	1,726,000	1.87	48.0	2.30	32,280	2,660,000
Inferred	433,000	2.52	57.4	3.03	10,900	800,000
<b>Total</b>	<b>2,677,000</b>	<b>2.00</b>	<b>50.0</b>	<b>2.44</b>	<b>53,180</b>	<b>4,273,000</b>

Source: Company

Mahumo is located ~20km north of T3, and consists of a steeply dipping orebody, dipping ~70-80 degrees south east. The deposit has been defined along an initial 2.4km strike and is dominated by chalcocite and bornite copper sulphides which extend from shallow depth (~15-25m depth) to the limit of drilling at ~500m depth.

### Mahumo long section



Source: Company

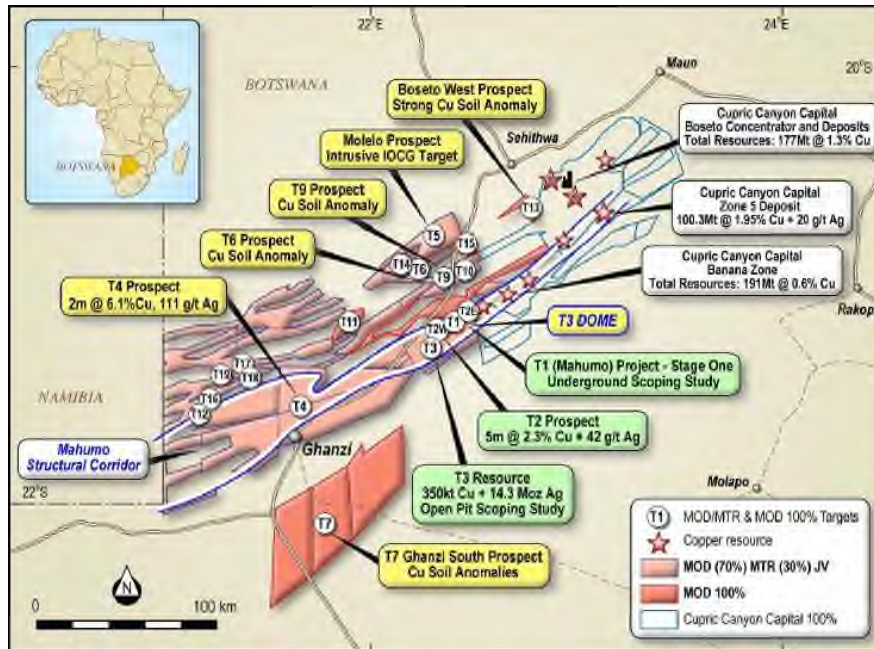
Prior to the discovery of T3, MOD undertook a Scoping Study to explore the option of developing a modest underground mine and toll treating operation at Mahumo. Initial metrics comprised:

- A 500ktpa underground mine with two declines
- 2.5m wide stope widths using air legging (commonly used in south Africa)
- Mining costs including decline, waste development and stoping were estimated at ~US\$45/t ore

With the recent T3 Scoping Study confirming MOD has the critical mass to build its own plant, we now regard Mahumo as a potential satellite mine to T3, representing potential to sweeten the mill feed grade at T3.

## EXPLORATION: A KEY PART OF THE MOD STORY

MOD's holdings comprise 25 prospecting licences with a very large area comprising ~11,500km<sup>2</sup> in the relatively unexplored central and western Kalahari Copper Belt.



Despite over 5mt of copper in resource being defined to date in this prospective copper belt, MOD's adjacent leases are largely underexplored.

All the resources in the belt are sediment hosted deposits which occur within (two) sequences folded into domes and intersected by major geological structures, shallow angle thrusts, etc. This raises the potential for widespread copper sulphide mineralisation.

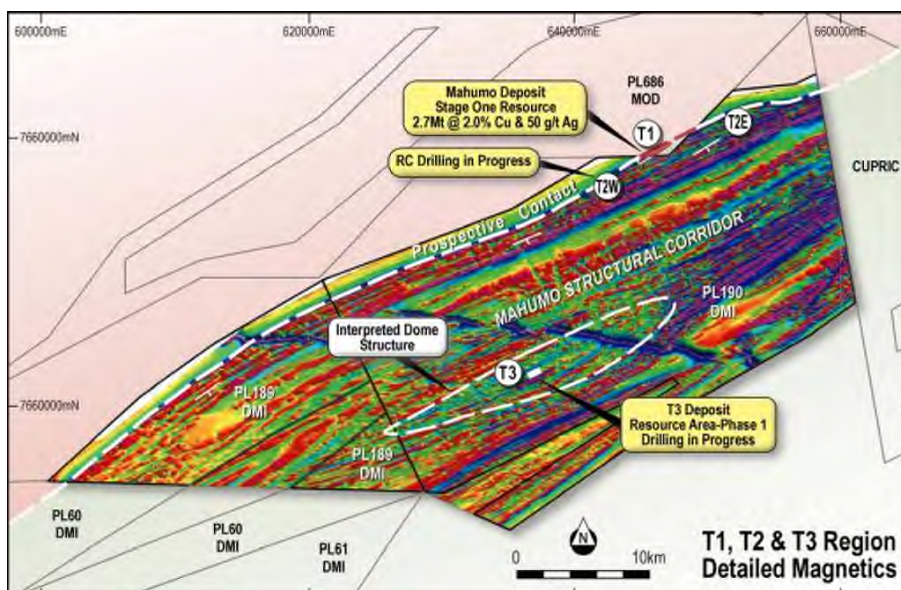
Source: Company release 9 October 2016

MOD is targeting flat lying structures, via a three stage exploration strategy:

