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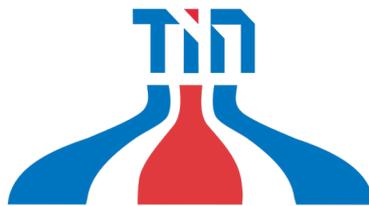
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# Tin Explorers & Developers Group Overview

The International Tin Association's Tin Explorers & Developers Group brings together some of the leading companies striving to become part of the next generation of global tin producers.

This report profiles these companies and provides information on the flagship tin projects they are working to develop, which are amongst the most promising potential sources of new tin supply worldwide.



**Alphamin Resources Corp.** is a TSX-V and JSE AltX listed company whose business model covers the entire mine site life-cycle from incubation, exploration and commercialisation to production. Tin became the company's primary focus when it gained control of the Bisie Tin Project through its acquisition of Mining and Processing Congo SPRL (MPC) in 2011. Having secured funding in 2017, the company is now nearing completion of construction of the Bisie Tin Mine, with longer-term plans to expand tin production in the region through development of additional exploration targets that fall within its licence area.

## Market Information (as of 09/02/19)

TSX-V Code	AFM
Shares on Issue	786 m
Market Capitalisation	US\$ 154.42 m
<b>Major Shareholders</b>	
Tremont Master Holdings	44.9%
Gerald Metals	6%



Construction in progress at Bisie

## The Bisie Tin Project

The Bisie project is located in the Walikale district of North Kivu province, DRC, and is 80.75% owned by Alphamin through its subsidiary, Mining and Processing Congo SPRL (MPC). 14.25% of the project is owned by the Industrial Development Corporation (IDC) and the remaining 5% is held by the DRC government. Artisanal mining in the area was a major source of tin ore prior to 2010, accounting for up to 75% of the DRC's tin output.

Since Alphamin has gained control of the project, extensive exploration and drilling has been undertaken at the Mpama North prospect and at additional exploration targets, including Mpama South. The company published a Feasibility Study in 2016, envisaging an underground mechanised mining method and haulage of blasted ore by articulated dump trucks.

In 2017, the company secured an US\$ 80 million credit facility to help fund the implementation of the project. The Company has also raised further funds from private placements and equity funding such that it is now in a position where it is possible to complete construction of the project with cash available. Due to the mines remote location, investment has involved building an access road and an airplane strip. The underground mine capital footprint was completed at the end of December 2018, while the commissioning of the processing plant is on track to be completed by the end of March 2019. The Company aims to reach nameplate capacity between April and June 2019.

## Project Information

<b>Project Name</b>	Bisie – Mpama North
<b>Country</b>	DR Congo
<b>Mine Type</b>	Underground
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	9,600
<b>Mine Life (years)</b>	12
<b>Start Date</b>	2019
<b>Capital Cost (US\$ M)</b>	151.4
<b>Cash Cost (US\$/t of tin)</b>	8,837

## NI 43-101 Mineral Reserve

Ore (Mt)	4.67	Metal (t)
Sn (%)	3.58	167,300

## NI 43-101 Measured & Indicated Mineral Resource

Ore (Mt)	4.6	Metal (t or g)
Sn (%)	4.52	208,000
Cu (%)	0.31	14,260
Ag (g/t)	0.7	12.42
Zn (%)	0.15	6,900

## NI 43-101 Inferred Mineral Resource

Ore (Mt)	0.54	Metal (t or g)
Sn (%)	4.25	22,800
Cu (%)	0.16	864
Ag (g/t)	1.4	0.756
Zn (%)	0.09	0.486



**AusTinMining**

# Aus Tin Mining

**Aus Tin Mining** is an ASX-listed explorer with a focus on developing tin and nickel-cobalt mineral deposits. The Company's flagship project is the Taronga Tin Project located in northern New South Wales. Aus Tin Mining also hold adjacent exploration tenements which are prospective for tin, base and precious metals as well as nickel-sulphide tenements in Tasmania. Since August 2016, the company has been a tin producer, having started pilot-scale reprocessing of ore stockpiles at its Granville tin project, also in Tasmania.

