

HALLGARTEN + COMPANY

Coverage Update

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Cobre

(ASX: CBE)
Strategy: LONG

Key Metrics

Price (AUD)	\$0.073
12-Month Target Price (AUD)	\$0.44
Upside to Target	503%
12mth hi-low	\$0.039-\$0.17
Market Cap (AUD mn)	\$20.94
Shares Outstanding (mns)	286.91
Options (mns)	37.60
Fully Diluted (mns)	324.52

Cobre

Fast Tracking with In-Situ Copper Recovery?

- + Cobre is targeting copper potential in the highly prospective Kalahari Copper Belt (KCB) of Botswana
- + Trials are advancing rapidly on underpinning Proof of Concept on the application of In-Situ Copper Recovery at the Ngami Copper Project (NCP)
- + Even though it is still early days at Cobre, the fleshing out of ideas on ISCR potential at NCP gradually is moving the company towards the development category
- + The company has around AUD\$1.5mn in the bank and has just been awarded a BHP Xplor award of a further US\$500k, an impressive endorsement of the exploration strategy
- + Botswana maintains its reputation as one of the best mining jurisdictions in Africa
- + The company also has a strategic foothold in Armada Metals which while seeking Nickel and other base metals in Gabon, has recently expanded its efforts to Zimbabwe and Brazil
- ✗ The price of the stock has slipped in the generalized downdraft in battery metals stories, even though Cobre's copper evolution is in no way dependent upon EV demand
- ✗ Copper pullback is more a product of sloppy Chinese and Western economies than the travails of the battery metals space
- ✗ The environment for funding exploration is mixed with investors looking to pick winners not just perpetual drillers going thru the motions

Progress Thus Far

In this update, we shall look at Cobre's bifurcation of effort in Botswana. It's conventional exploration of the Kitlanya West target is continuing along at a strong pace however; in the case of the Ngami Copper Project (NCP) the target is believed to lend itself to In Situ Copper Recovery (ISCR). This technique potentially can accelerate the project towards production with a shorter time frame, less environmental issues and a simpler process flowsheet.

And a Major Feather in the Cap

On the 22nd of January, it was announced that Cobre had been awarded a place in BHP's esteemed Xplor program. Xplor is a global accelerator program targeting innovative, early-stage mineral exploration companies to find the critical resources necessary to drive the energy transition.

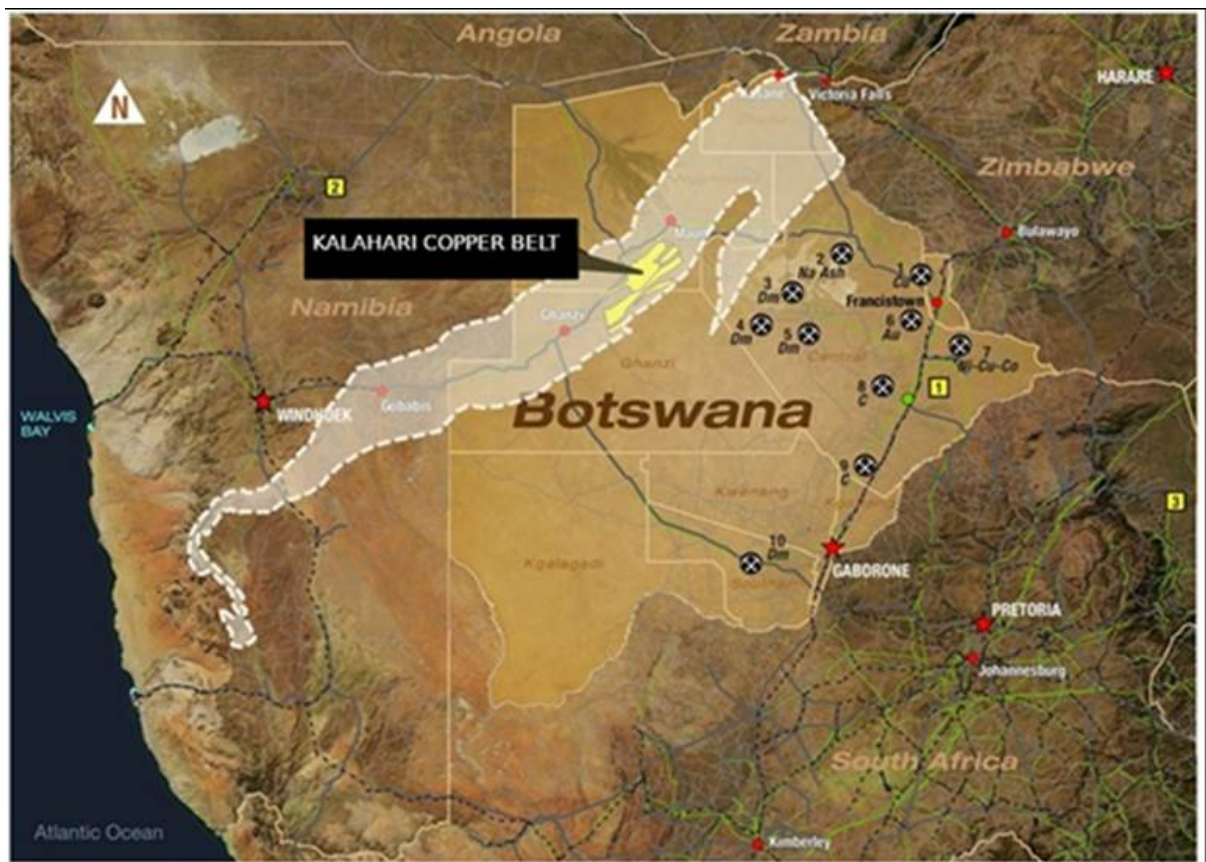
The program brings with it a USD\$500,000 grant, which should prove useful in the short term. The main thing though is the kudos and endorsement that being chosen affords.

