



# Carnavale to Acquire Large-Scale Tin Project, Uganda

## HIGHLIGHTS

**Carnavale to acquire, subject to certain conditions, a 70% interest in the highly prospective Isingiro Tin (Sn) Project**

- Located in southern Uganda on the border with Tanzania, in Central Africa
- 83km<sup>2</sup> of exploration and mining permits
- Well located to infrastructure – bitumen road, water, electricity

**Isingiro Project considered highly prospective for high-grade tin**

- Extensive and semi-continuous shallow artisanal workings over 2km
- No known drilling beneath the extensive tin workings
- Tin mineralisation occurs as coarse grained cassiterite (a tin-bearing mineral)
- Cassiterite mineralisation in stacked quartz veins (1-3m thick) and cross-cutting cassiterite-bearing shears within interpreted large-scale shear zone (up to 200m wide) and >2km long
- Significant large-scale drill target.

**High priority exploration drill target identified**

- Diamond drilling programme planned to test high priority target
- Drilling immediately beneath extensive workings
- Targeting high-grade zones mapped in “blow out” of surface workings

**Large-scale target with mineralisation style comparable to two of the world’s best tin deposits:**

- Bisie Tin deposit located in the Democratic Republic of Congo (“DRC”) (Alphamin Resources) - project identified by experienced mining identities Mr. Klaus Eckhof and Mr. Mark Gasson.
- Mr Eckhof and Mr Gasson have introduced the Isingiro Project and will assist CAV as strategic advisers
- San Rafael Deposit located in Peru (Minsur)

**Executive Chairman Ron Gajewski commented:**

*“Carnavale’s strategy is to acquire and explore high quality advanced exploration and development projects prospective for strategic minerals such as cobalt, tin, lithium and manganese used in the production of electric vehicle and storage batteries and other new age disruptive technologies.*

*“The Isingiro Tin Project is in-line with this strategy together with our recent Grey Dam Cobalt acquisition in Australia.”*

## **\* Cautionary Statements**

Carnavale highlights the Information in this report that relates to Exploration Results for the Isingiro Project are not JORC 2012 compliant and have been reported as the information is considered "material" under ASX Listing Rule 3.1. The Company further states:

- The information has been reported to Carnavale by APRU, the owners of the exploration and mining permits. The information has not been reported publicly as APRU is a private Ugandan company that is not required to report publicly.
- The information has not been completed by Carnavale and is not JORC 2012 compliant and therefore Carnavale cautions on the validity and accuracy of the information until Carnavale completes its own work and investigations.
- APRU were previously undertaking surface alluvial/eluvial mining and processing on site. During this period of mining, from January 2015 to December 2017, APRU did not complete systematic exploration activities during the alluvial mining phase other than the mapping of artisanal workings and mineralised veining. APRU have since ceased alluvial mining and processing at Isingiro in February 2018. The location of the workings remains to be validated by Carnavale during the due diligence period however review of publicly available imagery supports the previous APRU mapping and Carnavale considers the Exploration Results are reliable and fairly represent the mineralisation associated with the project.
- Carnavale has not completed any exploration activities on the properties and is not aware of any other previous or more recent exploration results related to the project.
- Carnavale intends to undertake initial due diligence on the legal standing of the permits, and ownership together with site inspection by Carnavale management and mapping of the mineralisation and surface workings over the next 4-6 weeks. Subject to positive results of this work a diamond drilling program comprising of 2,000m of drilling is planned to test the mineralisation at depth within the next 6 months. Future reporting by Carnavale is intended to be to JORC 2012 compliance standard.
- Carnavale will fund the due diligence site inspections, mapping and diamond drilling from existing treasury funds. Carnavale currently has >\$2 million in cash funds.

Carnavale further highlights that it has not completed any new work on any of the Exploration Results except for the initial desktop review and cannot guarantee the information will be able to be reported in accordance with the JORC Code (2012) at any time in the future. Accordingly, Carnavale cautions investors that the Company has not yet done sufficient work to be able to verify the former owner's results in accordance with the standards set out in the JORC Code (2012). While nothing has come to the attention of the Company to question the reliability of the results prepared by the owner, the Company is not to be regarded as reporting, adopting or endorsing those results or estimates.

