



# The Emerging Force in the Premium Zircon Industry

Company Presentation, March 2021

***PYX is the 2nd Largest Producing Mineral Sands Company Globally By Zircon Resources***



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# PYX Resources: Company Overview

## Business Overview

- PYX Resources Limited (NSX: PYX) is a global mineral sands company and a leading producer of premium zircon listed on the National Stock Exchange of Australia (NSX) in February 2020.
- PYX's flagship assets are the Mandiri and Tisma deposits, which are located in the alluvium sediment rich region of Central Kalimantan, Indonesia.
- PYX has been in operation since 2015 at its Mandiri deposit. Exploration has indicated the presence of, among other things, additional valuable heavy minerals such as rutile and ilmenite in both Mandiri and Tisma deposits.

## Financials

Items	Year ended 30 June 2020	Year ended 30 June 2019
Revenue (US\$ '000)	7,816	2,903
Revenue Growth	169%	-
Net Assets (US\$ '000)	6,408	997
Net Profit (US\$ '000)	(10,886)	234
Outstanding Shares	267.8 MM	1,686
Market Cap (A\$)	166.0 MM	-

## Share Price (A\$)

As at 1 March 2021



## PYX Management Team

Title	Name
Chairman & CEO	Mr. Oliver B. Hasler
Non Exec Directors	Mr. Gary J. Artmont
	Mr. Bakhos Georges
	Mr. Alvin Tan

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# Investment Highlights

Listed on the NSX, PYX is a mineral sands company at production stage, with substantial upside potential. **It is the world's 2<sup>nd</sup> largest producing mineral sands company based on zircon resources.**

PYX holds two world-class mineral sands deposits which are strategically located in a Belt and Road country, with very high assemblage value Inferred Resources and long mine life.

The company, already in production since 2015, features an **excellent geological setting**, with JORC Inferred Resources of 14.9 Mt of heavy minerals, including **10.5 Mt of JORC compliant zircon resources**. **The combined HM assemblage is best in class with a value of US\$1,145/t and 70% zircon content.**

A **well-diversified portfolio of international blue-chip customers** across key geographies and industrial sectors, with a major focus on China.

**Strong zircon price outlook** due to supply/demand deficit post COVID 19 and a **major upcoming commodity price up-cycle**.

Top-tier management team with solid track record.

**Significant upside potential supported by current share price discount to intrinsic value**, potential for volume increase and drastic cost reduction, additional resources exploration targets and potential for rutile and ilmenite resource definition as well as access to additional acquisition targets.

# Business and Tisma Acquisition Update

## Business Update: Strong results with solid fundamentals

- In FY2020, PYX achieved **strong volume and top line growth**, with **tight cost control**
- PYX's zircon **order book is very strong**, with production slots booked up to June 2021 as a result of PYX's superior quality, the unique **whiteness of Kalimantan** zircon and the scarcity of zircon of supply
- Zircon **demand is picking up across our end markets in China and India**, with increased customer diversification
- **Zircon prices remained stable** during 2020, and are now on the rise again
- PYX was **the best performing stock in 2020** among the global mineral sands listed peers and significantly outperformed the S&P/ASX 300 Metals and Mining Index

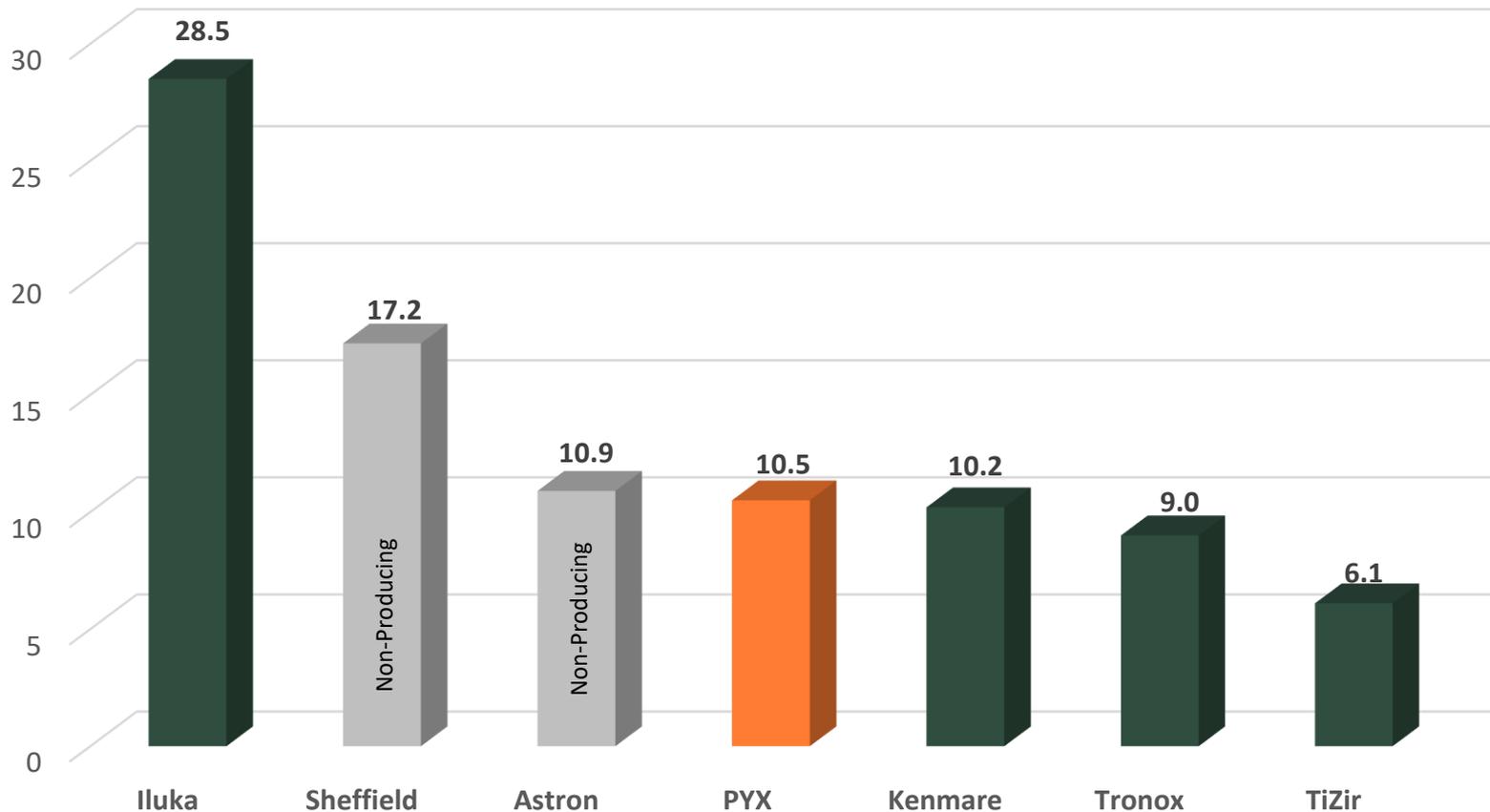
## Tisma Acquisition Update: great opportunity to boost market presence and grow market share