- **Magnetics** to identify the host sequence near surface
- **Soil sampling** to identify anomalous near surface copper
- **IP** to identify structures likely to host economic copper mineralisation

One of the key structural features MOD has focused on is the T3 Dome (outlined in white below), a structure which is interpreted to extend over a length of >50km.

The T3 Dome, a structure over 50km long



One of MOD's key exploration targets is flat lying structures around the T3 Dome

Source: Company

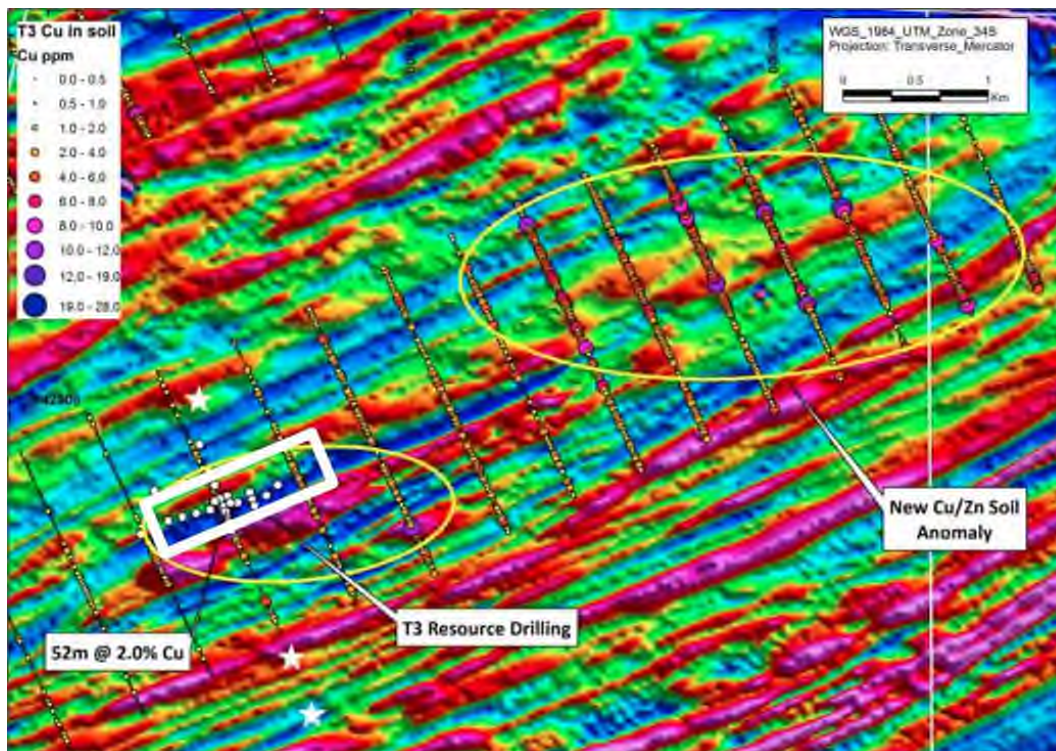


In early 2017, MOD plans to ramp up exploration (in parallel with the PFS) to test a large area of the T3 Dome (~250km<sup>2</sup>) directly north of T3 for similar type sediment hosted deposits.

In the picture below:

- MOD has identified a copper-in-soils anomaly over 12km long
- The white rectangle shows the T3 deposit over ~1.4km of strike
- The large yellow circle shows the new copper-in-soils anomaly which was defined in parallel with the drilling at T3. [Interestingly, the copper in soils in this new zone is showing higher copper values than T3. We regard this as a very prospective target and believe this is likely to be one of the targets MOD will test in CY17.](#)

#### Detailed magnetics at T3 overlayed with copper-in-soils



Source: Company

#### Our view on MOD's exploration potential

MOD acquired its 70% stake in the JV licences at the bottom of the cycle, and discovered T3 at shallow depth in March 2016...[only 3 weeks after gaining access to the JV licences.](#)

[We believe it is highly likely the company will have further exploration success in this prospective region](#) and if it can find another deposit like T3, we believe the stock would likely rally strongly towards our A8c price target (recent high A6.2c) and perhaps even test our A12c Strategic Target:

- Since T3 is already sufficient to underpin a rapid payback for a 2mtpa plant, further exploration success would likely lead to a material increase on our valuation (longer mine life, potential to scale up plant to 3mtpa+, etc)
- Markets would likely begin to price in a much higher probability of further exploration success, particularly given the mineralisation style is sediment hosted
- Given its dominant land position in this highly prospective copper belt, [we believe MOD would almost certainly become a takeover target \(if it isn't already\)](#)