Investors should note that even when the additional work is undertaken, there is uncertainty that the Company will be able to report exploration results or future estimates of resources or reserves in accordance with the JORC Code (2012).

## **Carnavale Competent Person Statement**

The information in this report that relates to the exploration results for the Isingiro Project is an accurate representation of the available data and studies for the project. This information has been reviewed by Mr. Andrew Beckwith, a Competent Person who is a member of The Australasian Institute of Mining and Metallurgy. Mr. Beckwith is a director of Carnavale. Mr. Beckwith has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resource and Ore Reserves". Mr. Beckwith consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

## Introduction

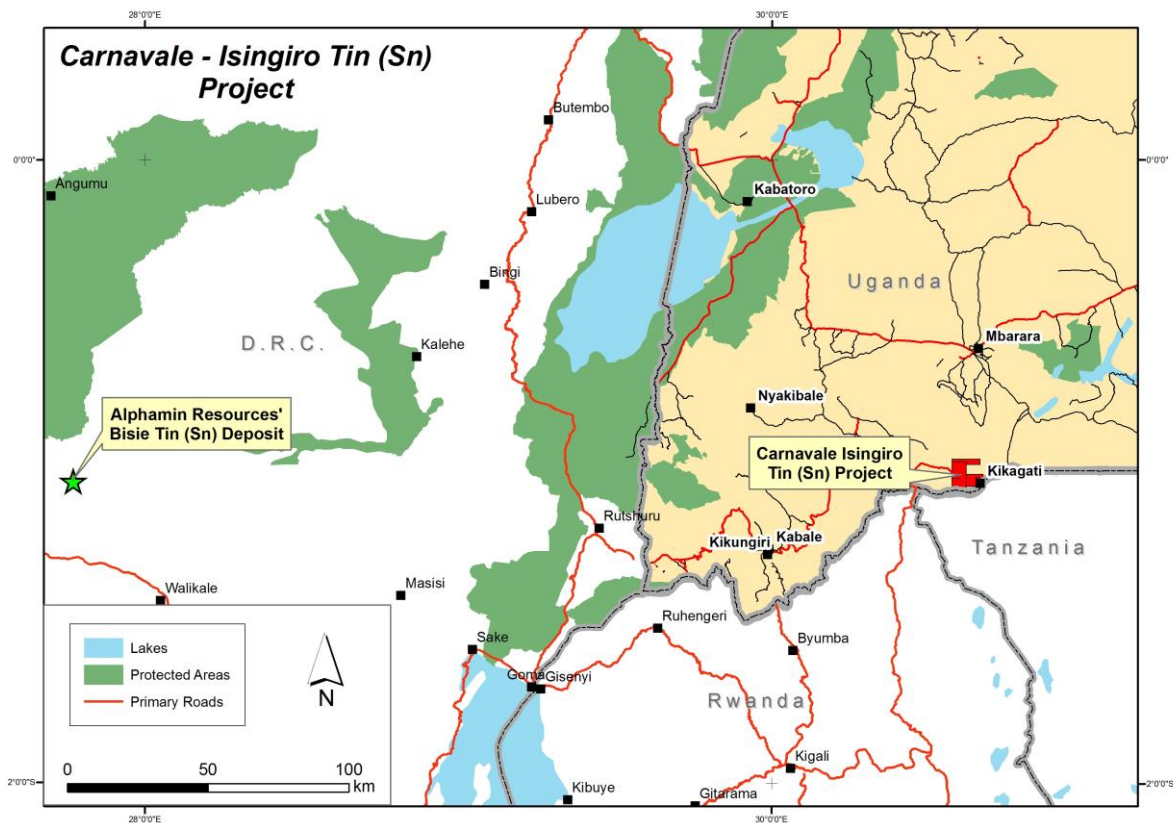
Carnavale Resources Limited (ASX: CAV) is pleased to advise it has signed an exclusive and binding Option to Earn-In Agreement (Agreement) with African Panther Resources (U) Limited, a local Ugandan private company, to acquire 70% of the Isingiro Tin (Sn) Project, located in Uganda along the southern border with Tanzania, Africa.