PYX has completed the acquisition of Tisma, an **outstanding mineral sands deposit in close proximity** to our existing Mandiri tenement. This is a **highly transformative and accretive acquisition** for PYX:

- **PYX has become the world's 2nd largest producing mineral sands company globally in terms of zircon JORC compliant resources**, transforming itself into a **major global premium zircon miner**
- PYX has boosted its contained zircon resources by 75% by issuing new shares equivalent to 55% of its existing capital to the Tisma vendors, a **highly accretive deal** for existing PYX shareholders
- **Potential for significant synergies and economies of scale**
- PYX has strengthened its position as the **industry consolidator of zircon-rich deposits**

# Operating the 2<sup>nd</sup> Largest Zircon Producing Resource Base

Zircon JORC Resources (MM Tonnes)



Source: Companies public filings

# Unique Alluvial Deposit Region

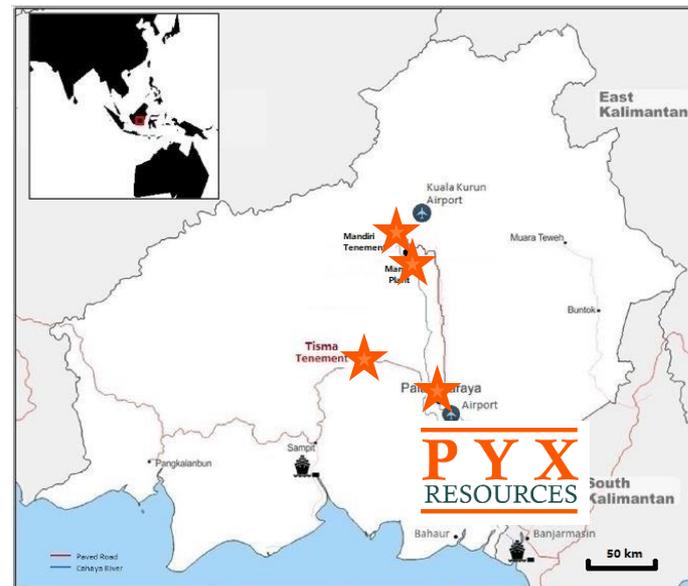
## The Location of the Main Producing Districts in Kalimantan



- With the acquisition of Tisma, PYX is consolidating the Kalimantan zircon mining business and transformed itself into the 2<sup>nd</sup> largest producing mineral sands company by zircon resources
- Kalimantan contains well established alluvial deposit mining for zircon, rutile, ilmenite and placer gold and platinum among others
- Economic minerals were derived from the uplift and deep erosion of the Paleozoic to Cretaceous basement rocks which contains low-grade disseminated and vein gold mineralization
- Zircon was derived from Cretaceous granites of the Schwaner Mountains
- The Chinese Kongsis dominated for gold and diamonds from 100 AD to the 18th century, Indian trading companies were also active since the 4th century, while the Dutch East India Company controlled the alluvial operations by the end of the 18<sup>th</sup> century
- Currently, significant gold and zircon production is derived from numerous producers
- The Kahayan River system contains an enormous undeveloped mineral sands and gold resource

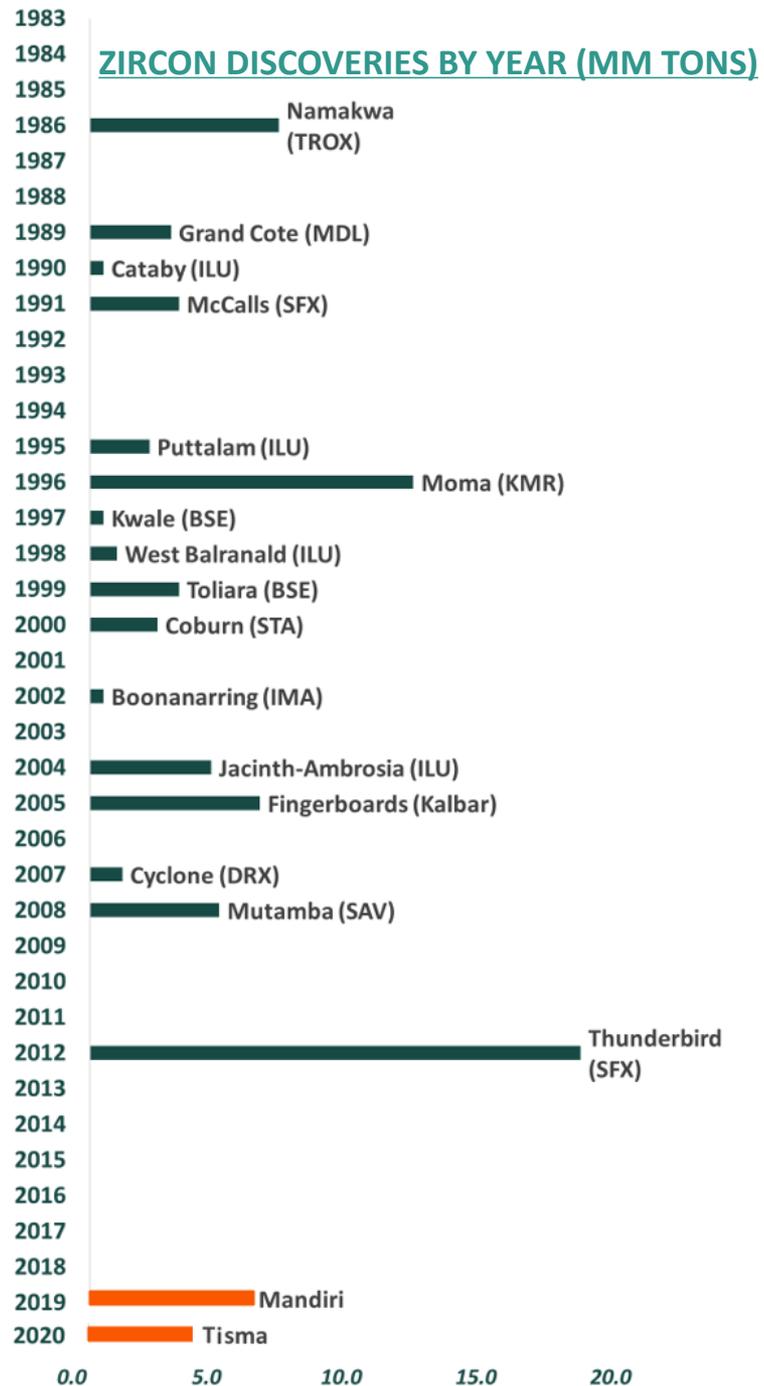
# Highest Assemblage Value Globally and Perfect Location