## Market Information (as of 09/02/19)

ASX Code	ANW
Shares on Issue	1.98 bn
Market Capitalisation	US\$ 24.5 m

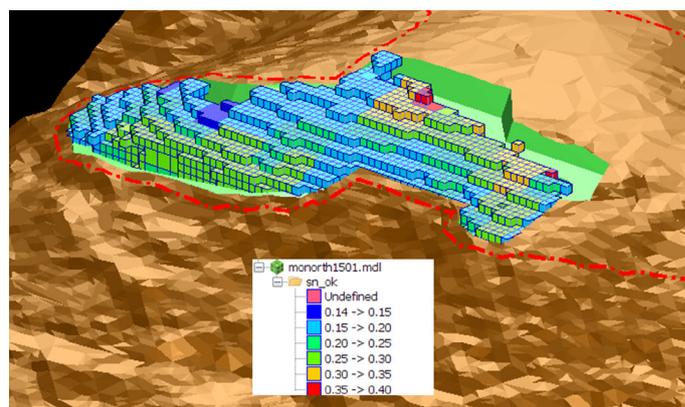
## Major Shareholders

DGR Global	18.24%
Australian Mineral Investments	11.63%
Citicorp Nominees	6.09%



## The Taronga Tin Project

The wholly owned Taronga Tin Project is located near Emmaville, in northern New South Wales, Australia. Over 88,000 tonnes of tin has been produced from the Emmaville tin field since the 1870s, over which the company holds 500 km<sup>2</sup> of exploration licences. In April 2014 the company completed a JORC (2012) compliant Pre-Feasibility Study demonstrating how two zones of mineralisation would be mined by open cut methods and processed using gravity and flotation separation methods. In 2015 the Company announced it would commence a Stage 1 Development comprising a A\$ 2.5 million, 340,000 t trial mine within the Northern Zone Ore Reserves and pilot processing plant. The company acquired a Mining License for the trial pit in 2018 and hopes to begin operations by 2019.



Planned Stage 1 Pit at Taronga

## The Granville Tin Project

The Granville Tin Project is located approximately 20km north of the historic mining town Zeehan on the west coast of Tasmania. The Company began producing tin concentrate on a small-scale basis in 2016. However, since then, the Project has been approved for Level 2 operations, featuring an open cut pit (Granville East), tailings dam and a processing plant. Aus Tin Mining were permitted to resume mining at the Granville East site in April 2018, which coincided with an increase to its annual processing rights to some 40,000 tonnes. Mining at Granville East commenced in February 2019. The transition to Level 2 operations is projected to result in an increase in tin-in-concentrate output to 550 tpa.

## Project Information (2014 PFS)

<b>Project Name</b>	Taronga
<b>Country</b>	Australia (NSW)
<b>Mine Type</b>	Open Pit
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	2,815
<b>Mine Life (years)</b>	9
<b>Capital Cost (US\$ M)</b>	~70

## JORC-Compliant Probable Reserve

Ore (Mt)	22.0	Metal (t)
Sn (%)	0.160	35,600

## JORC-Compliant Measured & Indicated Resource

Ore (Mt)	26.9	Metal (t)
Sn (%)	0.168	45,192

## JORC-Compliant Inferred Resource

Ore (Mt)	9.4	Metal (t or g)
Sn (%)	0.128	12,032
Cu (%)	0.281	26,414
Ag (g/t)	14.559	136,854,600

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# Avalon Advanced Materials

**Avalon Advanced Materials** is a Canadian mineral development company headquartered in Toronto, Ontario. Avalon specializes in critical metals and minerals with growing demand in new technology. The company has three advanced stage projects, all 100%-owned, providing investors with exposure to lithium, tin and indium, as well as rare earth elements, tantalum, niobium and zirconium. Avalon is currently focusing on its East Kemptville Tin-Indium Project in Yarmouth, Nova Scotia and Separation Rapids Lithium Project near Kenora, Ontario.