The grant is a once off opportunity and there are no obligations or commitments upon Cobre beyond the conclusion of the Xplor Program. BHP may retain certain pre-emption rights on the Kitlanya West

Project for a 12-month period after the end of the Xplor program.

Kalahari Copper Belt – Elephant Country?

The company is focused on the highly prospective Kalahari Copper Belt (KCB) in Botswana. The KCB comprises a 1000 kilometre-long linear belt (shown below) of north-east to south-west trending volcanic sedimentary rocks extending from Klein Aub in Namibia to the Shinamba Hills in northern Botswana. The region has been highlighted by the USGS as the world’s most prospective area for yet-to-be discovered sediment hosted copper deposits.



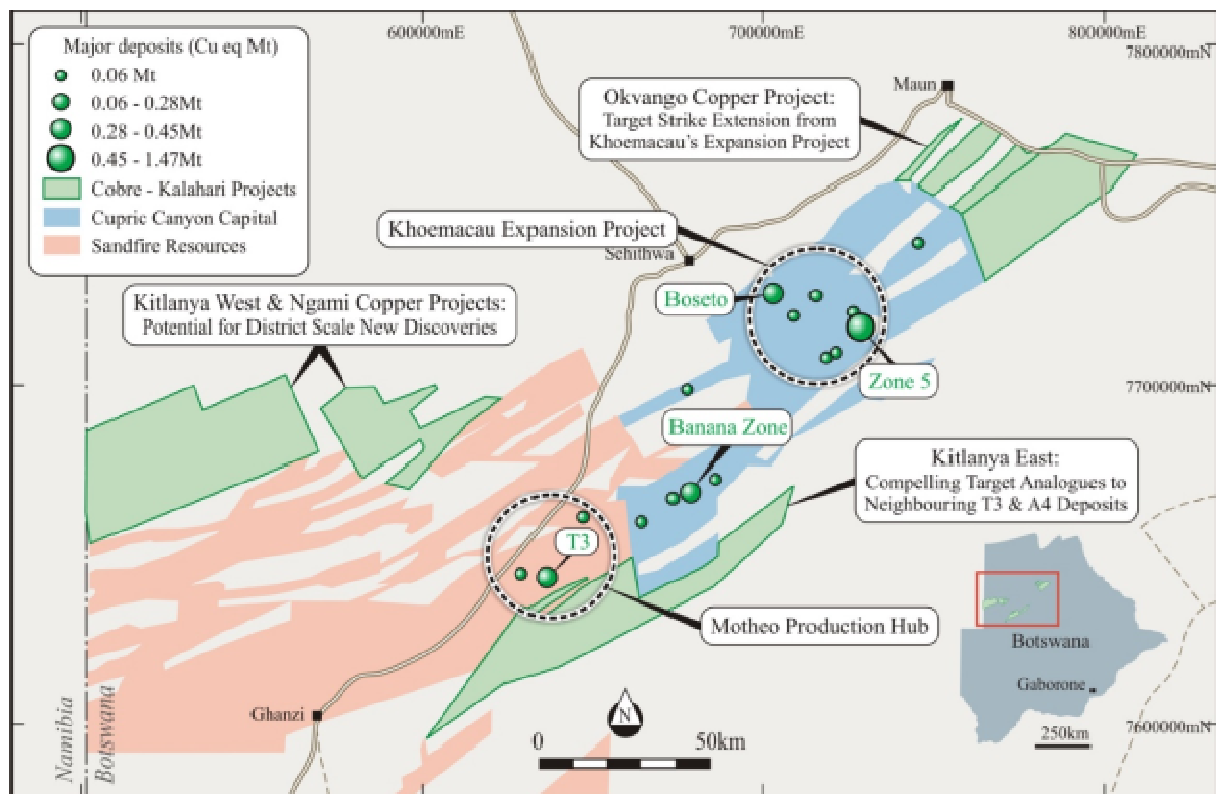
Recent discoveries have made the Belt into a significant emerging Cu district, reinforcing the prospectivity of what the United States Geological Survey (USGS) has termed one of the most prospective zones for new copper discoveries in the world. The belt has recently moved to a producing copper-silver district with the value highlighted by the purchase of recently opened Khoemacau mine by MMG for circa \$1.8bn.