Deposit Specs	Mandiri Deposit	Tisma Deposit	PYX's Mandiri and Tisma Deposit Combined
<b>Mineral Resources</b>	126.3 Mt	137.2 Mt	263.5 Mt
<b>HM Grade</b>	7.43%	3.99%	5.65 %
<b>HM Tonnage</b>	9.4 Mt	5.5 Mt	14.9 Mt
<b>Contained Zircon</b>	6.0 Mt	4.5 Mt	10.5 Mt
<b>Assemblage</b>	ZIR: 64% RUT:8.5% ILM: 9.5%	ZIR: 82% RUT: 2% ILM: 8.5%	ZIR :70% RUT :6% ILM :9.1%
<b>Assemblage Value</b>	US\$1,087 /tonne	US\$1,264 /tonne	US\$1,145 /tonne

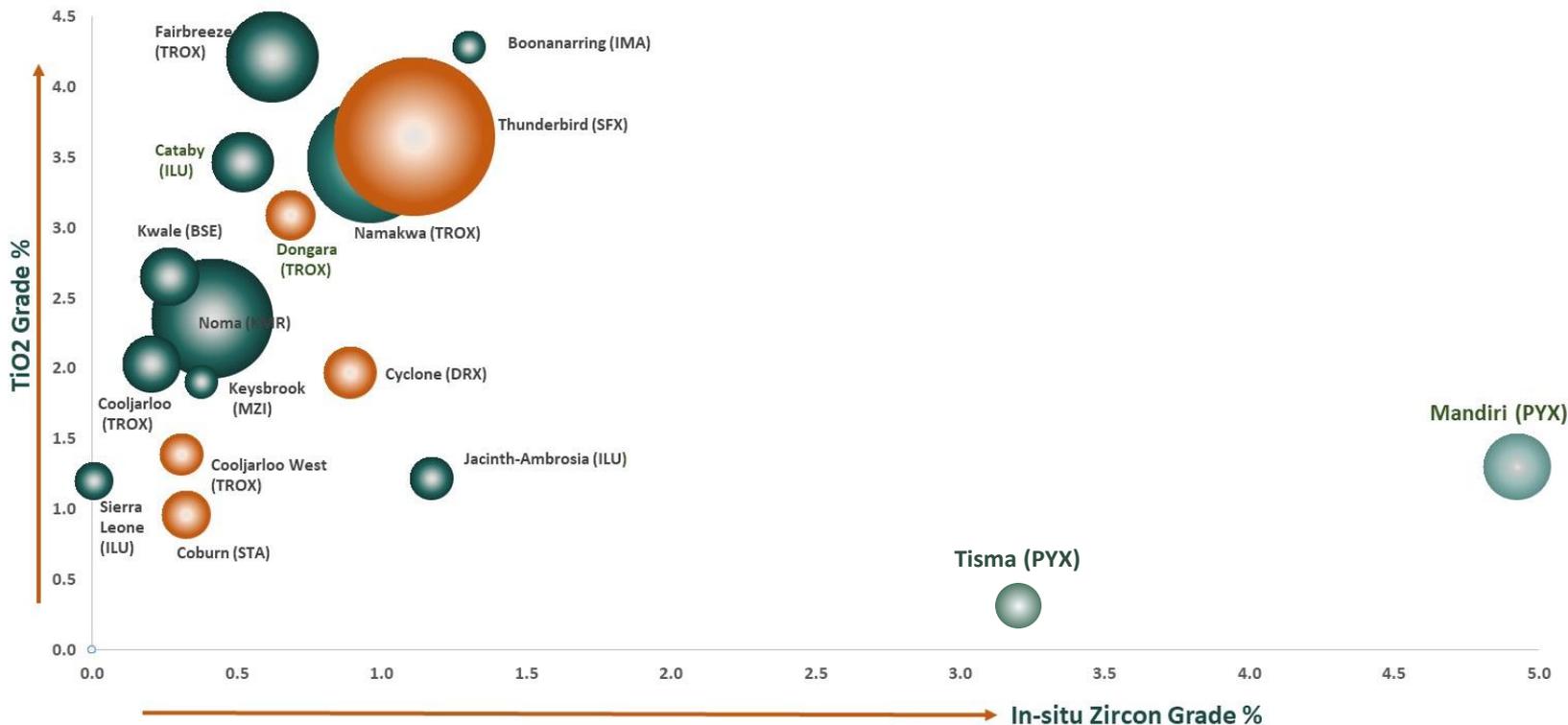


# PYX Major Discoveries

- PYX's discoveries are uniquely positioned as the largest zircon discoveries in the world since 2012.
- The chronologic table to the right indicates that PYX's deposits are the most recent significant discovery of zircon globally.
- In terms of contained zircon, they are the 54th largest mineral sands targets in the world, without taking into consideration the upside of the remaining areas
- PYX is the world's 2<sup>nd</sup> largest producing mineral sands company based on zircon resources.



# Mandiri and Tisma are Clear Outliers in Terms of Zircon %



**Notes:**

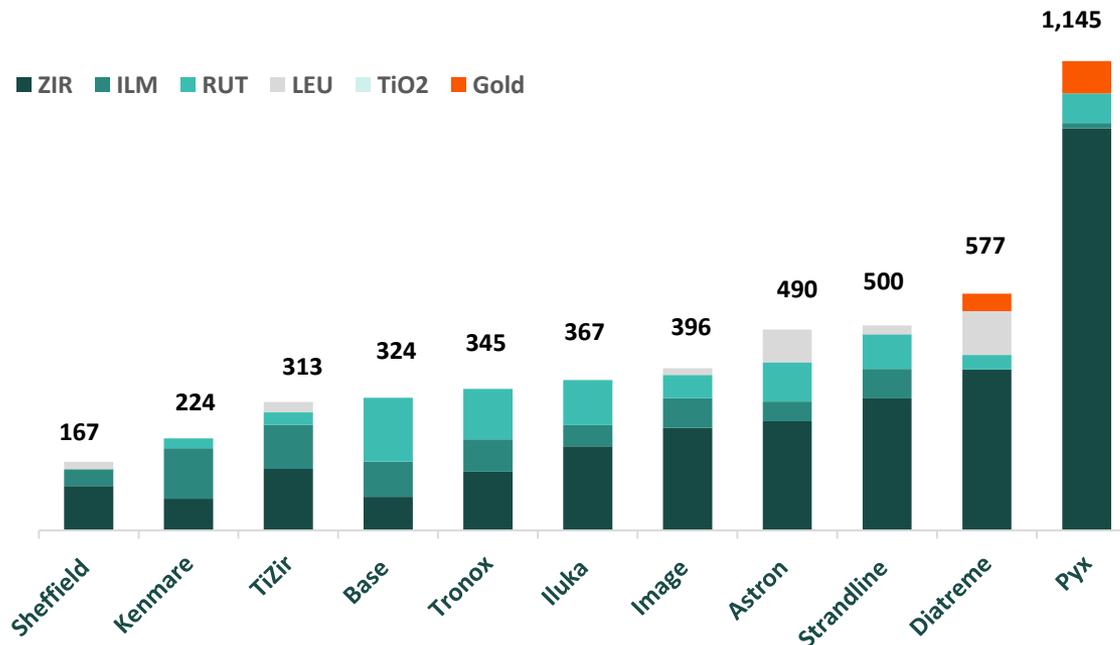
1. Mandiri Zircon grade ranked the highest among current major mineral sands operations and projects under investigation globally.
2. Bubble size proportional to tonnes of Valuable Heavy Mineral (VHM) resources.
3. Blue bubbles projects in production phase, orange bubbles projects in exploration/development phase.
4. TiO2 grade calculated as the VHM grade of Ilmenite, Leucosene, and Rutile.
5. Data compiled from public sources and PYX's' research.