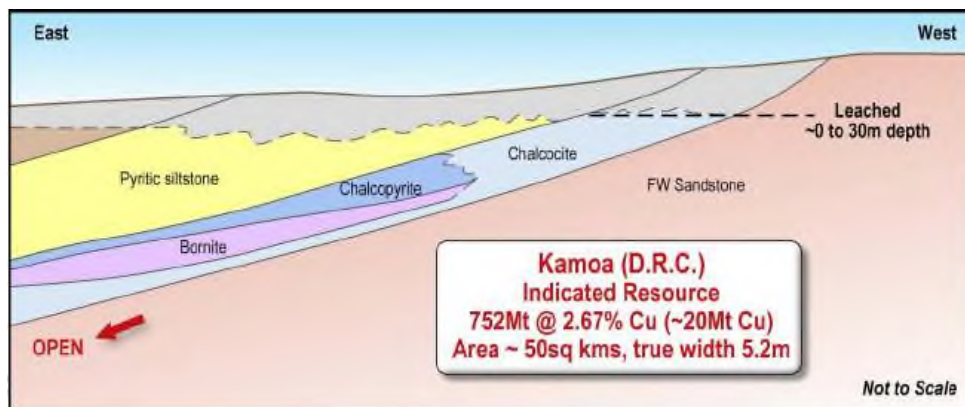
## THE IMPORTANCE OF MINERALISATION STYLE

All the copper resources on the Kalahari Copper Belt are sediment hosted deposits which occur within (two) sequences folded into domes and intersected by major geological structures, shallow angle thrusts, etc.

Sediment-hosted deposits can be very pervasive over large areas and we believe this suggests potential for widespread copper sulphide mineralisation on MOD's package. It this style of mineralisation which is one of the reasons we think MOD's ground is so prospective.

The picture below shows an example of a sediment-hosted copper deposit – the Kamoa copper project in the DRC. Kamoa is a sediment-hosted copper deposit and extends over a very large area of ~50km<sup>2</sup>. It's also a *very* large deposit with a resource of 752mt @ 2.67% copper containing ~20mt of copper.

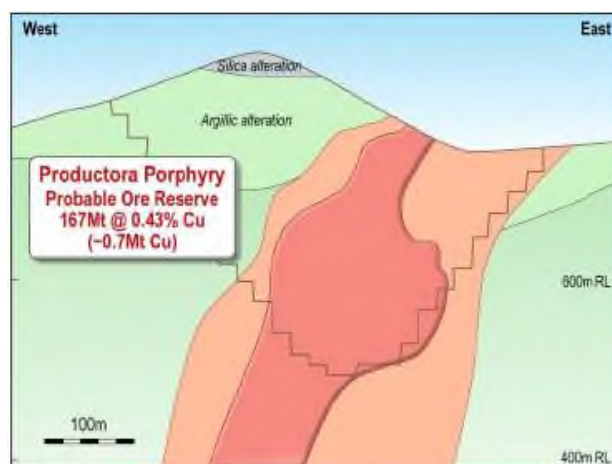
### Example of a sediment-hosted copper deposit



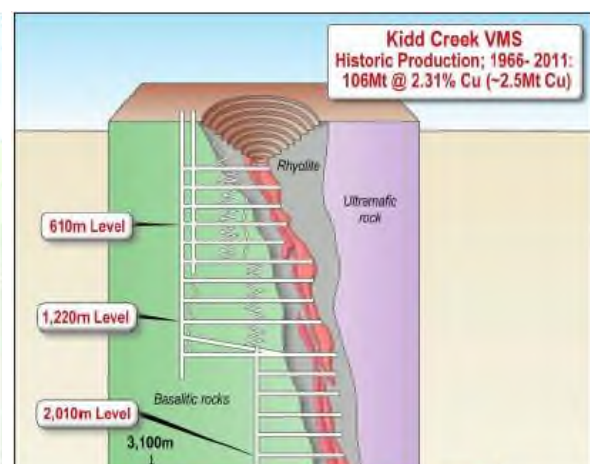
**Sediment  
hosted Cu**

Source: Company

### Other styles of copper deposits: Porphyry and VMS-hosted copper mineralisation



**Porphyry hosted Cu**



**VMS hosted Cu**

Source: Company

## BOTSWANA: A PREFERRED JURISDICTION IN AFRICA

Botswana is a landlocked country in southern Africa, with a strong stable democracy and a consistent record of uninterrupted democratic elections back to 1966.

Botswana is topographically flat with the Kalahari Desert stretching across ~70% of the country. With a population of just over 2 million, it is also one of the most sparsely populated nations in the world.

Botswana has an internationally respected mining industry, Mining Act and English language based commerce.

According to the Belgian export credit agency, Botswana is also one of the lowest risk countries in Africa (see below).