The Ngami Copper Project

The NCP area is located near the northern margin of the KCB and includes significant strike of sub-cropping Ngwako-Pan / D’Kar Formation contact, on which the majority of the known deposits in the

KCB occur. The project is located immediately east of the Kitlanya West (KITW) licenses collectively covering a significant portion of prospective KCB stratigraphy.

Work so far has shown NCP has a significant strike of mineralisation (estimated scale of between 103 and 166mn tonnes @ 0.38% to 0.46% Cu (with further blue-sky from untested strike).



The territory held by Cobre is shown in the map above in the green blocks.

Geology and Mineralisation

In geological terms, copper mineralisation in the KCB is typically hosted above the contact between the D'Kar Formation (reduced sediments) and the Ngwako-Pan Formation (oxidised continental red beds).

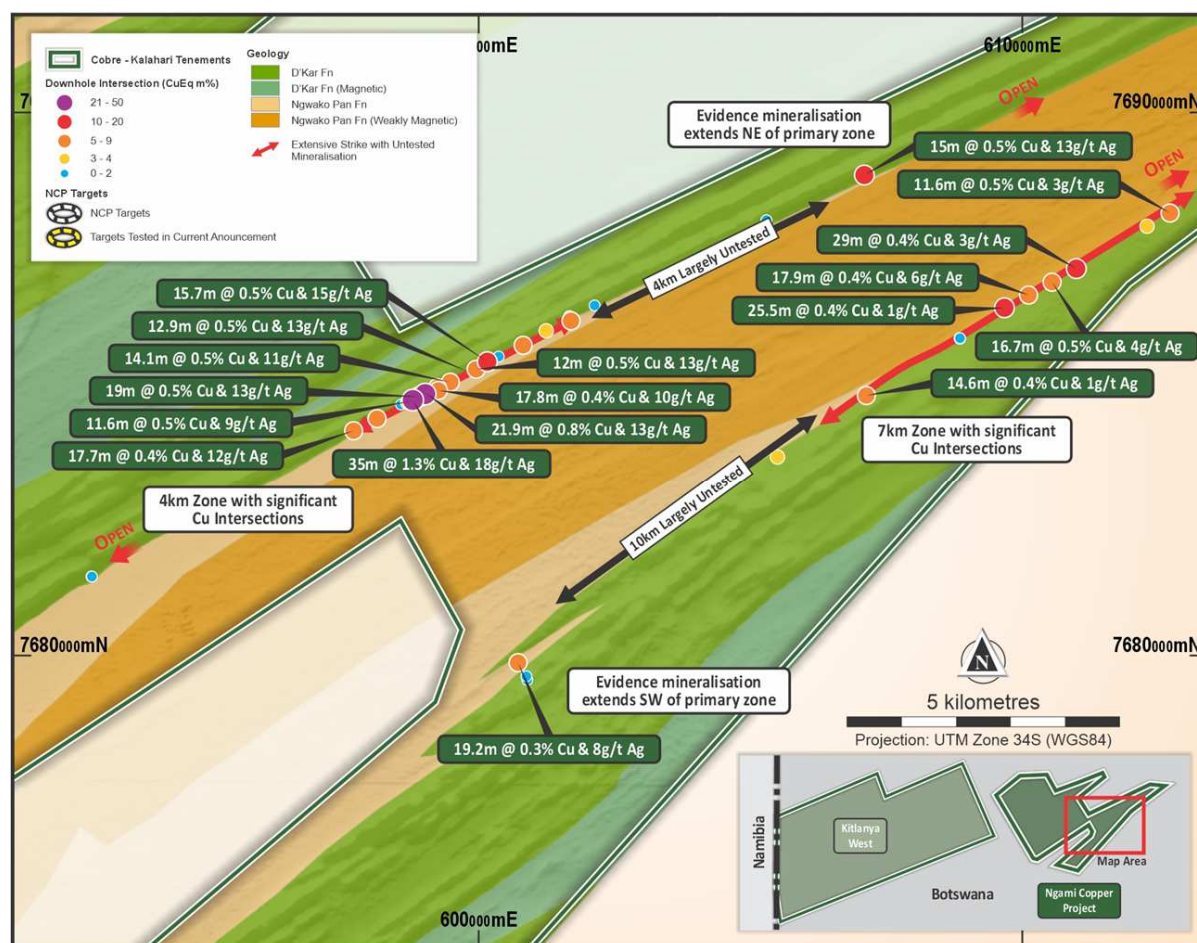
Early exploration campaigns carried out by US Steel, AngloVaal, Anglo American and BHPB focused primarily on identifying and delineating large, shallow, low-grade, stratabound Cu resources.

From the early 2000s, exploration models changed with a greater emphasis on moderate-sized, higher-grade, structurally controlled targets which may be amenable to underground mining. This led to a number of discoveries which were largely attributed to the effective use of high-resolution geophysics and better understanding of the geological and structural controls for copper mineralisation.