Source: Public Filings, Cedrus Research

# Tisma Superior Assemblage

Assemblage Value US\$/tonne

- P Y X’s Mandiri deposit has the highest assemblage value amongst its peer group, and it is already in production. The Tisma deposit has an even higher assemblage value
- Assemblage is the relative percentage of each different valuable minerals found within a heavy mineral sands deposit, such as Zircon (ZIR), Ilmenite (ILM), Rutile (RUT), and Leucoxene (LEU).
- Each valuable mineral has a different market price. The assemblage value is the weighted average value of all the valuable heavy minerals in the ore.



Zir %	18	5.5	10.7	6	10.2	18.4	17	23	19	27	70.0
Rut %	3	2	2.5	13	10.3	4.2	4	7	8	3	6.0
Ilm %	56	82	72.0	56	52.5	50.5	54	48	32	-	9.1

Notes: P Y X’s gold exploration target not included in JORC Resource Statement;  
TiO2 = titanium dioxide

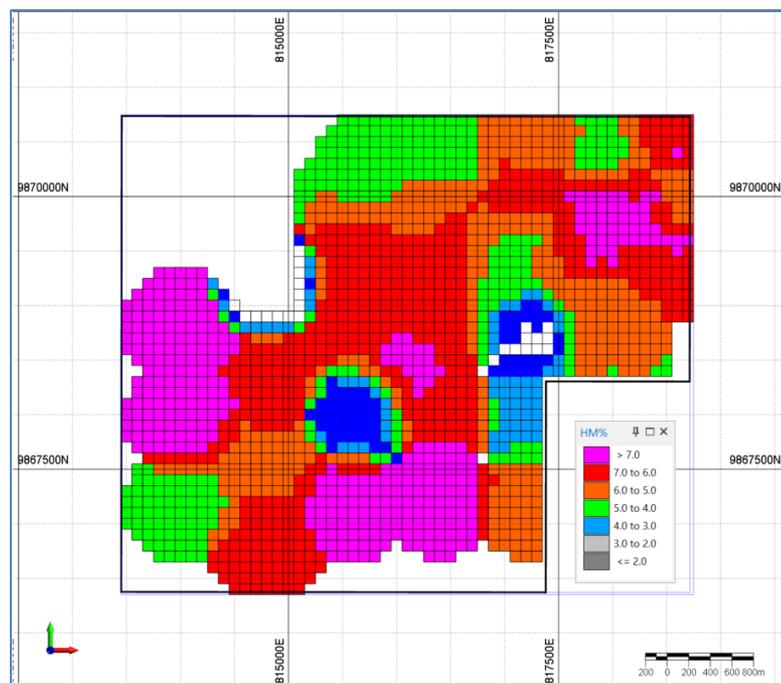
Source: Public filings, Cedrus’ research

# Limited Alluvium Bed Thickness Enables Open Pit Mining

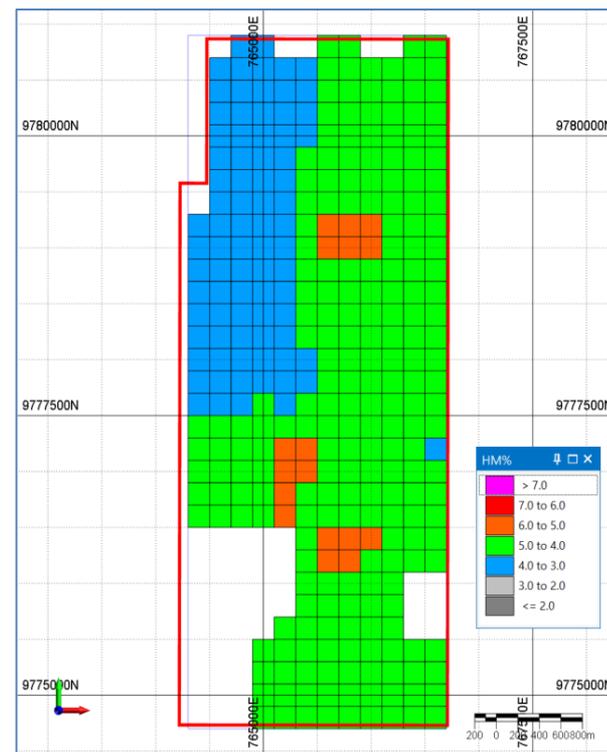


# Block Model Output Shows Consistency in Zircon Grades

## MANDIRI DEPOSIT ORE BLOCK MODEL OUTPUT



## TISMA DEPOSIT ORE BLOCK MODEL OUTPUT



- Limited thickness of Alluvium Bed deposit, with an average thickness of 3.68 metres for Mandiri
- Low complexity, open sky mining has a beneficial impact on cash margins and environmental assessment
- MSP Engineering engaged to automate logistics, mining operations and wet concentration processes for Mandiri

# PYX – In Production since 2015



- The Mandiri deposit commenced production in August 2015.
- Mandiri is currently in operation with an installed production capacity of 1,500 tpm (or 18,000 tpa) of zircon product and has produced more than 15,000 tonnes of zircon product to-date.
- The existing Mandiri Mineral Separation Unit consists of a conventional wet concentration process (Wilfley tabling) followed by the batch dry mineral separation processing (electrostatic rolls, electrostatic plates and magnetic rolls)
- The primary product of the Mandiri project is 65.5 grade Zircon (premium grade for export). Other potential by-products include rutile and ilmenite.
- Further expansion is planned and will take place over the next 5 years to expand to a capacity of 4,000 tpm.

# Well Diversified Customer Mix

- PYX customer base consists of a pool of well-diversified international blue-chip customers globally, providing protection to PYX against any concentration risks.
- Key customers are located across major European and Asian markets.
- 100% of its revenues are US\$ denominated, resulting in limited currency risk.