Source: Company Reports

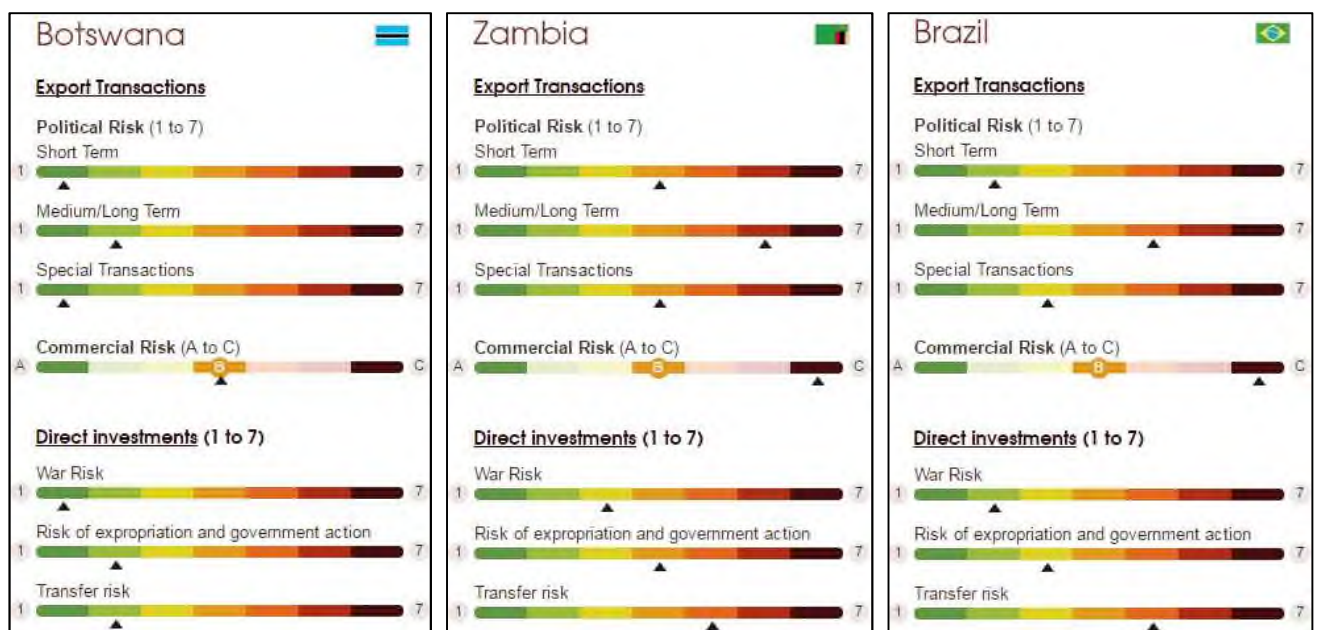
### SOVEREIGN RISK

The pictures below show a comparison of country risk according to Delcredere | Ducroire, the world's second largest credit insurer. As Belgium's public credit insurer, it provides cover for companies and banks against political and commercial risks relating to international transactions.

According to Delcredere | Ducroire:

- [Botswana is much lower risk than Zambia](#), being [lower risk on all 7 measures below](#). Zambia is the home of the Lumwana copper project, previously owned by Equinox Minerals (EQN). Equinox was acquired by Barrick Gold for C\$7.3bn in April 2011.
- [Botswana is much lower sovereign risk than Brazil](#), again being [lower risk on all 7 measures below](#). One of MOD's ASX-listed copper developing peers is the Brazil-based Avanco Resources (AVB). Avanco achieved first copper production in April 2016.

#### Comparing Sovereign Risk



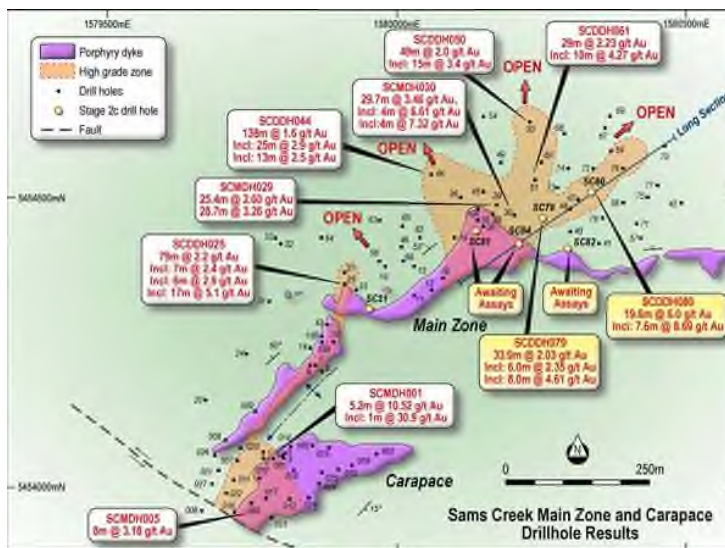
Source: Delcredere | Ducroire

## SAMS CREEK GOLD PROJECT, NEW ZEALAND

MOD Resources also owns 80% of the Sams Creek gold project, 100km north of the Reefton gold field on the South Island of New Zealand. OceanaGold Corporation owns the remaining 20% of the project.