## Market Information (as of 09/02/19)

TSX Code	AVL
Shares on Issue	265 m
Market Capitalisation	US\$ 11.7 m

## Major Shareholders

Retail Investors	70%
Institutional Investors	15%
Insiders	15%



## The East Kemptville Tin-Indium Project

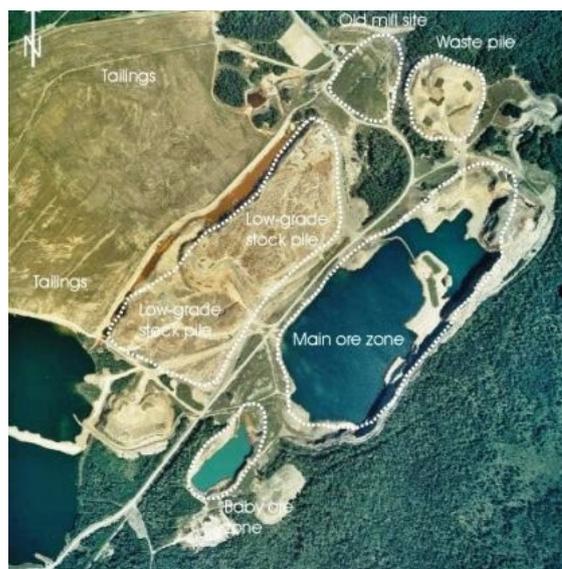
Avalon's 100% owned Tin-Indium project is situated 45 km northeast of Yarmouth in Nova Scotia, Canada. East Kemptville was an operating tin mine from 1985-1992 and was North America's only large primary tin producer, before closing in 1992 following years of low tin prices.

In May 2014, Avalon entered into an agreement with the surface rights holder to secure access to lands for a limited drilling programme. Avalon has commenced the process toward converting this Special Licence into a mining lease, which the company anticipates completing in the first half of 2019.

In July 2018, Avalon finalized its Preliminary Economic Assessment (PEA) on the East Kemptville Project. The re-development model is an environmental remediation project involving processing the existing ore stockpile supplemented by selective mining of near-surface higher-grade tin mineralization.

The freshly mined tin allows generation of clean tailings free of sulphide minerals. These will be used to create a cover for the existing dry-stacked tailings, which will fully remediate the long term environmental liability. Avalon's small-scale, re-development model utilizes existing infrastructure and previously-mined material, making the project a low energy, low green-house gas producer. The implementation of ore sorting is being explored and could further improve the project economics.

Most recently, the Company completed ore-sorting trials at East Kemptville, yielding positive results for both the low-grade ore stockpile and higher grade ore.



Satellite view of East Kemptville site

## Project Information (2018 PEA)

<b>Project Name</b>	East Kemptville
<b>Country</b>	Canada
<b>Mine Type</b>	Open Pit/Ore Processing
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	~700
<b>Mine Life (years)</b>	15+
<b>Capital Cost (US\$ M)</b>	24
<b>Cash Cost (US\$/t of tin)</b>	12,646

## NI 43-101 Compliant Measured & Ind. Resource

Ore (Mt)	22.97	Metal (t)
Sn (%)	0.153	35,144

## NI 43-101 Compliant Inferred Resource

Ore (Mt)	14.25	Metal (t)
Sn (%)	0.139	19,808

## NI 43-101 Compliant Low Grade Ore Stockpile Inferred Resource

Ore (Mt)	5.87	Metal (t)
Sn (%)	0.112	6,574
Cu (%)	0.610	35,807
Zn (%)	0.100	5,870

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**Elementos** is an Australian, ASX-listed metals company with a portfolio of tin projects including Oropesa in Spain, Cleveland in Tasmania and Temengor in Malaysia. The company is actively developing each of these projects with Oropesa the priority following its acquisition in 2018. The company believes that having a diversified tin portfolio in jurisdictions with a long mining history is a lower risk growth strategy.

## Market Information (as of 09/02/19)

ASX Code	EL
Shares on Issue	1.49 bn
Market Capitalisation	US\$ 5.4m

## Major Shareholders

Bond Street Custodians	20.4%
Jervis Mining	7.5%
Keo Projects	5.4%



## The Oropesa Tin Project

The Oropesa tin deposit is located in north-west Andalusia, 180km northeast of Seville in southern Spain. Oropesa is a hard-rock tin deposit amenable to open-pit extraction methods, with the potential for further development as an underground mining operation. Elementos acquired the project in November 2018. A feasibility study for the project is due to be completed in mid-2019 with environmental studies complete and a mining license application already lodged.