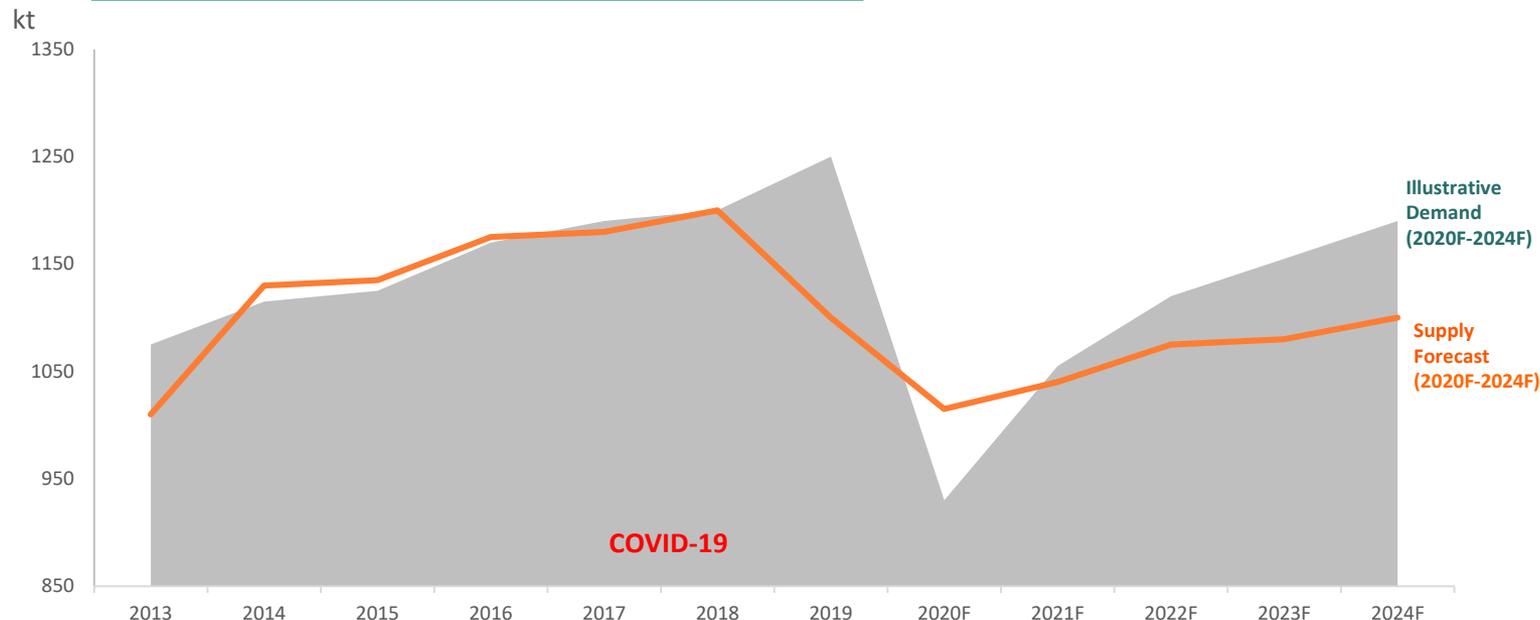
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# Post COVID-19, a Substantial Zircon Undersupply Will Emerge

## GLOBAL ZIRCON SUPPLY AND DEMAND OUTLOOK



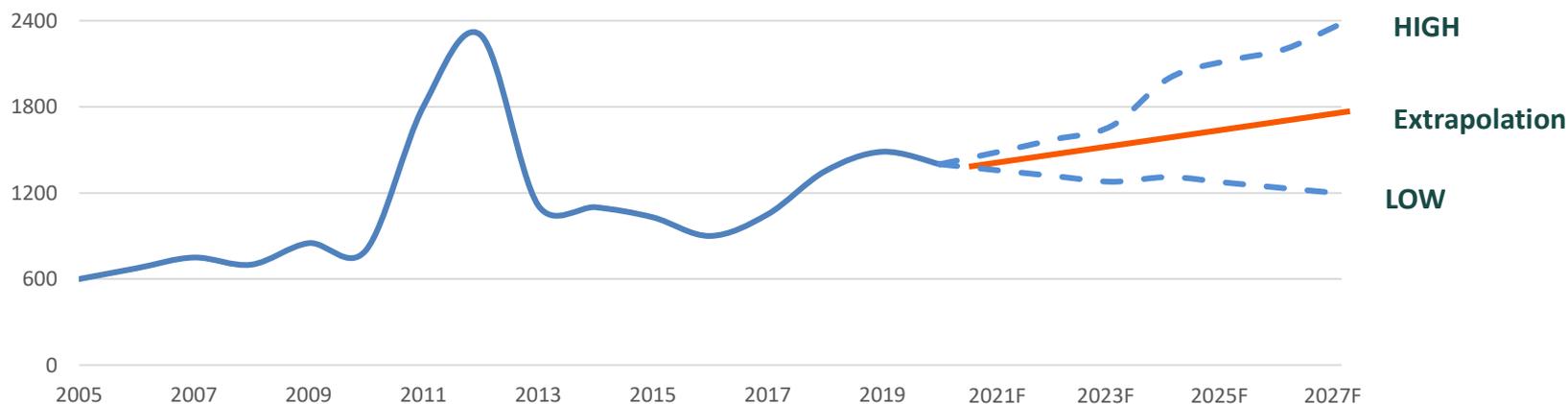
*Note: Illustrative demand and supply forecast (2020-24) are indicative only. Supply data assume no new project going into production stage  
Source: ILUKA, TZMI, Sheffield Resources*

- Post COVID-19 pandemic, a substantial supply gap is expected to emerge, which is likely to support a robust zircon price environment in the near future.
- Zircon prices, which remained stable during the COVID 19 pandemic, are expected to raise strongly over the next few months, in combination with a major commodity price upcycle during the post COVID 19 recovery phase

# Zircon Scarce and Concentrated Supply is Boosting Price

- During 2019 zircon prices continue to remain stable, and the weighted average zircon sand (premium and standard) price in Q3 2020 was US\$1,311 per tonne. Credit Suisse and other research analysts are projecting zircon at US\$1,510 for 2021
- It is a fact that the grade of known deposits is declining
- Following industry consolidation in the last 10 years, the top 5 producers Iluka (336k tons), Tronox/Cristal (228k tons)\*, Rio Tinto (192k tons), TiZir (60k tons) and Kenmare (48k tons) control approximately 72% of global supply in 2018, and therefore pricing environment is expected to remain strong
- There is a lack of supply potential for the foreseeable future and the future demand is projected to exceed supply
- Global trade tensions and COVID-19 pandemic, led to more cautious buying behaviour from consumers and an overall dampening on demand; however, since second quarter, zircon consumers, especially Chinese companies have been restarting operations, which will lead substantial demand for high-grade zircon. Zircon's prices are increasing in 2021