Sams Creek has a 1moz resource at 1.54g/t, but is non-core in the MOD portfolio and the company announced plans to divest this asset earlier this year.

### Sams Creek Main Zone & Carapace



Source: Company



Source: Company

### Sams Creek Main Zone Longitudinal Section



Source: Company



## INVESTMENT PROPOSITION

This section provides an in-depth look at our valuation assumptions for MOD Resources.

### VALUATION ASSUMPTIONS

The table below summarises our key valuation assumptions based on the T3 Scoping Study. Bottom line, we endorse most of the company's Scoping Study assumptions.

Project Metric	Scoping Study (100% basis)	Commentary
Initial Capex	US\$135m	+/-35%, includes US\$18.3m contingency
Plant size	2mtpa	
Copper head grade (diluted)	1.12%	after mining dilution of 17%
Copper recovery	95%	
Copper-in-conc production	21.8ktpa	
Silver production	665kozpa	
Cash costs pre royalties (but post silver credit)	US\$1.31/lb	In line with Scoping Study of US\$1.29/lb (difference due to higher copper prices)
Cash costs incl royalties	US\$1.41/lb	3% royalty on copper, 5% royalty on silver
All-in Sustaining Costs	US\$1.51/lb	We estimate sustaining capex of ~US\$4.1m p.a. based on 3% of initial capex
Mine Life	9.25 years	
IRR Post Tax	31%	
Discount Rate	10%	10% nominal, 8% real
NPV Post Tax	US\$136m	Ignoring potential fiscal incentives (see p12)

Source: Company data, Blue Ocean Equities

Our valuation of MOD is predominately based on a DCF for T3 using a US\$2.80/lb copper price, a US\$18.00/oz silver price and a nominal discount rate of 10%. We apply a 30% discount to our NPV for T3 given the early stage nature of the project.

To arrive at our A\$24m valuation of Mahumo, we apply the same DCF assumptions as T3, assuming US\$20m initial capex to establish a modest underground mine, underground mining costs of US\$45/t (as per the Mahumo Scoping Study) with ore trucked ~20km to the T3 mill (at a cost of US10c/t/km). We then apply a 50% discount to NPV given the early stage nature of this project.

We ascribe a notional A\$30m valuation to the company's exploration potential, based on our assessment of prospectivity post the site visit to Botswana in October. If the company can find another deposit like T3, it is likely we would need to increase this notional estimate.



## VALUATION SENSITIVITY

Based on the valuation assumptions outlined on the previous page, our post-tax NPV for 100% of T3 is US\$136m at a copper price of US\$2.80/lb, silver price of US\$18.00/lb and a nominal discount rate of 10%.

The sensitivity table below provides our estimate of NPV for 100% of T3 at a range of copper prices and discount rates:

Post-Tax NPV (US\$m, 100%)		Copper Price (US\$/lb)				
		2.00	2.50	3.00	3.50	4.00
Discount	6%	10	124	238	351	465
Rate	8%	-1	101	203	305	406
(nominal)	10%	-10	81	173	265	356
	12%	-18	65	147	230	313

Source: Blue Ocean estimates

The sensitivity table below provides our estimate of Post Tax IRR for 100% of T3 at a range of copper prices.

Post-Tax IRR (100%)		Copper Price (US\$/lb)				
		2.00	2.50	3.00	3.50	4.00
		6%	23%	36%	48%	59%

Source: Blue Ocean estimates

## FUNDING ASSUMPTIONS

We assume the company develops T3 using traditional project finance with 60% debt and 40% equity once the DFS is completed in Q1 CY18.

Funding Uses		US\$m	Funding Sources		US\$m
Initial capex (100%)		135	Debt	60%	93
Working capital		20	Equity	40%	62
<b>Total</b>		<b>155</b>	<b>Total</b>		<b>155</b>

Source: Company, Blue Ocean Equities

We believe it is likely the project debt would be arranged with the JV rather than MOD Resources (70%) and Metal Tiger (30%) separately.

Based on our assumed debt/equity split, MOD would need to raise its share of equity to fund development, being 70% of US\$62m, or ~US\$43m.

## PRICE TARGET & RATING

Our 8c Price Target is for MOD Resources based on:

- An NPV for T3 using US\$2.80/lb copper and a 10% nominal discount rate
- A 30% discount to NAV for the development risks ahead

We rate MOD Resources a high conviction Buy and our 8c Price Target represents an implied return of ~200%.

## STRATEGIC TARGET

We derive our longer-term 12c Strategic Target for MOD Resources based on removing the 30% discount applied to our NPV for T3 for development risk.

Our 12c Strategic Target represents an implied return of ~340%. It is important to note that our Strategic Target does *not* account for higher copper prices *or* for further exploration success.

## KEY RISKS

MOD Resources is exposed to all the normal risks associated with developing and operating mining projects, including funding and construction risk.

Assuming the company makes the transition into production, the company's revenues will be derived from the sale of copper and silver. Fluctuations in the copper and silver price as well as the Australian dollar could impact the company's reported cash flow (in A\$), profitability and share price.