APRU was incorporated in June 2014 and is a tin exploration company operating from southern Uganda. APRU is owned by African Panther Resources AG, a Swiss based commodity trader and Consolidated Tin Smelters Limited, a wholly owned subsidiary of Amalgamated Metal Corporation Plc.

The project covers an area of approximately 83km<sup>2</sup>, comprising seven exploration permits and a mining lease which spans extensive surface and shallow underground artisanal workings over at least 2km of strike along the main Nyarubungo and Katanga ridges.

Access is via bitumen roads direct to the project, 330km southwest of Kampala and 60km south of the town Mbarara. Infrastructure within the area includes bitumen and gravel roads, electrical powerlines cross the tenements and the major Kagera River which forms the border with Tanzania runs along the southern margins of the project area near the alluvial plant owned by APRU.

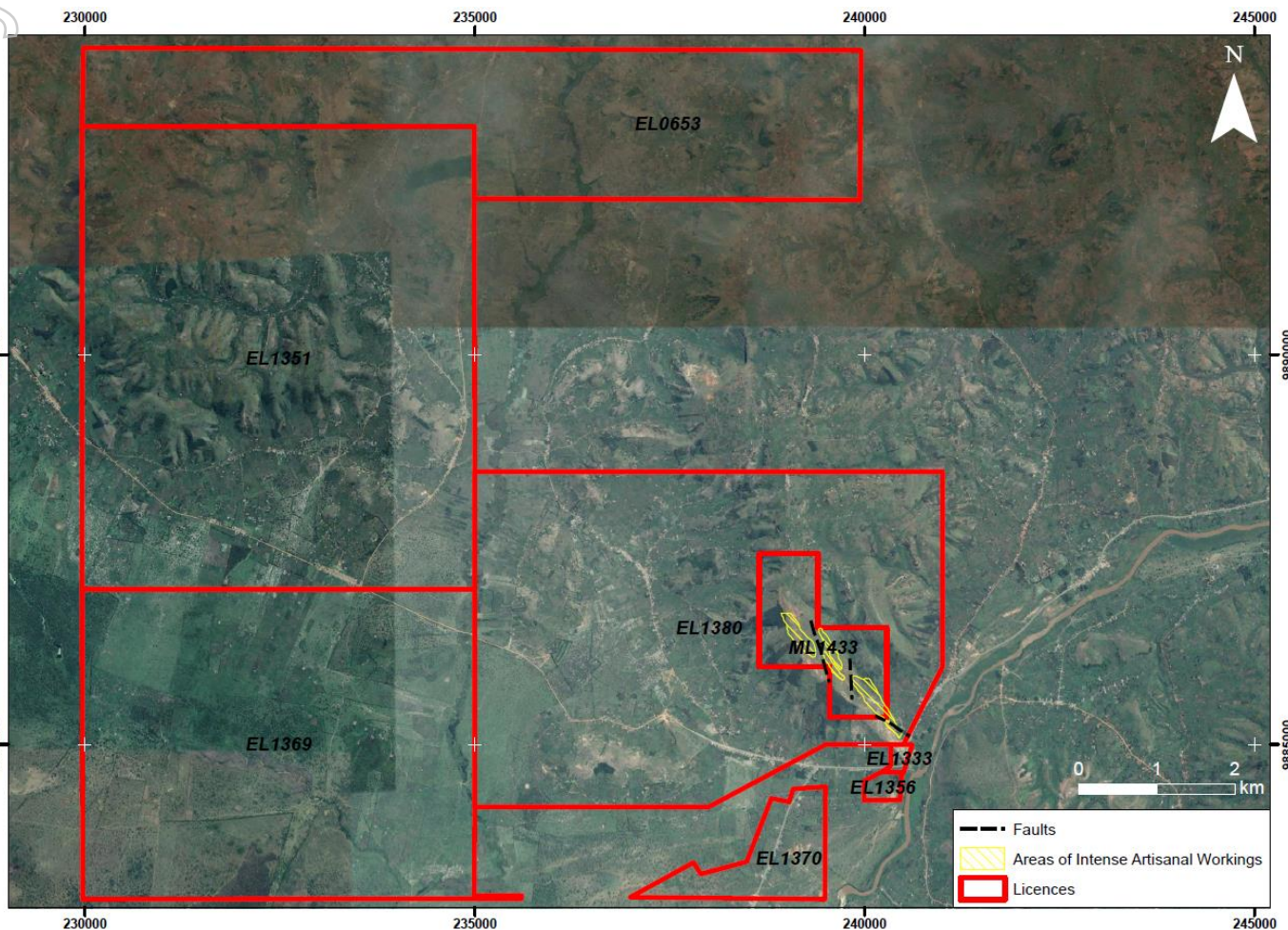
**Figure 1 Isingiro Tin Project Location**