## The Cleveland Tin Project

Cleveland was an underground tin and copper mine near Luna, in Tasmania, operated by Aberfoyle between 1968 and 1986 which produced some 24,000 tonnes of tin. Elementos plans to redevelop the project in three stages, beginning with reprocessing of tailings followed by the open pit resource and subsequently the underground resources of tin, copper and tungsten. A PFS was completed in August 2015 for the tailings operation as well as a maiden ore reserve estimate. In September 2018, the JORC-Compliant resource was updated following a successful drilling programme.

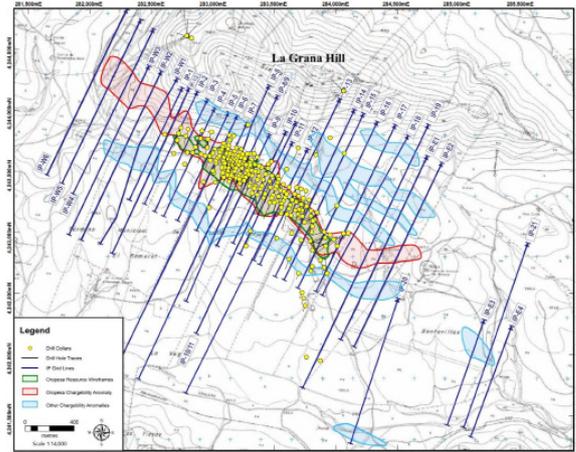
## The Temengor Tin Project

The Temengor project was a hydraulic alluvial tin mine that operated from 1926 to 1932 and has undeveloped hard rock tin potential over an area of 1 km<sup>2</sup>. Elementos are negotiating a Farm-in and Joint Venture agreement for the project.

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Oropesa induced polarity anomalies, with drill hole locations

## Project Information

<b>Project Name</b>	Oropesa	Cleveland *
<b>Country</b>	Spain	Australia (TAS)
<b>Mine Type</b>	Open Pit	Tailings, OP & UG
<b>Product</b>	Concentrates	Concentrates
<b>Output (t/y Sn)</b>	~3,500	~1,000
<b>Mine Life (years)</b>	13	~15
<b>Start Date</b>	2022	2023

\*Tailings to be initial focus of staged development

## Oropesa

### JORC-Compliant Resource

Ore (Mt)	12.5	Metal (t)
Sn (%)	0.54	67,500

## Cleveland Hard Rock

### JORC-Compliant Resource

Ore (Mt)	7.47	Metal (t)
Sn (%)	0.75	56,100
Cu (%)	0.30	22,200

## Cleveland Tailings

### JORC-Compliant Resource

Ore (Mt)	3.7	Metal (t)
Sn (%)	0.29	11,000
Cu (%)	0.13	5,000

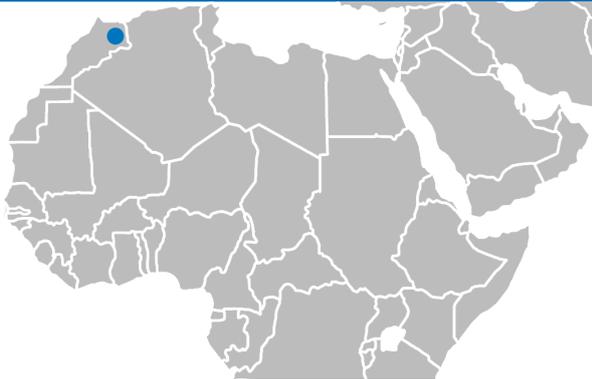
**Kasbah Resources Limited** is an emerging tin producer that was founded in 2005 and listed on the ASX in 2007. The company is tin-focussed with majority ownership of its Achmmach project in Morocco. Kasbah also has exploration permits for the nearby, early exploration stage Bou el Jaj tin project.

#### Market Information (as of 09/02/19)

ASX Code	KAS
Shares on Issue	133,074,246
Market Capitalisation	US\$ 12.6m

#### Major Shareholders

Pala Investments	34.24%
African Lion Group	10.3%
Braham Consolidated	3.84%



#### The Achmmach Tin Project

Achmmach is an advanced tin project located on the western edge of the El Hajeb province in Northern Morocco. Kasbah Resources has a 75% interest in Achmmach with Toyota Tsusho (20%) and the Nittetsu Mining Company (5%) making up the remainder. The project is comprised of two tin systems, the Sidi Addi Trend and the Meknes Trend, both approximately 1.6km long. Cassiterite is found within small but numerous quartz veins associated with silica tourmaline alteration and replacement of shear zones.