## ZIRCON (PREMIUM GRADE) PRICE AND OUTLOOK TO 2027

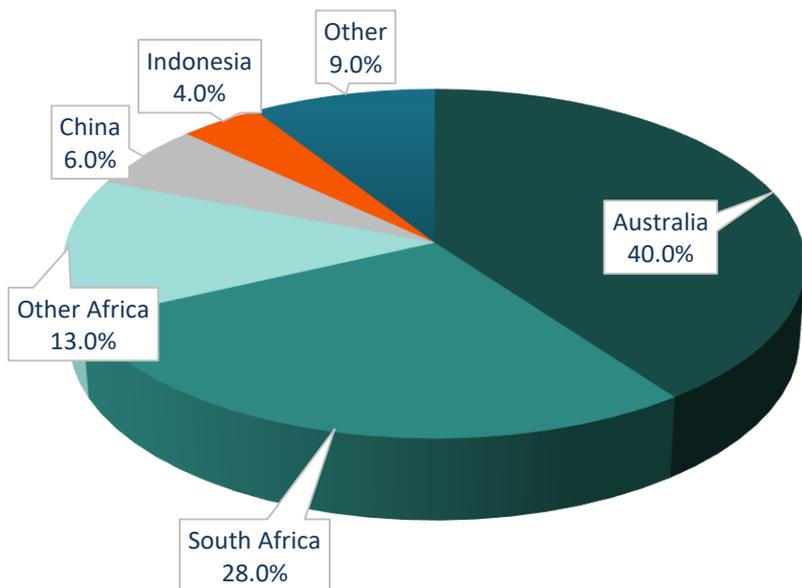


Source: ILLUKA Investor Briefing, TZMI, Company Analysis

# World Zircon Mine Productions & Reserves

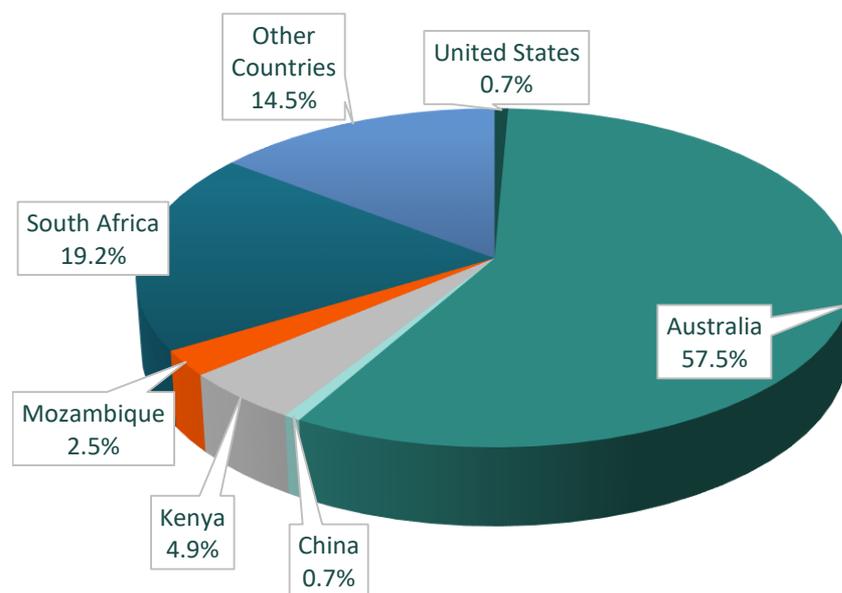
## GLOBAL ZIRCON PRODUCTION BY REGION

2019 Total Production ~ 1.2mt



## GLOBAL ZIRCON RESERVES BY COUNTRIES

2018 Total Reserves ~ 73mt

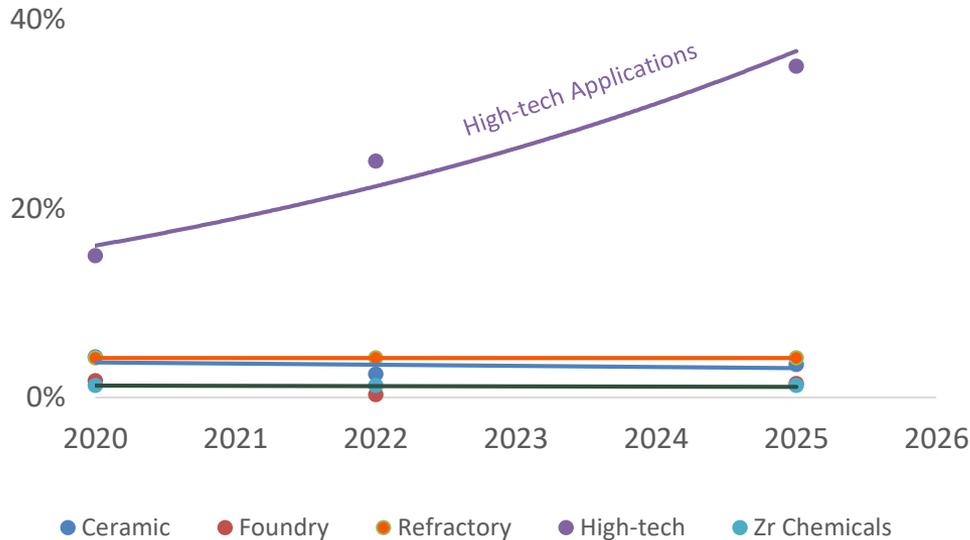


Source: ILLUKA Investor Briefing, October 2019  
U.S. Geological Survey, 2019

*Note: Indonesian assets have no recorded Zircon reserves. Zircon Reserves Data does not include Indonesian supply base. This is because zircon deposits in Indonesia are generally shallow, and require minimal capex and low operating expenses.*

# Zircon High Tech Applications

## Growth Rate of Zircon End Markets Volumes (%)



Source: MarketWatch, China Building Sanitary Ceramics Association and Prospective Industry Research Institute, and Cedrus' research

The zircon end market can be categorised by :

- Traditional Uses - typically used for ceramics manufacturing, high tolerance casting/foundry, refractory and zirconium chemicals.
- High-tech Applications – zircon are also becoming more popular in novel applications (typically high-tech uses), including additive manufacturing, semiconductors, implants, solar cells, fuel cells and batteries.
- Intermediate Use – such as fused zirconia and other zirconium chemicals for a wide variety of applications including electronics, nuclear fuel rods, paper, brake pads, investment casting, and catalysts.

High-tech applications is gaining its importance as it grows almost 10X faster than traditional uses.