The Agreement (refer to details below) allows Carnavale to carry out initial detailed legal and technical due diligence within the first six months and then Carnavale may elect to undertake further exploration and a feasibility study to earn-in to the project. This potential acquisition is in line with Carnavale's stated strategy to acquire and explore high quality advanced exploration and development projects prospective for strategic minerals associated with the rapidly increasing demand within the electric battery sector and other new-age disruptive technologies, together with the gold and copper resource sector.

Carnavale's immediate plans are to carry out the required legal and technical due diligence including mapping, site inspections and surface sampling during the next 4-6 weeks and subject to satisfactory findings, Carnavale will commence diamond drilling during Q2 2018.

**Figure 2 Isingiro Project tenements showing area of extensive artisanal workings within the mining lease area**



### Isingiro Tin Mineralisation

The Isingiro Project shows extensive surface alluvial/eluvial artisanal workings and numerous underground small shafts and bedrock vein workings open at surface, along at least 2km of the interpreted shear zone. The numerous workings form a semi-continuous to continuous zone of mineralisation that has been exploited for many years historically. The nature of visual coarse-grained cassiterite minerals being mined in the alluvial gravels and the extensive arrays of underground workings mined down on the outcropping veins plus the large hand specimen sized cassiterite crystals (~1cm to 40cm) in samples suggests the mineralisation is of high-grade nature within the individual veins (Figure 3).

The mineralised veins occur as a series of stacked, steeply dipping quartz veins and veinlets and flat dipping mica shears which potentially host cassiterite blebs and veinlets. Individual quartz veins range from 1-3m thickness on average and occur within a regional scale shear zone up to 200m width, providing a large scale geological zone with minimum dimensions of 2000m strike x 200m width (Figure 4). Importantly the artisanal workings cover a large portion of this geological target. Carnavale's drilling aims to test the depth extensions of this near surface mineralisation.

Mineralisation is typically late stage veins from tin-rich hydrothermal fluids potentially originating from a deep seated granitic source. Several areas of intense artisanal activity have been mapped by APRU along the 2km structure. The tin mineralisation is considered structurally complex with high grade zones coincident with areas of intensified artisanal activity which will be the focus of initial drilling.

The **style of tin mineralisation** seen at Isingiro is reported as cassiterite in quartz veins hosted within a regional shear zone and is considered to generally differ to most well-known granite hosted tin deposits around the world. Known shear zone hosted tin deposits elsewhere around the world include the recently discovered Bisie Tin Deposit located in the adjacent country in the Democratic Republic of Congo and the San Rafael Tin Deposit in Peru.

The Bisie deposit is currently being developed by owner Alphamin Resources with construction currently underway and the San Rafael deposit has been extensively mined for many years by private owner Minsur. Both deposits are large scale and high-grade tin deposit that rank in the world's top 10 tin deposits.

The Bisie Tin deposit contains a reported 4.6Mt @ 4.5% Sn of Measured and Indicated Resources (refer to Alphamin Resources website and presentation dated December 2017 "Strategic position in a significant new tin province"). Mineralisation is hosted in chloritic schists within a regional north-south striking shear zone and the tin occurs in lodes between 2-22m thick (average 9m thick) as shoots which plunge at 40 degrees to the north. The main tin mineral is cassiterite (SnO<sub>2</sub>) and the mineralisation continues beyond drilling to 500m depth. Alphamin claims the deposit has the highest grade of contained tin of any tin mine in the world and is the second largest resource size with favourable metallurgy and remains open at depth. The mine will be operated as an underground mine.