Mineralisation at NCP is sedimentary-hosted, structurally controlled, copper-silver associated with the

redox contact between oxidised Ngwako-Pan Formation red beds and overlying reduced marine sedimentary rocks of the D’Kar Formation on the limbs of anticlinal structures.

Drilling on the southern anticlinal structure, which extends for over 40km across the NCP, has shown evidence of anomalous copper-silver mineralisation on both northern and southern limbs. Drilling results to date have returned consistent, wide intersections of anomalous to moderate-grade copper-silver values over extensive strike lengths with smaller structurally controlled higher-grade zones, as shown in the map that follows.



This style of mineralisation is dominated by fine-grained chalcocite, which occurs along cleavage planes and in fractures, rather than the vein hosted bornite with chalcopyrite more typical of the KCB style.

In the geological team’s view, the chalcocite mineralisation is amenable to acid leaching, occurs below the water table and is associated with well-developed fracture zones bounded by more competent hanging and footwall units satisfying key considerations for ISCR as discussed below.

Proving Up the Thesis

The NCP area's copper-bearing structure (which also has silver) has been rotated to an almost vertical position, thus while it has a very substantial distance along strike, the layer of mineralisation presents a challenge. Should it be underground mined, or is there a better alternative?

Thus in "thinking outside the box" Cobre has looked for analogues to the NCP structure and is now aiming to prove up a similar In-Situ Copper Recovery (ISCR) process to that employed by Taseko Mines (TSX:TKO, NYSE:TGB) at its Florence Copper Deposit (320mn tonnes @ 0.36%Cu) in Arizona which shares a similar scale to NCP.

In-Situ Copper Recovery (ISCR)

In-situ copper recovery is viewed as being an environmentally responsible way of extracting copper from the ground. The parallels with the much more established and well-known ISL/ISR extraction with Uranium mining are notable.

The ISCR process involves injection of a low-pH solution, similar in strength to household vinegar, which slowly dissolves copper in the bedrock. The process is best summarized as:

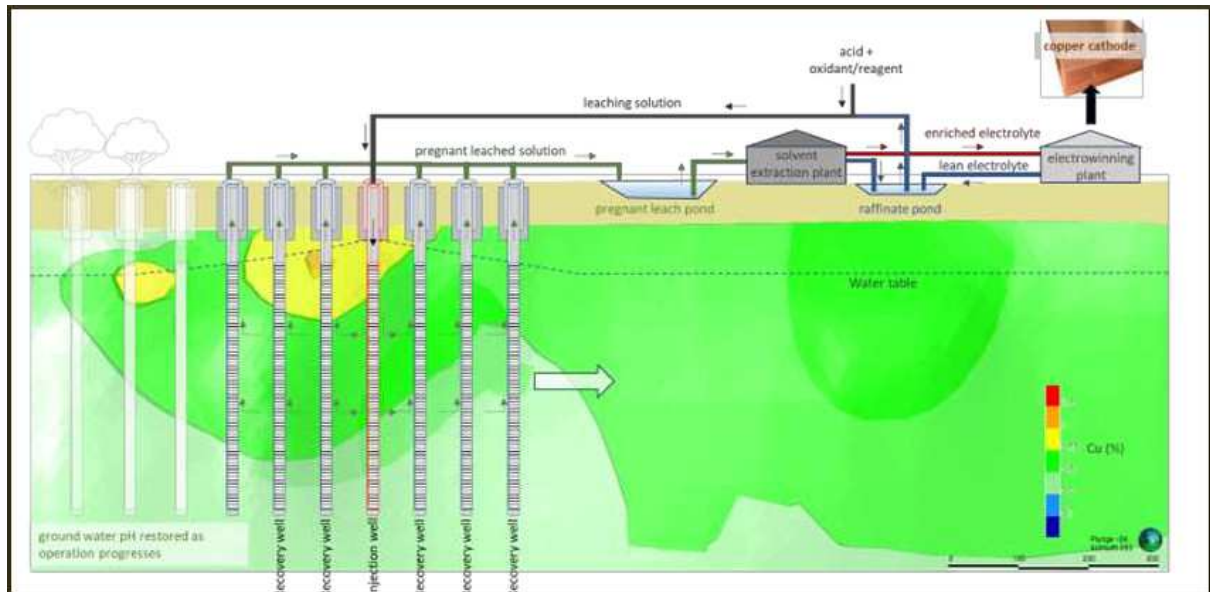
- Injection and recovery wells are drilled deep into the bedrock where the leachable copper ore is situated
- Wells are concrete encased and sealed above the mineralised zone to protect water quality
- Raffinate (99.5% water, 0.5% acid) is injected via the injection wells into the oxide zone to dissolve the copper.
- Copper rich solution is then pumped to surface through recovery wells to an SX/EW plant for processing into pure copper cathode sheets
- Perimeter and observation wells are monitored continuously to ensure hydraulic control of fluids is maintained at all times and water quality is protected

Extraction is conducted via a closed loop system of delivery and recovery wells. Each delivery well is surrounded by four recovery wells which can be reversed as the extraction process moves along strike.