Tin was first discovered at Achmmach by the Moroccan government, who from 1991 undertook an extensive exploration and evaluation programme. This was continued by Kasbah Resources from 2007. In July 2018, Kasbah completed an updated definitive feasibility study (DFS), which superseded a 2016 "Small Start Option" (SSO) DFS. The project is now planned to begin at a significantly larger scale and will reduce the mining risk associated with the SSO strategy of defining higher-grade areas and targeting these in an early phase of operation. Implementation of ore sorting technology has also improved the project economics.

Having acquired all the major permits required as well as local support for the project, Kasbah and its Joint Venture partners are now looking to secure funding for full implementation. They are also seeking suitable engineering and mining contractors and off-takers for the tin product, with the aim of commencing construction in 2019 and production in 2020.



View of Achmmach Project site

#### Project Information

<b>Project Name</b>	Achmmach
<b>Country</b>	Morocco
<b>Mine Type</b>	Underground
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	4,500
<b>Mine Life (years)</b>	10
<b>Start Date</b>	2020
<b>Capital Cost (US\$ M)</b>	96.4
<b>Cash Cost (US\$/t of tin)</b>	9,176

#### Compliant Proven & Probable Reserve

Ore (Mt)	7	Metal (t)
Sn (%)	0.82	58,000

#### Compliant Measured & Indicated Resource

Ore (Mt)	14.9	Metal (t)
Sn (%)	0.85	127,300

**Strongbow Exploration** is a Canadian mineral exploration company listed on the TSX-V focused on building a strategic metals company through the acquisition and exploration of its portfolio of assets located in the United Kingdom and North America. The Company acquired the rights to the South Crofty tin project in Cornwall, UK in July 2016 while maintaining an interest in other properties prospective for tin and nickel, as well as royalties on tungsten assets. Strongbow is also currently working towards a London Stock Exchange AIM listing.

## Market Information (as of 09/02/19)

TSX-V Code	SBW
Shares on Issue	86.6 m
Market Capitalisation	US\$ 7.4 m

## Major Shareholders

Osisko Gold Royalties Management / Directors	28.0% 10%
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## The South Crofty Tin Project

The South Crofty Tin Project is located in the towns of Pool, Camborne, and Redruth in the county of Cornwall, South West England, approximately 465km west of London. South Crofty was the last tin mine to close in Cornwall and the UK, ceasing operations in 1998 due to the low tin price and proposed changes to environmental regulation.

Several companies have attempted to revive the mine between 2001 and 2013. Significant advances were made, primarily the agreement to secure a site for future mill construction, and the grant of a mining permit which is valid until 2071, subject to certain planning conditions being met. The project changed hands numerous times before Strongbow acquired it from administration in July 2016 following definition of an NI 43-101 compliant mineral resource earlier in the year. A Preliminary Economic Assessment (PEA) was released for the project in early 2017 envisaging an underground mine producing tin with copper and zinc by-products. The project remains fully permitted.

The key challenge at the site is the dewatering of the historical mine workings, particularly higher grade tin mineralisation in below 400m depth is being targeted. The company completed water treatment trials and received a discharge permit in 2017. Construction of a mine water treatment plant is currently underway. Dewatering of the mine is expected to take 18 months upon completion of the water treatment plant, during which period Strongbow hope to complete a feasibility study and bring the project to a production decision.