Mostly for high-tech applications including:

- 3D printing
- Semiconductors
- Solar cells
- Implants
- Fuel cells and batteries
- Share memory alloys and coating
- Catalysis

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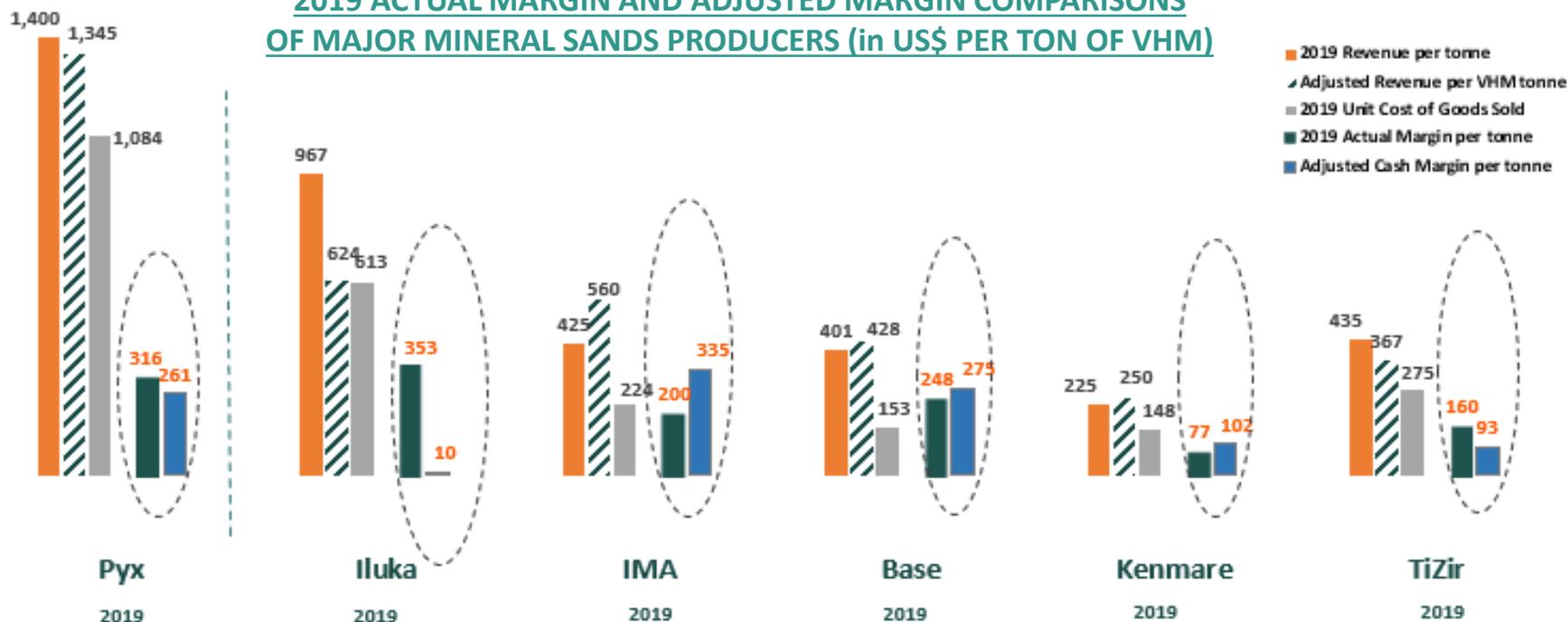
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# PYX Superior Margins are Sustainable Long Term

Long term sustainable cash margins depend on the in-situ assemblage mix, and might be different from the cash margins realized in one particular year, due to the fact that the production mix in a particular year might be different from the resource assemblage. As an example, due to “selective mining” Iluka is currently extracting minerals with a higher value per tonne than the assemblage mix of its in situ resources, and as such its “sustainable” average revenue per ton is US\$ 480 vs US\$ 967 which Iluka has achieved on average in FY 2019.

Cash costs are mostly composed of Heavy Mineral mining and concentration, which are largely independent from the production mix.

## 2019 ACTUAL MARGIN AND ADJUSTED MARGIN COMPARISONS OF MAJOR MINERAL SANDS PRODUCERS (in US\$ PER TON OF VHM)



Source: Public Filings, Cedrus Research

### VALUATION CONSIDERATIONS

Note: Adjusted Revenue calculated as the weighted average value on mineral components disclosed on each company’s 2019 Resource Statement.

# Valuation Benchmarks Against Listed Peers

The following table shows the valuation (in terms of Enterprise Value (EV) per tonne of JORC Compliant resources) of comparable mineral sands mining companies listed on the ASX, which is strongly correlated with the assemblage value of the Heavy Mineral (HM) resources as stated in each company's JORC-compliant statements.

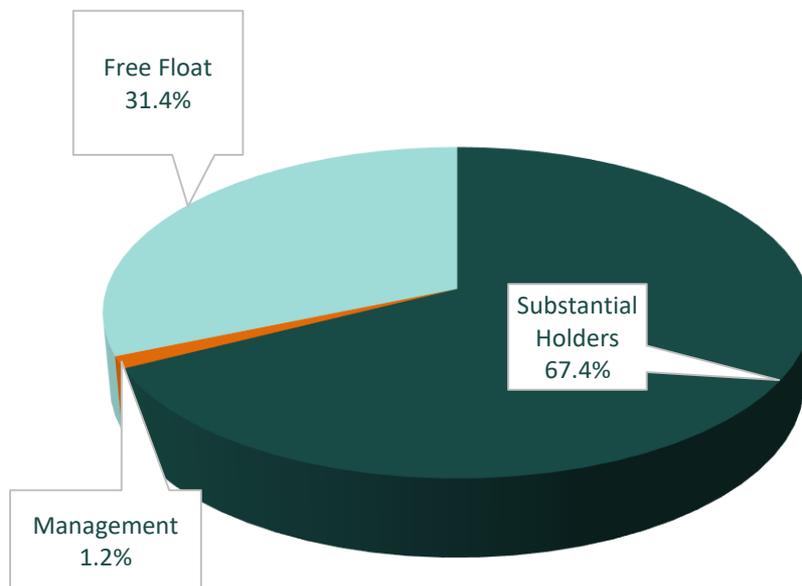
As at 23 February 2021

	Share Price	Market Cap	EV	Resources (in situ THM)	Weighted Avg Assemblage Value	EV/Resources
	LCL Currency	US\$ m	US\$ m	Mt	US\$	US\$/t
Iluka Sierra Rutile 2019*	N/A	N/A	600.0	8.0	1,200	75.00
Iluka Sierra Rutile 2016*	N/A	N/A	336.8	8.2	1,200	41.07
<b>Pyx Resources Limited</b>	<b>0.91</b>	283.3	280.1	14.9	1,145	18.8
Strandline Resources	0.2	78.43	72.54	29.0	518	2.5
Astron Corporation	0.25	23.0	34.6	57.1	554	0.6
Image Resources	0.16	119.06	119.57	3.5	405.4	33.8
Iluka Resources	7.50	2,377.50	2,302.5	167.8	367.0	13.7
Tronox Holdings	20.90	3,000.00	5,960.00	78.1	345.2	76.3
Base Resources	0.32	282.72	229.93	70.9	324.0	3.2
TiZir Limited (2018)*	N/A	N/A	525.00	26.2	313.0	20.0
Kenmare Resources	395	591.67	670.76	185.6	224.0	3.6
Sheffield Resources	0.38	98.63	91.35	223.0	175.7	0.4
Diatreme Resources	0.024	46.36	35.05	4.7	575.4	7.5