As MOD's T3 copper project is based in Botswana, an investment in MOD Resources also carries Botswana sovereign risk.

## MODEL SUMMARY: FINANCIALS & VALUATION (A\$M)

### Stock Details

Recommendation:	<b>BUY</b>					Enterprise Value	\$42m
Target	\$0.08	Share Price	\$0.027	Strategic Target (ST)	\$0.12	Diluted MCap	\$43m
NAV	\$0.08	52 Week High	\$0.062	Implied Return to ST	344%	Diluted Shares	1,586m
Implied Return	196%	52 Week Low	\$0.004			Free Float	100%
						Avg Daily Value	\$0.3m

Macro Assumptions	CY16E	CY17E	CY18E	CY19E	CY20E
Copper Price (US\$/lb)	2.21	2.50	2.70	2.80	2.80
Silver Price (US\$/oz)	17.32	18.00	18.00	18.00	18.00
Exchange Rate (A\$/US\$)	0.74	0.73	0.72	0.71	0.70

Profit & Loss (A\$m)	CY16E	CY17E	CY18E	CY19E	CY20E
Revenue	-	-	-	23	111
Operating Costs	-	-	-	(11)	(54)
<b>Operating Profit</b>	-	-	-	<b>12</b>	<b>57</b>
Corporate & Other	(2)	(2)	(2)	(2)	(4)
Exploration Expense	(1)	(1)	(1)	(1)	(1)
<b>EBITDA</b>	<b>(3)</b>	<b>(3)</b>	<b>(3)</b>	<b>8</b>	<b>51</b>
D&A	(0)	(0)	(0)	(2)	(12)
<b>EBIT</b>	<b>(3)</b>	<b>(4)</b>	<b>(4)</b>	<b>6</b>	<b>39</b>
Net Interest Expense	(0)	(0)	(0)	(3)	(8)
<b>Pre-Tax Profit</b>	<b>(3)</b>	<b>(4)</b>	<b>(4)</b>	<b>3</b>	<b>32</b>
Tax Expense	-	-	-	(1)	(10)
Minorities (5% Govt)	-	-	-	-	-
<b>Underlying Profit</b>	<b>(3)</b>	<b>(4)</b>	<b>(4)</b>	<b>2</b>	<b>22</b>
Significant Items (post tax)	-	-	-	-	-
<b>Reported Profit</b>	<b>(3)</b>	<b>(4)</b>	<b>(4)</b>	<b>2</b>	<b>22</b>

Cash Flow (A\$m)	CY16E	CY17E	CY18E	CY19E	CY20E
Operating Cashflow	(2)	(2)	(2)	10	53
Tax	-	-	-	(1)	(10)
Net Interest	(0)	(0)	(0)	(3)	(8)
<b>Net Operating Cash Flow</b>	<b>(2)</b>	<b>(2)</b>	<b>(2)</b>	<b>6</b>	<b>35</b>
Exploration	(2)	(3)	(3)	(3)	(3)
<b>Capex</b>	<b>-</b>	<b>-</b>	<b>(33)</b>	<b>(101)</b>	<b>(4)</b>
Acquisitions / Disposals	2	-	-	-	-
Other	-	-	-	-	-
<b>Net Investing Cash Flow</b>	<b>(0)</b>	<b>(3)</b>	<b>(36)</b>	<b>(104)</b>	<b>(7)</b>
Equity Issue	6	9	58	3	-
Borrowing / Repayments	(1)	-	-	87	(35)
Dividends	-	-	-	-	-
Other	-	-	-	-	-
<b>Net Financing Cash Flow</b>	<b>5</b>	<b>9</b>	<b>58</b>	<b>90</b>	<b>(35)</b>
Change in Cash Position	3	4	20	(8)	(6)
FX Adjustments	(0)	-	-	-	-
<b>Cash Balance</b>	<b>5</b>	<b>17</b>	<b>34</b>	<b>35</b>	<b>26</b>

Balance Sheet (A\$m)	CY16E	CY17E	CY18E	CY19E	CY20E
Cash	3	7	28	20	13
Other Current Assets	0	0	0	0	0
PP&E	(0)	(0)	33	132	124
Exploration & Development	13	15	16	17	19
Other Non Current Assets	-	-	-	-	-
<b>Total Assets</b>	<b>17</b>	<b>22</b>	<b>77</b>	<b>169</b>	<b>156</b>
Debt	2	2	2	88	54
Other Liabilities	2	2	2	2	2
<b>Net Assets</b>	<b>14</b>	<b>19</b>	<b>74</b>	<b>79</b>	<b>101</b>