The well field is divided into several extraction areas, consisting of numerous delivery and recovery wells. Each extraction area can operate for several years depending on the deposit, of course.

When the copper is depleted, the area is rinsed with water to remove any remaining solutions. Control and monitoring wells are positioned around the extraction area to protect and maintain water quality.

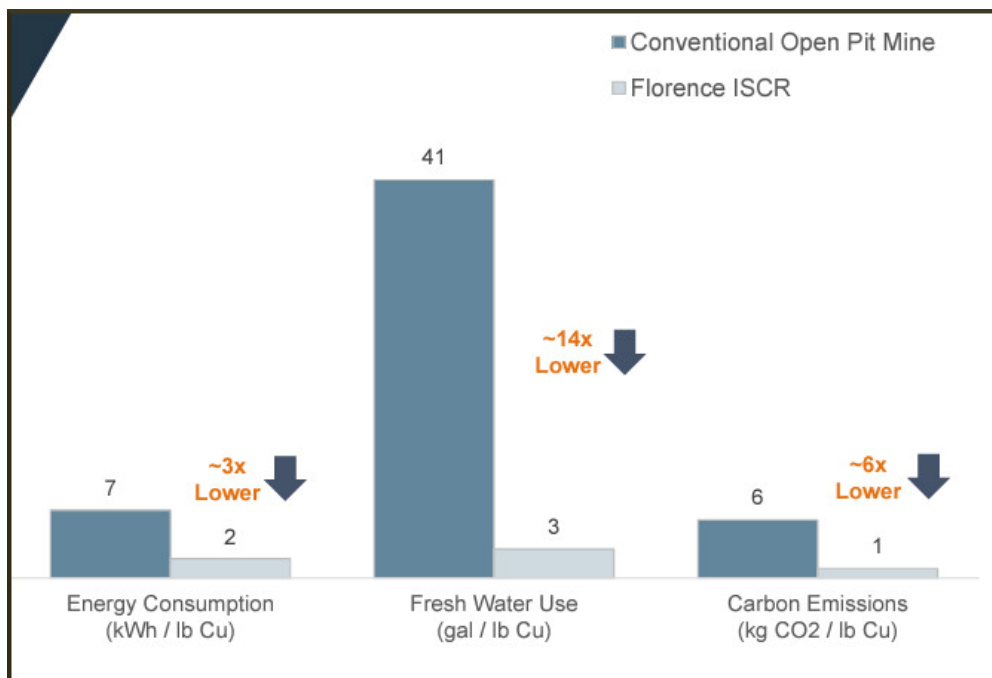
A graphic of this process can be seen below:



Background to ISCR

In-situ extraction is not new and has been used effectively for over 50 years. The attractions are the significant reduction in CAPEX and OPEX and scalability of the process.

As mentioned, it has been used successfully for decades primarily for the extraction of uranium and potash. As technology has advanced, ore deposits like the Gunnison copper project of Excelsior Mining (TSX:MIN) have been identified for development as in-situ copper mines.



Key Requirements

For a deposit such as that at NCP to be considered viable for ISCR, several specific hydrogeological and metallurgical factors need to be satisfied:

Is the mineralisation amenable to acid leaching?

- Mineralisation is predominantly fine-grained chalcocite easily treated with an acid leach process
- Mineralisation is hosted in fractures and along cleavages, providing porosity and permeability and providing fluid flow through the mineralised horizon for the leaching solution
- IBR Leach tests carried out on approximate 5m composite samples of moderate- and high-grade intersections have confirmed an acid leach with ferric sulphate and chloride is viable for copper and silver extraction
 - Adding a combination of ferric sulphate and chloride to the leach system resulted in copper recoveries of 77.4% and 71.9% for high- and low-grade samples respectively
 - In addition, adding a chloride solution to the leach has resulted in silver recoveries of up to 43.5 and 80.5% for high- and low-grade samples respectively

Is the mineralisation below the water table?

- Groundwater measurements estimate the water table to be at 120m to 150m depth below surface.
- This appears to be an optimal depth, sufficiently below the Kalahari cover to ensure fracture control preventing lateral migration, with a small portion of the orebody exposed above the water table.

Does the host rock have fractured permeability for solution to permeate through and dissolve the copper?

To this end, Cobre has undertaken, thus far, detailed fracture logging and AI driven fracture logging carried out on holes through the Comet Target has confirmed:

- High density fracture zone associated with the lower mineralised cycle of the D'Kar Formation, particularly associated with the mineralisation above the contact
- Lower (less-permeable) fracture counts associated with the underlying Ngwako Pan Formation footwall and overlying sandstone packages in the D'Kar Formation provide lateral seals.

Ngami (NCP) & ISCR

In late November the company announced that drilling for the hydrogeological test study had

commenced on its Ngami Copper Project. The program is designed to provide essential information to demonstrate the viability of an ISCR process for extraction of copper-silver from the significant strike of mineralisation.