The San Rafael Deposit, located in Peru, is owned by private company Minsur and claims it to be the largest tin mine in South America and the third in the world (Refer to Minsur website and corporate presentation dated February 2018). The deposit is mined from underground block caving methods with reported resources of 10Mt @ 2.05% Sn (December 2016). The mineralisation is hosted in several structures with cassiterite in quartz tourmaline veining within shear zones. Mineralisation at San Rafael is considered as late hydrothermal fluids from a granite source with a distinct zonation of copper mineralisation in the upper levels which grades to a high-grade tin at depth.

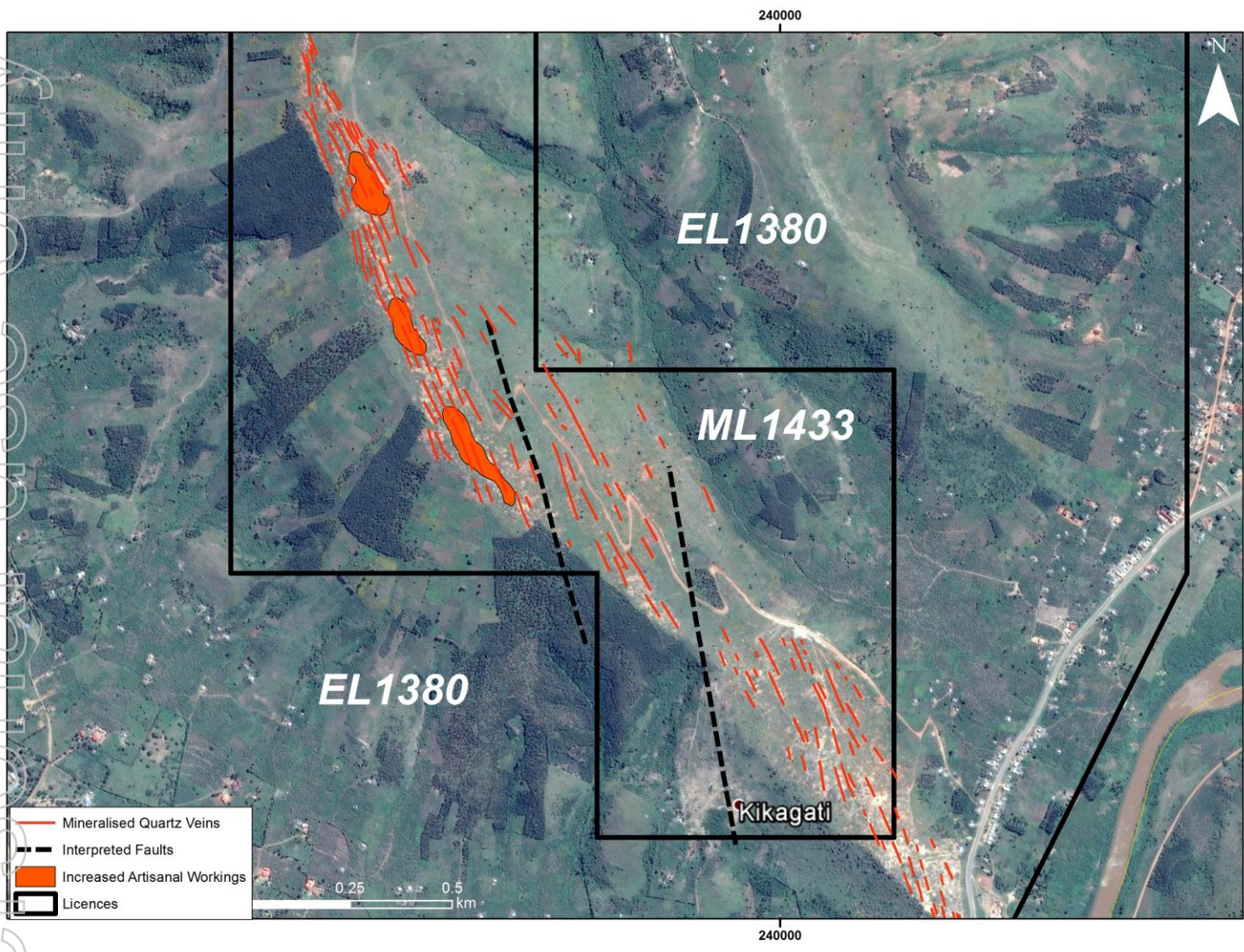
**Figure 3 Vein and cassiterite crystal hand specimens**