Ratio Analysis		CY16E	CY17E	CY18E	CY19E	CY20E
Diluted Shares	m	1,471	1,703	2,728	2,778	2,778
EPS - Diluted	Ac	(0.2)	(0.2)	(0.2)	0.1	0.8
<b>P/E</b>	<b>x</b>	<b>n.m.</b>	<b>n.m.</b>	<b>n.m.</b>	<b>34.7x</b>	<b>3.4x</b>
CFPS - Diluted	Ac	(0.1)	(0.1)	(0.1)	0.2	1.3
<b>P/CF</b>	<b>x</b>	<b>n.m.</b>	<b>n.m.</b>	<b>n.m.</b>	<b>12.4x</b>	<b>2.1x</b>
FCF - Diluted	Ac	(0.1)	(0.1)	(1.3)	(3.3)	1.4
<b>P/FCF</b>	<b>x</b>	<b>n.m.</b>	<b>n.m.</b>	<b>n.m.</b>	<b>n.m.</b>	<b>1.9x</b>

Dividends	Ac	-	-	-	-	-
Dividend yield	%	-	-	-	-	-
Payout Ratio	%	-	-	-	-	-
Franking	%	-	-	-	-	-

Enterprise Value	A\$m	41	37	16	112	83
<b>EV/EBITDA</b>	<b>x</b>	<b>n.m.</b>	<b>n.m.</b>	<b>(4.8x)</b>	<b>13.3x</b>	<b>1.6x</b>
ROE	%	(22%)	(19%)	(5%)	3%	22%
ROA	%	(18%)	(16%)	(5%)	1%	14%

Net Debt or (Cash)	A\$m	(2)	(6)	(26)	69	40
Gearing (ND/(ND+E))	%	n.m.	(46%)	(56%)	47%	28%
Gearing (ND/E)	%	n.m.	(32%)	(36%)	87%	40%

### Reserves & Resources

Resources		mt	% Cu	g/t Ag	kt Cu	moz Ag
<b>T3</b>	M+I	18.1	1.35%	16.7	244	9.7
	Inferred	10.3	1.03%	13.7	106	4.5
	<b>M+I+I</b>	<b>28.4</b>	<b>1.24%</b>	<b>15.7</b>	<b>350</b>	<b>14.3</b>
<b>Mahumo</b>	M+I	2.2	1.88%	48.2	42	3.5
	Inferred	0.4	2.52%	57.4	11	0.8
	<b>M+I+I</b>	<b>2.7</b>	<b>2.00%</b>	<b>50.0</b>	<b>53</b>	<b>4.3</b>

<b>Reserves</b>	<b>T3</b>	<b>P+P</b>	-	-	-	-
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Earnings Sensitivity			CY19E	CY20E	CY19E	CY20E
			A\$m	A\$m	%	%
Copper Price	US\$/lb	+10%	1.5	7.3	70%	33%
Silver Price	US\$/oz	+10%	0.1	0.6	5%	3%
FX translation to A\$ accts	A\$/US\$	-10%	0.4	2.9	16%	13%

Valuation	Discount	Stake	A\$m	A\$/sh
T3 (unrisked)	-	70%	138	0.09
T3 (risk-adjusted)	30%	70%	97	0.06
Mahumo (risk-adjusted)	50%	100%	24	0.02
Exploration			30	0.02
Corporate & Other			(28)	(0.02)
Debt			(1.5)	(0.00)
Cash			1.9	0.00
Option Strikes			0.6	0.00
<b>Risk adjusted NAV</b>			<b>122</b>	<b>0.08</b>
				0.35

Source: Company data, Blue Ocean Equities

## MODEL SUMMARY: OPERATIONAL INPUTS & FREE CASH FLOW (US\$m)

							Macro Assumptions						
								CY17E	CY18E	CY19E	CY20E	CY21E	
							Copper Price	US\$/lb	2.50	2.70	2.80	2.80	2.80
							Silver Price	US\$/oz	18.00	18.00	18.00	18.00	18.00

Operational Summary							CY17E	CY18E	CY19E	CY20E	CY21E
T3 (100% basis)											
Ore Milled	mt	-	-	0.3	1.4	2.0					
Head Grade	%	-	-	1.35%	1.35%	1.35%					
Recovery	%	-	-	95%	95%	95%					
Copper in Conc	kt	-	-	4	17	26					
Mining Costs	US\$/lb	-	-	0.68	0.68	0.68					
Processing Costs	US\$/lb	-	-	0.29	0.29	0.29					
G&A	US\$/lb	-	-	0.06	0.06	0.06					
Transport & Marketing	US\$/lb	-	-	0.12	0.12	0.12					
TC/RCs	US\$/lb	-	-	0.23	0.23	0.23					
Silver Credit	US\$/lb	-	-	(0.22)	(0.22)	(0.22)					
C1 Cash Costs	US\$/lb	-	-	1.16	1.16	1.16					
Royalties	US\$/lb	-	-	0.09	0.09	0.09					
Operating Cost	US\$/lb	-	-	1.26	1.26	1.26					
Sustaining Capex	US\$/lb	-	-	0.13	0.11	0.07					
All-in Sustaining Cost	US\$/lb	-	-	1.39	1.37	1.33					
% AISC Margin	%	-	-	50%	51%	52%					