Conceptual processing plant at South Crofty

## Project Information (2017 PEA)

<b>Project Name</b>	South Crofty
<b>Country</b>	UK
<b>Mine Type</b>	Underground
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	~5,000
<b>Mine Life (years)</b>	8
<b>Capital Cost (US\$ M)</b>	118.7

## NI 43-101 Lower Mine Indicated Resource

Ore (Mt)	1.66	Metal (t)
Sn (%)	1.81	30,046

## NI 43-101 Lower Mine Inferred Resource

Ore (Mt)	0.74	Metal (t)
Sn (%)	1.91	14,131

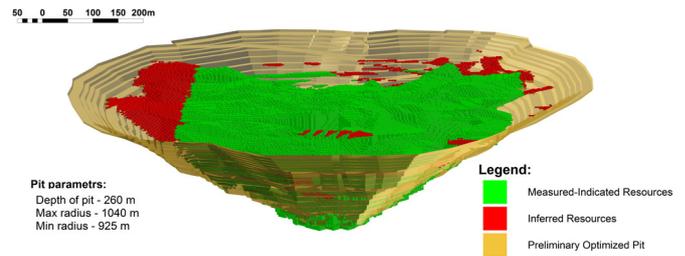
## NI 43-101 Upper Mine Indicated & Inferred Resource

Ore (Mt)	0.72	Metal (t)
Sn (%)	0.68	4,908
Cu (%)	0.68	4,907
Zn (%)	0.61	4,414

JSC Tin One Mining, formerly known as JSC Syrymbet, was founded in 1998 to carry out the development of the Syrymbet deposit, including mine and processing plant construction, in Kazakhstan. The Syrymbet licence area also incorporates the Sarybulak tantalum-niobium prospect. The company is a privately owned subsidiary of the Lancaster Group, a diversified holding company specialising in long term development opportunities. Samruk-Kazyna Invest, a subsidiary of the Kazakhstan government's asset management division, has a minority share.

## Major Shareholders

Lancaster Group	75%
Samruk-Kazyna Invest	25%



Contour of the Preliminary Optimised Pit

## The Syrymbet Tin Project

The Syrymbet deposit is located in the Syrymbet ore field, north-west of the Kokchetav middle massif, within the Volodarskiy ore province. The venture is wholly owned by JSC Tin One Mining, which is permitted to carry out development and production within the licence area until 2030. Commercial mineralisation at the deposit was first discovered by a drill-hole program in 1985, with further exploration in 1990 leading to the discovery of tin-bearing weathered crust with commercial potential. The ore field is associated with the intrusion of two late Devonian granite-porphry stockworks (Syrymbet and Sarybulak).

The company claims that the deposit is currently the world's largest undeveloped tin deposit, based on 2012 JORC reporting standards. JORC-compliant mineral resource estimation (MRE) reports from 2015 and 2018 indicate in-situ resources comprising 123 Mt of ore, containing 492 kt of tin.

A Definitive Feasibility Study (DFS) is currently being produced and is expected to be completed at the end of 2019. The objectives of the project are to prepare comprehensive technical and economic reports and project data that meet the requirements of international financial institutions, provide final validation of the technical and economic feasibility and viability of the project, and provide data sufficient for detailed design, engineering drawings and construction of the project facilities. In 2018, State authorities commenced the construction of a railway siding and a potable water pipeline, which are required for the development of the project.

## Project Information

<b>Project Name</b>	Syrymbet
<b>Country</b>	Kazakhstan
<b>Mine Type</b>	Open Pit
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	7,500
<b>Mine Life (years)</b>	14
<b>Start Date</b>	2021
<b>Capital Cost (US\$ M)</b>	285