The test work is being undertaken in two phases:

- Phase 1: Proof of Concept - short-term single well pumping and injection test providing insight into the injection feasibility prior to start of the more comprehensive follow-on stage
- Phase 2: Injection Test - long-term two-well pumping/injection test designed to evaluate the aquifer characteristics at two locations over a longer period

The test work utilises a series of strategically located monitoring wells to collect data on the aquifer permeability, anisotropy, extent and flow dynamics which will be used to construct a 3D hydrogeological model for ISCR design and planning. The two sites that have been selected for test work are representative of high and moderate grade zones of mineralisation.

Both phases of work are expected to be completed in Q1 of 2024. The goal is the production of a 3D Hydrological Model of the deposit. The target resource is estimated at over 200mn tonnes @ 0.5% Cu (including blue sky from untested strike).

Cover

The issue of cover is important in the KCB, as much of the prospective geology sits below younger sediments. However, this is not universally the case, as in some areas the basement rocks are actually sub-cropping, or the cover is very shallow, while in other areas cover can be much deeper.

At the NCP, the cover averages around 70 metres and is principally sand, silcrete and calcrete.

Historical exploration in the Belt was based on aeromagnetic surveys and soil sampling and was used to locate the Ngwako/D'kar Formation contact. This was then tested by inclined drilling, usually core and occasionally reverse circulation drilling.

This has relevance when it comes to the issue of ISCR.

The Target Area for Hydrological Test Work

Deposit is a 30-metre wide system, vertical dipping with ~70 metres of cover.

Mineralisation, associated with fracture zones, extends for over 350m vertically, bounded by competent, relatively impermeable sandstone footfall and overlying hanging wall, thus forming a continuous narrow structurally controlled target for fluid injection.

The initial target area includes a section of high and moderate grade mineralisation located 1.6km apart which is expected to provide information on the viability of applying the method to the broader circa

40kms of strike.

Pumping test design and objectives

WSP Australia Ltd have been engaged to provide oversight and modelling of the pumping-injection test results. For these tests, two dual-purpose pumping and injection wells located within the mineralised zone will be drilled. Each pumping/injection well is surrounded by a network of monitoring wells. This setup will enable pumping from one well and injection into another, creating a reciprocal system.

Injection/pumping wells target areas with a higher distribution of open fractures which are expected to significantly enhance injection rates and promote spreading of recharge water along the mineralised zone. The injection wells have been designed to intersect geological structures, particularly fault zones, which are known for their greater degree of fracturing and higher hydraulic conductivities (aquifer permeability). Monitoring wells have been strategically positioned to test for: lateral movement of fluid through the footwall and hanging wall competent “seal” rocks; potential escape of fluid into the Kalahari cover; and movement of fluid within the mineralised compartment.

Results will provide valuable insights into aquifer permeability, anisotropy, extent, and preferential groundwater flow directions, enhancing the overall understanding of the hydrogeological system and ultimately testing the viability of an in-situ recovery program.

When in production it is expected that the raised lixiviant will go straight to an SX/EW plant.

Targeted Resource

While the company has not published a target resource in the formal sense, the current ISCR testing is aiming to gain an indication of the viability of applying the method along the extensive mineralised contact which could show a resource of more than 200mn tonnes at ~0.5% Cu with an additional potential silver stream of more than 30mn ozs of Ag.

Copper: Stuck in a Holding Pattern

It could be said that “those who live by the EV Revolution story, die by it”. It is understandable that Lithium and Graphite promoters should flog the EV story to death, but Copper companies never needed to do this to sing the praises of the Red Metal and its good long-term outlook. While we have not seen any reliable pie chart on what proportion of copper production goes to EVs we would posit it must be well under 10%, thus the