*Image A and B - Cassiterite samples associated with muscovite, tourmaline and quartz veining; Image C - Cassiterite specimen approximately 15cm long; Image D – Cassiterite specimen approximately 40cm long and weighing 50kg*

**Figure 4** Isingiro Project highlighting broad >200m wide shear zone with extensive stacked veining structures and artisanal workings along >2km strike length.  
(Refer to Cautionary statement on Page 2 regarding Non JORC 2012 Exploration Results)

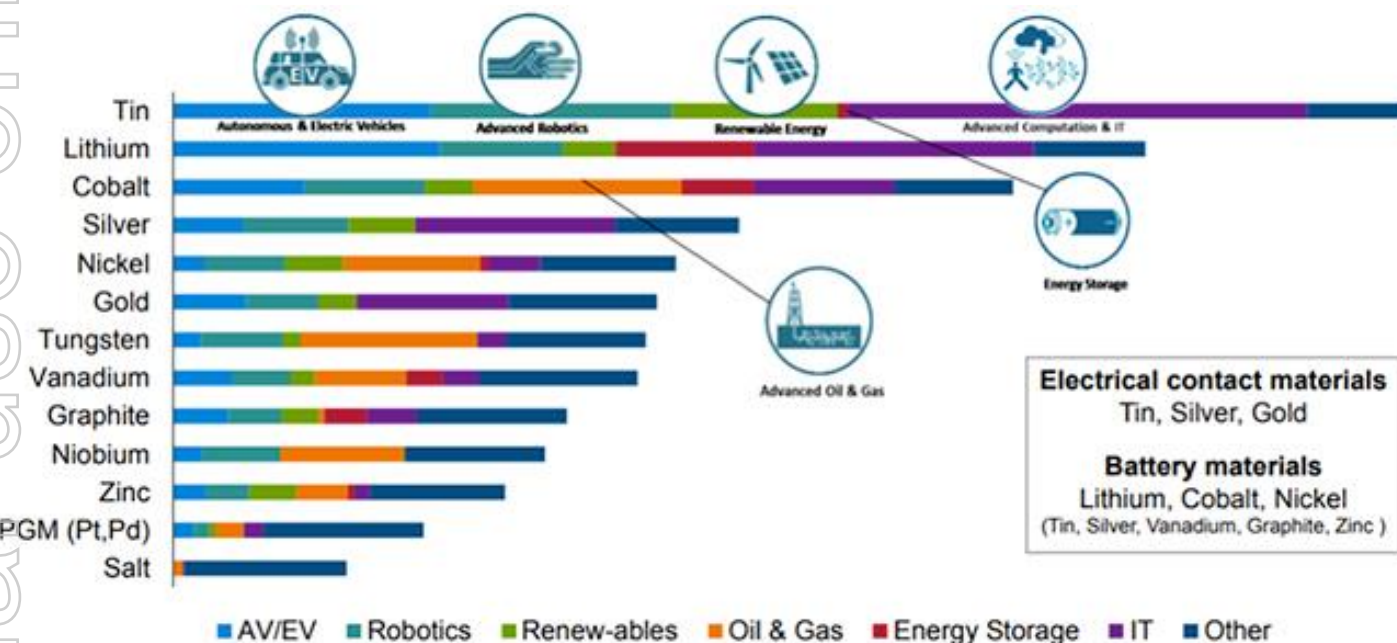
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## TIN – The Metal Most Positively Impacted by New Technology

Recently, Rio Tinto Limited (:ASX: RIO) presented a chart from a study undertaken by a research group from Massachusetts Institute of Technology (“MIT”). The MIT study clearly identifies a select group of metals including tin, lithium, cobalt, silver, nickel and gold as the top six most likely metals to be impacted by new technologies.