Source: Public Filings, Cedrus Research

# In Excess of 31% of the Shares are Free Floating

## Composition of PYX Issued Capital (Post Acquisition)

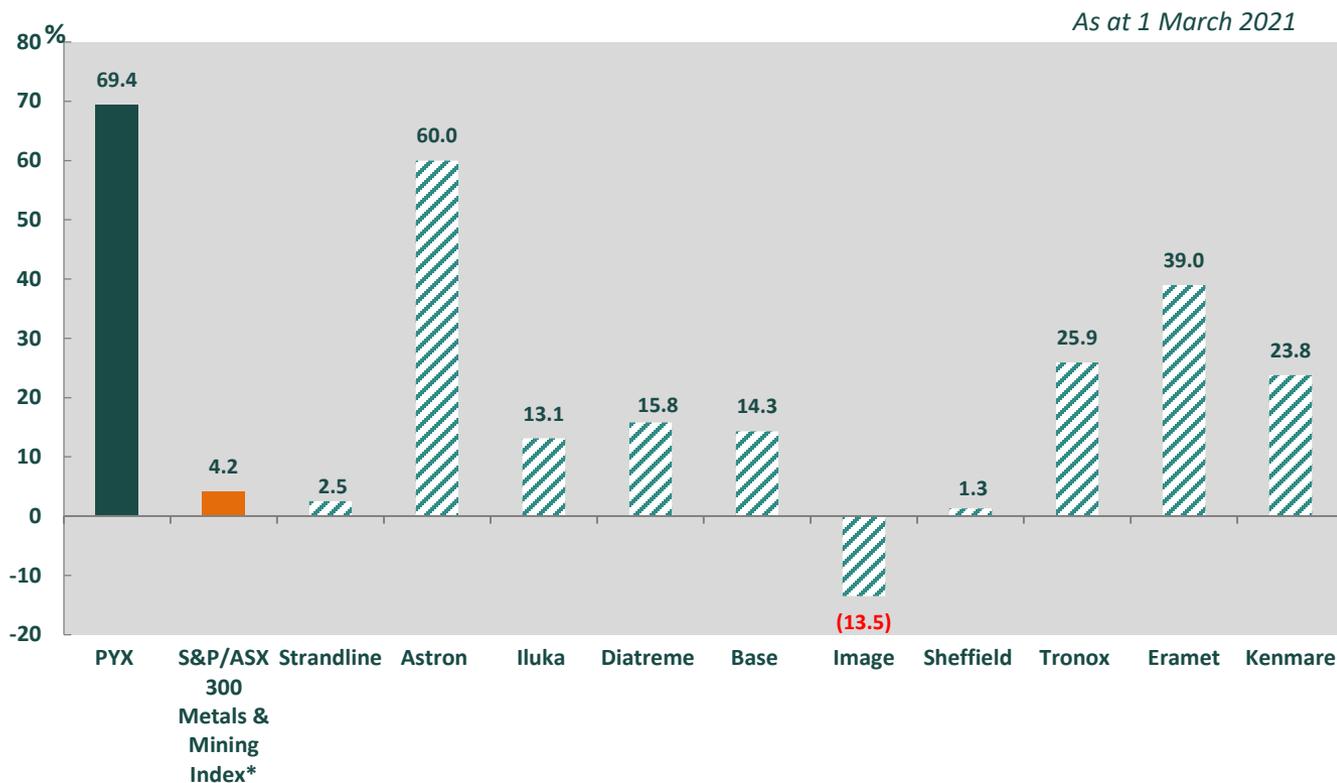


**Total Shares Outstanding: 415,054,407**

**Free Float Shares Outstanding: 130,327,083**

# PYX Shares Clearly Outperformed Listed Miners & Peers

## Share Performance (2021 YTD, %)



In 2021, PYX's shares recorded a 69.4% return, significantly outperforming the ASX Metals & Mining index (4.2%) and leading global mining companies

No. 1 share price performance amongst mineral sands peers and global miners

Source: Public Filings, Cedrus Research

\*: The S&P/ASX 300 Metals & Mining Index is based on the S&P/ASX 300. The index is comprised of ASX listed companies that are classified by the Global Industry Classification Standard (GICS®) as being in the Metals & Mining industry, which includes producers of aluminum, gold, steel, precious metals and minerals, and diversified metals and minerals (GICS Tier 3).

# Our Strategic Focus Remains Unchanged

## Business Focus

Countries	Indonesia		Others	
Minerals	Zircon	Gold	Rutile	Ilmenite
Mining	In-house		Contract	
Elements of the value chain	HMC	High Grade	Processed	Products
Selling route to market	Direct	Indirect partners	Local Distribution	

## Strategic Plan



# Competent Person Statement and Cautionary Note

## Competent Person's Statement

The information in this presentation that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Dr John Chisholm, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Dr Chisholm is engaged by PYX and 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 Resources and Ore Reserves. Dr Chisholm consents to the inclusion in the report of the matters based on his presentation in the form and context in which it appears.

## Forward-looking Statement

This presentation contains forward-looking statements and forward-looking information within the meaning of applicable Australian securities laws, which are based on expectations, estimates and projections as of the date of this presentation.

This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and amount of funding required to execute the Company's exploration, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information.

Forward-looking information is based on the opinions and estimates of management at the date the information is given, and on information available to management at such time. Forward looking information involves significant risks, uncertainties, assumptions and other factors that could cause actual results, performance or achievements to differ materially from the results discussed or implied in the forward-looking information. These factors, including, but not limited to, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Indonesia and Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.

Although the forward-looking information contained in this presentation is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this presentation.

## Compliance Statement

The Mandiri mineral sands deposit hosts a 6 Mt Inferred JORC Resource of zircon. The Company originally announced this resource in its Prospectus released on 20 February 2020 and confirms that it is not aware of any new information or data that materially affects the information included in the Prospectus. All material assumptions and technical parameters disclosed in the Prospectus that underpin the estimates continue to apply and have not materially changed.

The Tisma mineral sands deposit hosts a 4.5 Mt Inferred JORC Resource of zircon. The Company originally announced this resource in its Announcement "PYX Resources Limited Agrees to Acquire Tisma Development (HK) Limited, a World-Class, Fully Licensed Mineral Sands Deposit" on NSX on 13 January 2021 and confirms that it is not aware of any new information or data that materially affects the information included in the Announcement. All material assumptions and technical parameters disclosed in the Announcement that underpin the estimates continue to apply and have not materially changed.

Together the Mandiri mineral sands deposit and Tisma mineral sands deposit total 10.5Mt of contained zircon resource.

# Contact Details



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