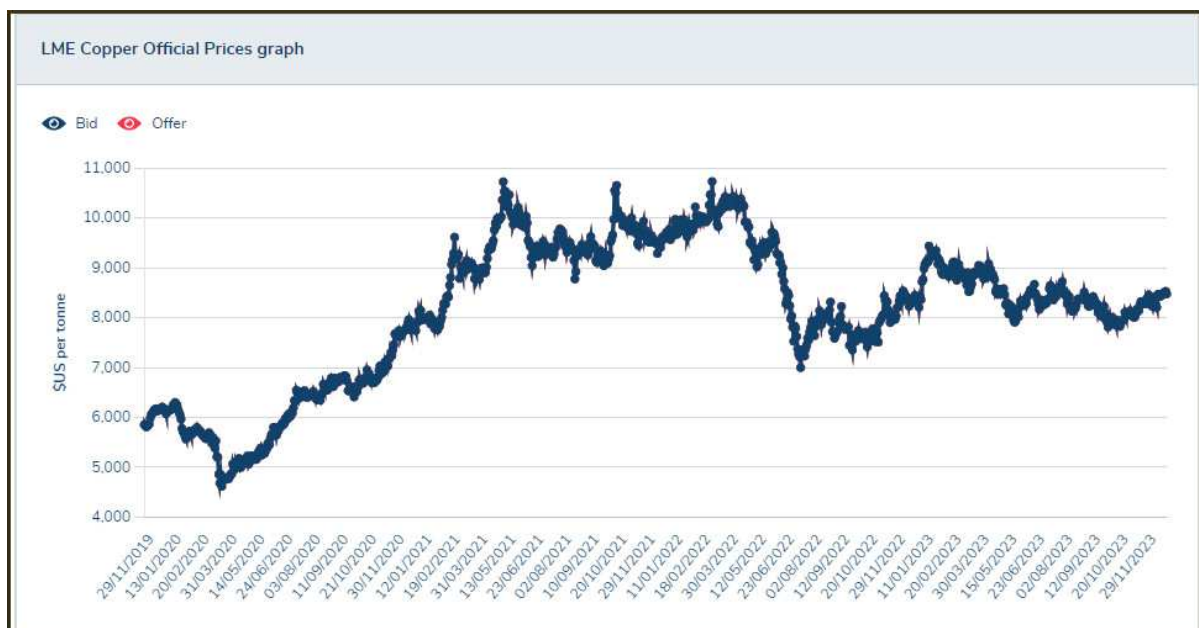
For a few brief moments it looked like we might have been on the cusp of a Commodity Supercycle 2.0, but the Russian invasion of the Ukraine and the global outbreak of inflation (and the cure being higher interest rates) has put paid to that dream.

Nevertheless, we have definitely seen a lengthy period of underinvestment in copper exploration and capacity and this has laid the ground for a supply crunch. Below \$3 there was little incentive to build

new mines and below \$2.50 (pre-November 2016) there was no incentive to explore either as despair was the only sentiment around.

In 2016, the price started to pull out of the swoon it had been in largely since 2008. It started a virtually unchecked march higher until it breached the \$3 per lb level.

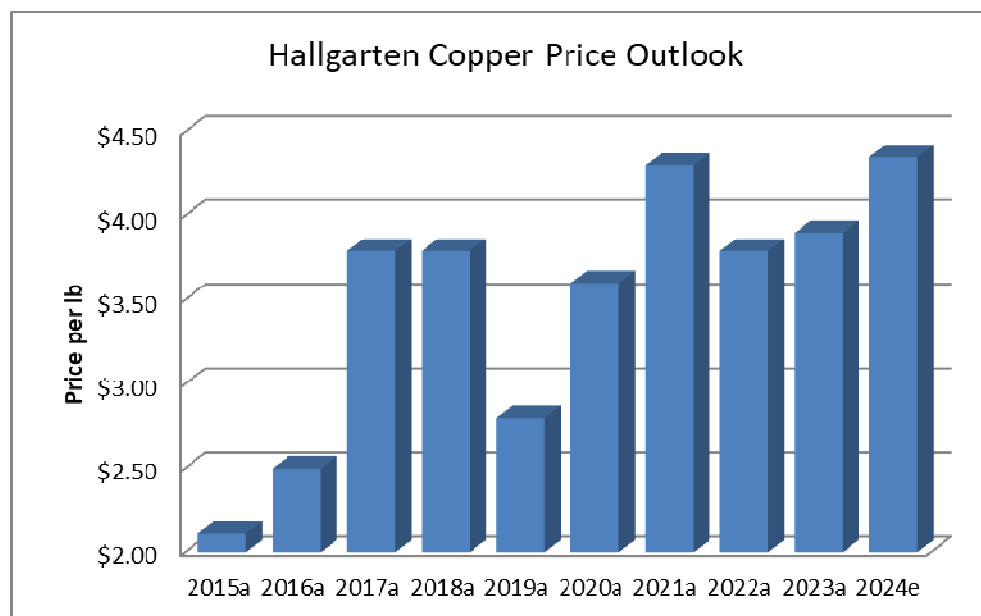
The plunged to a five-year low on the outbreak of the pandemic. In 2020 copper then “turned on a dime” going from a low of \$2.50 to over \$3.50, showing that the metal has the potential to move far and fast. It then powered on to nearly \$5 per lb.



Unfortunately, the price was sustained above \$4 for only a year. If it had held longer it would have greenlit those few projects sitting on the launch pad without precipitating a production surge because there is not that much capacity to “turn on” and the unbuilt potential is small and a long way from actualization. It did, however, prompt the appearance of (and funding thereof) various explorers such as Cobre.

Unlike metals like Zinc/Lead and Nickel, there was some copper development during the downtime (e.g. Las Bambas, Constancia etc) but this was nowhere near sufficient to replace mines that have exited or reduced production and deal with even conservative forecasts of growth in consumption.

Our projections for copper in 2024 are shown in the barchart that follows. As the chart shows we are still relatively bullish on the copper price outlook for the end of 2024, despite the last two years having been relatively disappointing for bulls of the red metal.



The Copper price establishing itself between the current levels and \$5 per lb is a sound scenario and we view any price over \$3.50 as a good place to be for copper miners and it ensures that mines with fair grades and CapEx numbers “within the ball park” will be seen as doable and desirable. This then will have knock-on benefits for those junior explorers trying to fill the pipeline with new projects and resources.