Figure 5 Metals Most Impacted by New Technology



Source: MIT, from Rio Tinto presentation 2018

Carnavale has purposely positioned project acquisitions towards these metals with emphasis on cobalt and nickel at the newly acquired Grey Dam Project in Western Australia and now the Isingiro Project for a large-scale tin target in Uganda.

### Tin Uses

Tin is primarily used as a solder component for electronic circuit boards and microchips and accounts for approximately 50% of global tin consumption. The new battery market and other new disruptive technologies are expected to increase demand for tin and other metals. Research into the new battery technology is showing tin provides cheaper and improved capacity to many alternatives battery designs; and the overall volume of batteries required for the electric vehicle industry is expected to drive ongoing demand over the next decade and beyond.

### Tin Pricing

The current LME price of tin is US\$21050 (~AUD\$27,000) with a 12-month range of US\$18,900 to US\$21,900 (~AUD\$24500 to AUD\$28,400). Tin demand remains steady however the electric vehicle market is seen as a future strong driver of tin over the next decade.



## Summary of Agreement Details

Under the Agreement, Carnavale may earn 70% equity in APRU, the 100% owner of the Isingiro Project tenements.

➤ The **Agreement** is subject to:

- a six (6) month due diligence period, where Carnavale has the right to complete legal and technical due diligence to Carnavale's satisfaction prior to electing to undertake a minimum of 2,000m of diamond drilling (estimated cost for this phase to be US\$450,000).
- Upon completion of the successful due diligence period including the diamond drilling Carnavale may elect to continue to "earn in".
- On Carnavale's election to continue and execution of a full Earn-In Agreement, Carnavale will have earned 51% of APRU.
- To earn an additional 19% equity in APRU, Carnavale is to sole fund: all exploration, resource definition, mine planning, metallurgical test work, project design, feasibility and project holding costs including maintenance of all mining, exploration and operating permits, site infrastructure and security to the conclusion of a bankable Feasibility Study (**FS**) with five (5) years.
- CAV also agrees to drill a minimum of 2,500m of drilling on the Permits per year until the completion of the FS.
- Permits include Mining Licence number ML1433 and Exploration Licence numbers EL1830, EL0653, EL1369, EL1333, EL1351, EL1356, EL1370.

Subject to completion of legal and technical due diligence, CAV will issue 10 million shares, (pursuant to CAV's existing placement capacity under Listing Rule 7.1) comprising 4 million shares each to Mr. Klaus Eckhof and Mr. Mark Gasson, and 2 million shares and US\$50,000 to other parties associated with facilitating the transaction. None of the parties are related parties of CAV.

**For further information contact:**

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**Andrew Beckwith**

Director

## **Appendix 1**

***Isingiro Tin Project - 2km long ridge (in background) with artisanal workings along entire strike length***



***Isingiro Tin Mining Lease – Surface workings and access road along the 2km long ridge, looking to south towards APRU alluvial plant near river.***



**Artisanal Tin workings along 2km of ridge**

*(Note width of numerous workings suggesting multiple stacked parallel veins across the mineralised shear zone)*



***Exposure along ridge showing large veins mined by artisanal miners at southern end of mining lease near plant.***



**\*Note: Power lines and bitumen road in foreground and river forms border with Tanzania.**

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**APRU's Small scale alluvial tin plant located at southern end of mining lease adjacent river and bitumen road**



*\*Note: Exposure of the prospective mineralised shear zone (White area) in image on northwestern side of bitumen road.*

***APRU's Small scale alluvial tin plant located at southern end of mining lease adjacent river, power and road.***



***Shaking tables***



**Gravity spirals used to separate the heavy tin minerals (cassiterite)**



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