## JORC-Compliant Measured & Indicated Resource

Ore (Mt)	54.8	Metal (t)
Sn (%)	0.43	236,354

## JORC-Compliant Inferred Resource

Ore (Mt)	68.5	Metal (t)
Sn (%)	0.37	255,482

## JORC-Compliant Probable Reserve

Ore (Mt)	26	Metal (t)
Sn (%)	0.54	140,400



# AfriTin Mining

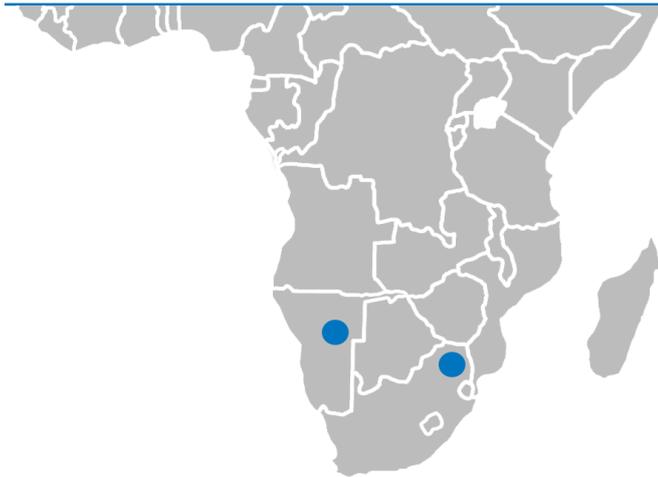
**AfriTin Mining** was established in 2017 to acquire the tin assets of Bushveld Minerals Limited. The company was listed on AIM in November of the same year and is focussed on creating a portfolio of conflict-free, tin producing assets. The company owns two tin projects: the Uis brownfield mine in Namibia and the Mokopane project in South Africa.

## Market Information (as of 09/02/19)

AIM Code	ATM
Shares on Issue	519.59 m
Market Capitalisation	16.81 m

## Major Shareholders

Naminco Limited	16.9%
Miton Asset Management	12.9%
Bushveld Minerals Limited	9.5%



Aerial view of the Uis Tin Project

## The Uis Tin Project

The Uis Tin project, located in Namibia, was discovered in 1911 and developed by Iscor of South Africa as the largest hard-rock tin mine in the world. Production ended in 1990 as a result of low tin prices.

During December 2018, AfriTin undertook the first large-scale blast of mining material at Uis, which was crushed and stockpiled in preparation for the commencement of the Phase 1 Pilot Plant. This Pilot Plant was recently upgraded to facilitate the production of tantalum concentrate alongside the primary tin concentrate. Full-scale concentrate production is forecast for 2019.

## The Mokopane Tin Project

Mokopane is an exploration stage tin project located in the Limpopo Province of South Africa. The area has a historic production of some 22,000 tonnes of tin metal from the Bushveld Complex granites.

A scoping study was released in 2014, which estimated a production ~700 tonnes per year with a mineral resource of some 18,500 tonnes of tin.

## Project Information

<b>Project Name</b>	Uis
<b>Country</b>	Namibia
<b>Mine Type</b>	Open Pit
<b>Product</b>	Concentrates
<b>Output (t/y Sn)</b>	5,000
<b>Start Date</b>	2019

## Non-JORC-Compliant Mineral Resource

Ore (Mt)	73	Metal (t)
Sn (%)	0.136	99,280
Ta (%)	0.015	10,950

**Anglo Saxony Mining** was established in 2012 and is the holder of several tin deposits, including Tellerhäuser and Breitenbrunn. The company, original known as Treliver Minerals Ltd, changed its name in February 2017.



## The Tellerhäuser Tin Project

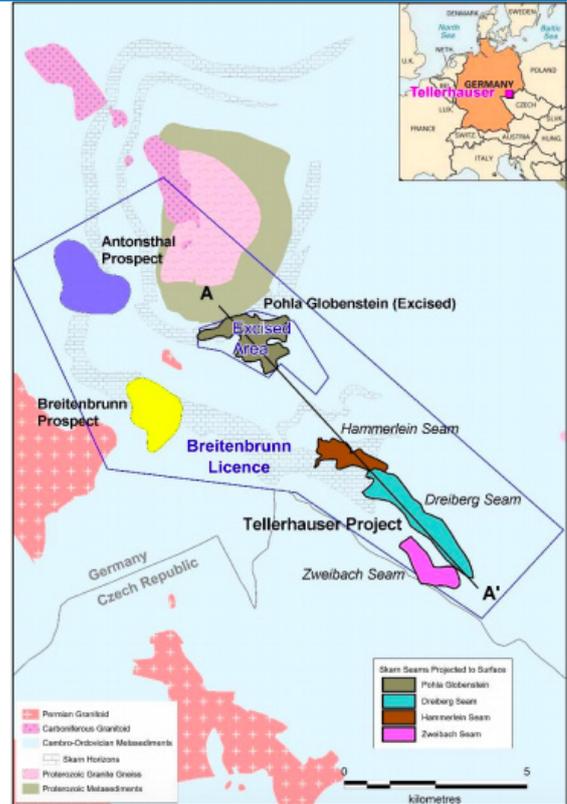
The Tellerhäuser project was discovered “accidentally” by the GDR-Soviet joint venture company SDAG Wismut in 1968 whilst exploring for nearby uranium deposits. Their subsequent 20-year exploration programme resulted in a 20 million tonne resource estimation at a grade of 0.65% tin.