FCF Contribution							US\$m	CY17E	CY18E	CY19E	CY20E	CY21E
T3 (MOD's 70% share)												
Revenue	US\$m	-	-	16	78	115						
Operating Costs	US\$m	-	-	8	38	56						
Sustaining Capex	US\$m	-	-	1	3	3						
All-in Sustaining Cost	US\$m	-	-	9	41	59						
AISC Margin	US\$m	-	-	8	37	56						
Initial Capex	US\$m	-	24	71	-	-						
Exploration	US\$m	2	2	2	2	2						
Corporate	US\$m	CY17E	CY18E	CY19E	CY20E	CY21E						
Cash Tax		-	-	1	7	12						
Corporate Overheads		1	1	2	3	3						
Other Items		0	0	(0)	-	-						
FCF pre Debt Service		(3)	(27)	(68)	25	39						
Net Interest		0	0	2	5	3						
Debt Drawdown / (Repayment)		-	-	61	(24)	(24)						
FCF post Debt Service		(3)	(27)	(8)	(4)	12						
New Equity/Dividends	US\$m	CY17E	CY18E	CY19E	CY20E	CY21E						
Proceeds from Shares/Options		6	42	2	-	-						
Dividends Paid		-	-	-	-	-						
Change in Cash		3	15	(6)	(4)	12						
Cash Balance		13	24	24	18	36						

Source: Company data, Blue Ocean Equities



## BOARD & MANAGEMENT

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**Mark Clements, Executive Chairman:** Mr Clements has 19 years' experience in corporate accounting and public company administration. He is a Fellow of the Institute of Chartered Accountants in Australia and a Member of the Australian Institute of Company Directors. Since 1997, Mr Clements has held the roles of CEO and Company Secretary of Medical Corporation Australasia Limited (which changed its name to MOD Resources Limited in July 2011) and has been responsible for the financial and corporate administration of the Company. Mr Clements was appointed COO of the Company in 2005 and became Executive Director in 2006. Mr Clements was appointed Chairman on 30 April 2014.

**Julian Hanna, Managing Director:** Mr Hanna is a geologist with over 35 years' experience in a wide range of activities including project acquisitions, exploration, development, mining and corporate growth. This includes 15 years in senior management roles with a number of gold mining companies in Western Australia. Mr Hanna was the Managing Director of Western Areas for 12 years before stepping down in January 2012. He was a co-founder of Western Areas and led the company during its transformation from a \$6 million junior explorer to become Australia's third largest nickel mining company capitalised at more than \$800 million. Mr Hanna is a Non-Executive Director of Western Areas NL and Mustang Minerals Corp. Mr Hanna was appointed Non-Executive Director on 22 January 2013 and then appointed Managing Director on 19 March 2013.

**Simon Lee AO, Non-Executive Director:** Mr Lee AO has a successful track record in the resources industry spanning almost 30 years. He was instrumental in building gold mining houses Great Victoria Gold, Samantha Gold and Equigold – which was acquired by Lihir Gold for \$1.1bn. In 1993, Mr Lee received the Advance Australia Award for his contribution to commerce and industry and in 1994 he was bestowed an Officer of the Order of Australia.

**Steve McGhee, Non-Executive Director:** Mr McGhee is a metallurgist with over 25 years' experience in the mining industry covering, testwork management, project development, engineering, commissioning and process plant management. He has held senior management operations and project roles throughout Australia, South East Asia and South America with particular emphasis on gold and base metals. Mr McGhee was appointed Non-Executive Director on 30 April 2014. He is also a Director of Perth-based Independent Metallurgical Operations (IMO).

**Jacques Janse van Rensburg, GM Exploration Africa:** Mr Janse van Rensburg has extensive experience in planning and coordinating large scale resources projects in Africa in a career spanning more than 25 years. He was the Project Manager for the Ghanzi Project for three years until December 2010, during which time Canadian based Hana Mining Ltd built its significant Ghanzi copper-silver resource. Mr Janse van Rensburg has also worked as Exploration Manager for both Pangea Exploration in the Democratic Republic of Congo and Anoroaq Resources (Hunter Dickinson) in South Africa. Most recently, Mr Janse van Rensburg was the Project Manager for New Hana Copper Mining Ltd's Kuke copper-silver project on the Kalahari Copper Belt. Mr Janse van Rensburg graduated from the University of Johannesburg in South Africa in 1987 with a BSc Geology (Honours). Mr Janse van Rensburg was appointed General Manager Exploration (Africa) on 8 December 2011.

**Mr Paul Angus, Project Manager Exploration New Zealand**

Mr Angus has a BSc (Hons) degree in Geology from University of Otago and has over 25 years mining, development and exploration experience within New Zealand. Mr Angus joined Macraes Mining Ltd in 1990 as a mine geologist and was appointed as New Zealand Exploration Manager in 1995 and managed an exploration team of over 50 with an annual budget of \$10-15M. During the next two years his team discovered over 2Moz of gold at Macraes and Reefton. Mr Angus left OceanaGold in 2005 and has been consulting on mining and exploration projects principally for Solid Energy on the Stockton coal operations and the Southland lignite project. In 2011, Mr Angus joined MOD as Project Manager Exploration (New Zealand) and is a Director of MOD's subsidiary Sams Creek Gold Limited.

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