Perrinvale: The Second Fiddle Starts to Play

Investors would be excused for not knowing that this asset in Western Australia is still alive and kicking in the Cobre portfolio. Indeed, it was the original asset on which the company was listed.

In April of 2023, without much fanfare a maiden Mineral Resource Estimate, prepared by H&S Consultants Pty Ltd - independent geological consultants, was announced on this target. The MRE for the Schwabe Prospect on the wholly-owned Perrinvale Volcanic-hosted Massive Sulphide (VHMS) project.

The resource consisted of:

- a JORC-2012 Indicated & Inferred Mineral Resource Estimate for Schwabe estimated at: 272K tonnes at 1.6 % Cu, 1.2 % Zn, 0.04 % Co, 0.04 % Pb, 6.3 g/t Ag & 0.4 g/t Au
- Contained metal of 4,240 tonnes of Cu, 3,360 tonnes of Zn, 90 tonnes of Co, 103 tonnes of Pb, 54,890 oz Ag & 3,670 oz Au

H&SC received a database of 42 holes drilled at Schwabe, including 12 historical holes and 30 holes

drilled by Cobre since 2019. Cobre drilled 19 Reverse Circulation (RC) and 14 diamond core holes, with associated data including 1,748 sample assays, density data and lithological logging. However, in calculating the resource only the holes drilled by Cobre were considered.

The volumes of the resource are not setting the house on fire and one can see why Cobre is focusing on Botswana and classifying Perrinvale as “for monetization”.

Financing

In mid-December of 2022, the company undertook a placement of approximately 33.3 million new fully paid ordinary shares at an issue price of \$0.15 per new share to raise gross proceeds of AUD\$5mn.

Interestingly, Cobre's drilling service provider, Mitchell Drilling Botswana, and exploration services provider, Remote Exploration Services (RES), subscribed for US\$400,000 and US\$70,000 (respectively) at the placement price, as part of scrip for service arrangements.

In late June of 2023, the company announced that Mitchell Drilling and Remote Exploration Services, as part of the second tranche of the aforementioned capital raising had been issued 2,510,206 shares at the subscription price of AUD\$0.15 per share. RES had completed the full amount of work under its subscription agreement for US\$70,000 and Mitchells had completed a total of US\$184,593.24 of the US\$400,000 subscription amount to date.

Risks

There are a number of potential risks that should be taken into consideration:

- ✘ Global economic conditions deteriorate due to a rising interest rate scenario or slowing growth or both
- ✘ That the Copper price loses upward momentum
- ✘ Political risk in Botswana evolves against miners
- ✘ Financing difficulties for larger projects

The copper market has been stronger over the last few years, but doubts still exist as to whether this is a secular change prompted by long term lack of new projects & development or whether it is a surge in demand. We would still signal caution as the long-term economic effects of the current pandemic are still not clear. A number of Western economies have been severely battered and are showing decreased, or negative, growth.

The copper price as noted has been somewhat rangebound of late and has experienced some of the backwash from the souring of the EV/battery metals story to which it is only tangentially connected. Our expectation is for copper to rise in 2024 but there is always the danger that it could weaken again if it

rises too far too fast, if interest rates make another leg higher or if China continues to slowdown. As we have often noted, China has an inherent interest in lower prices and has had in the past significant stockpiles and trading positions that it has exploited to play whackamole with the prices of metals it wishes to see lower.

Botswana is not a concern at the moment but African countries have long shown an ability to surprise to the downside, sometimes due to external effects beyond whatever the internal politics may be like. Mali and Burkina Faso are examples of two countries where political risk has risen steeply, with little warning, over the last five years.

If insufficient projects reach development stage to satisfy demand, then the cycle could be extended presaging a sustained period of higher copper prices more likely. At the moment this looks the most probable scenario.

Conclusion

Production is king these days and Cobre is seeking to lay out a shorter path between where it is now and where it wants to be. There are few shortcuts to a meaningful mine but the prospect of the potential application of ISCR to the NCP in Botswana is one such shorter route between two important points. The concept is well-trammeled by notable mid-tier miners and applies technology that has come to dominate the Uranium space and is not getting traction in the Copper and Rare Earth spaces. In short, this is not rocket-science and Cobre is advancing rapidly to the proof-of-concept stage.

Its efforts in copper exploration in Botswana, in general, have just been garlanded by the awarding of BHP's Xplor award, something of a Nobel Prize for the exploration space. Beyond that kudos, it brings a monetary reward. And it boosted the stock 78% higher on the day...

The markets though are brutal. Those who have lived by the "battery metals story" have died by it as well, with the Lithium and Nickel spaces being particularly battered. Cobre never sang the mantra of battery metals, knowing full-well that the Red Metal has a need, desire and production shortfall all of its own that transcends mere fads.

We reiterate our **LONG** rating on Cobre and a 12-month target price of AUD\$0.44.



Important disclosures

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