The project’s geology is divided into two packages. The skarn package accounts for 124,000 tonnes of contained metal, with a further 19,000 tonnes of contained tin within the schist sequences.

Tellerhäuser also has some exploration upside in additional layers and peripheral deposits, with some 140 km of drill core from previous Soviet exploration.

## The Breitenbrunn License

Located in the same stratigraphic package as Tellerhäuser, the Breitenbrunn license contains two potential deposits – the eponymous Breitenbrunn and Antonsthal. Estimates put the combined tin resource at over 80,000 tonnes of contained metal using a grade of 0.23%. On top of this, recent work suggests that high-grade pods of mineralisation could also be present.



## Surface-projected map of the Tellerhäuser project Project Information

<b>Project Name</b>	Tellerhäuser
<b>Country</b>	Germany
<b>Mine Type</b>	Underground
<b>Product</b>	Concentrates

## Non-JORC-Compliant Mineral Resource Skarn Package

Ore (Mt)	20	Metal (t)
Sn (%)	0.65	124,000

## Non-JORC-Compliant Mineral Resource Schist Sequences

Ore (Mt)	5.6	Metal (t)
Sn (%)	0.33	19,000

# LAURIUM Laurium Mining

**Laurium Mining Company Ltd.** is a new Limited Liability Company, incorporated in Nigeria, to carry out exploration, mining and processing of cassiterite and columbite, with eight licenses covering a total of nearly 340 km<sup>2</sup>.



## Project Information

<b>Project Name</b>	Sho Basin
<b>Country</b>	Nigeria
<b>Mine Type</b>	Open Pit
<b>Product</b>	Refined Tin
<b>Output (t/y Sn)</b>	200
<b>Mine Life (years)</b>	40
<b>Start Date</b>	2020

## Estimated Mineral Resource

Ore (Mt)	23.1	<b>Metal (t)</b>
Sn (%)	0.099	<b>23,118</b>

## The Sho Basin Tin Project

The Sho Basin project is located in the Sho area of the Barkin Ladi local government area (LGA), and is the most well-documented and explored of Laurium prospective projects, stretching across two of its license areas. The area was previously prospected by British company Naraguta Karama Mining until nationalisation of the industry in the early 1980s.

Laurium has already completed a geological and geophysical survey of the area, which has indicated a potential high-grade alluvial resource of some 20,000 tonnes. Much of the resource is hosted in highly-weathered basalts, making the deposit amenable to semi-mechanised extraction methods. The company envisages an open-pit mine and nearby “Jumai” processing plant, which will upgrade the tin from a feed grade between 6 – 8% Sn to 70% Sn concentrate using gravity separation techniques. The early-stage mine will produce around 200 tonnes of tin-in-concentrate, but this will quickly be doubled by doubling the number of shifts.

The company is also aiming to become an integrated producer. Germany company Umwelt-Und Ingenieurtechnik GMBH Dresden Mineral Resources has been contracted to carry out a scoping study for multi-element recovery from the cassiterite ore, while Laurium has installed a Batch Smelter pilot plant to produce refined tin metal.

## Assumptions

The information within this report was collated from multiple sources including personal communication, company websites, quarterly and annual reports, press releases and presentations available prior to 20/05/2019 unless otherwise stated. Mineral resource figures and forecast mine costs, schedules and other quantitative data presented on the member profile pages originates directly from the company with which it is associated, although the actual figure may have been converted or adjusted by the International Tin Association in order to make figures more comparable where appropriate.

Cash Costs reflect the direct costs of mining and processing the ore into refined tin and are reported net-of-by-product. Where mineable by-products or co-products exist, the additional revenue is offset against the Cash or Full Cost to calculate a resultant cost per tonne of tin. Any costs presented in this report have all been published by the companies themselves and the method of calculation may therefore vary from the descriptions provided above. As costs are expressed in US dollars there may be some inherent error where exchange rates have changed over time, particular with respect to cost assumptions made by the individual companies in their studies.