

# Informa Mineral Sands Conference 2019

## Iluka Resources Limited (ASX:ILU)

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Jacinth-Ambrosia, South Australia, Australia



**ILUKA**

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All figures are expressed in Australian dollars unless stated otherwise.



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3.5

Group TRIFR 2018  
(2017: 2.8)

1.0

Group LTIFR 2018  
(2017: 1.0)

741

Hectares  
rehabilitated  
in 2018

Female  
representation

40% 29%

Exec. Mgt. Board

2019

Sustainability  
Report to be  
released in April

Human  
Rights  
Policy



### South Australian Premier's Awards

- Excellence in Diversity
- Excellence in Innovation – Environmental Management

Proud constituents of

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM



FTSE4Good



## Industry Outlook

- Zircon market viewed to be broadly balanced in 2019
- High grade titanium feedstock market tight with limited feedstock inventory through chain
- Challenges facing the industry - supply and new projects

## Iluka's Approach

- Our purpose - deliver sustainable value
- Industry leadership through disciplined approach *to capital allocation and sustainable product pricing*
- Ongoing evaluation, preservation and advancement of growth opportunities

## Addressing The Deficit

- Execution of projects in the near term to mitigate effects of emerging supply deficit
- Progressing a pipeline of projects to grow in the medium to longer term



# Industry Outlook

Jacinth-Ambrosia, South Australia, Australia



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## Iluka sees the zircon market as being broadly balanced during 2019...



### Global Supply

- Significant inventory depletion in recent years
  - 2016-18 supply = production + inventory
- Existing producers' mines are mature and grade decline imminent
- 2019 market expected to remain broadly balanced
  - Indonesia (swing producer) and Iluka ZIC balancing market
  - minor new supply (concentrate)
  - a number of smaller operations coming offline

### Global Demand

- H2 2018 saw slight easing in tightness
  - reduced output from Chinese tile industry (environmental regulations)
    - importing more from other regions
  - solid demand in sanitary and refractory
  - Iluka sales not affected
  - less speculation evident in opacifier pricing
- Iluka's customers have positive outlook ahead
  - customers well positioned for 2019
  - longer term demand growth outpacing supply

**... structural deficit continues to emerge in years ahead**



## High grade feedstock supply impacted by production outages...



### Global Supply

- Production disruptions reduced supply throughout 2018
  - Some still unresolved
- Limited rutile inventory reported through chain
- Iluka rutile sales limited by production
- Downstream concerns for feedstock availability in 2019 and beyond

### Global Demand

- Many pigment plants at high operating rates
- Reduced pigment prices in some regions
  - Follows period of strong growth
- Pigment producers understood to be rebuilding inventory
  - Supporting feedstock demand
- Long term growth of chloride pigment capacity exceeding feedstock supply
- Resulting in increased demand for high grade feedstocks

**... at a time where long-life, quality high grade deposits are limited**



- **Unconventional deposits requiring technical solutions** (e.g. fine minerals, depth, product quality)
- **Zircon and rutile** typically induced as by-products of ilmenite projects
- **Limited high zircon and rutile assemblage projects**
- **Higher unit costs** due to grade and distance to infrastructure
- New exploration frontiers, including **higher sovereign risk locations**



## Iluka evaluates a range of projects

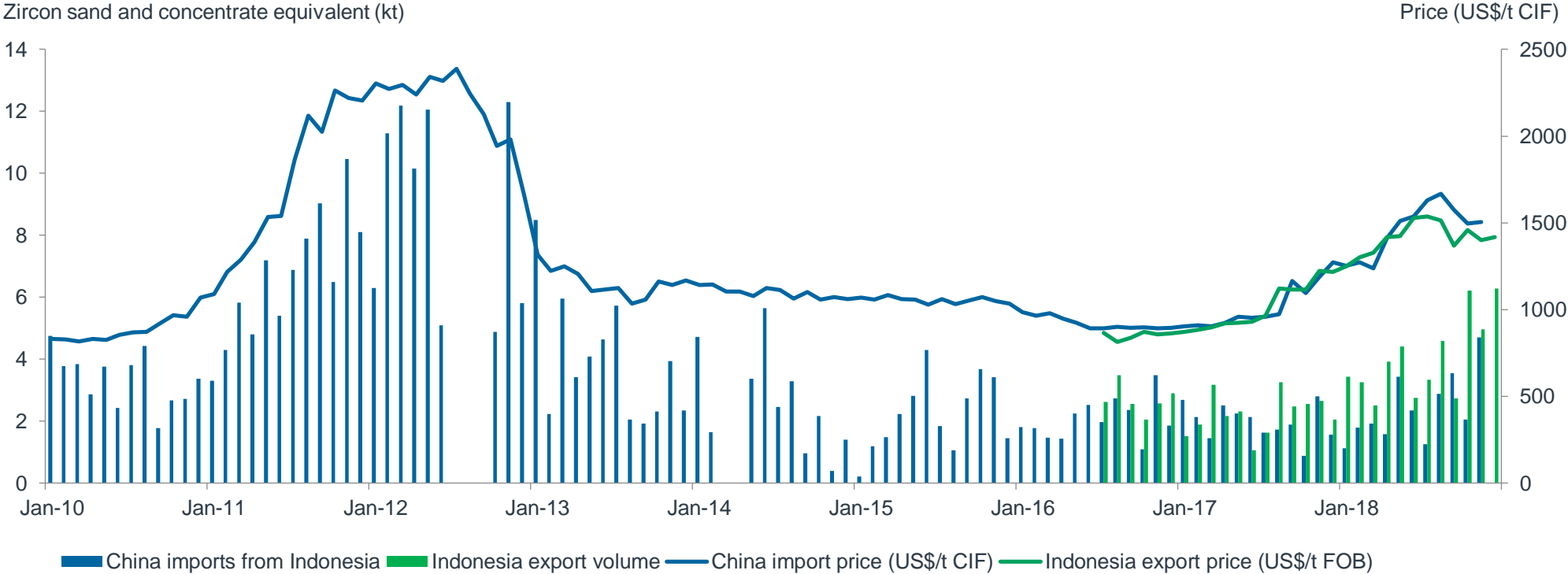
- Includes external projects and internal portfolio
- Strict investment criteria must be met
- 14 projects at various stages of evaluation / development

**Disciplined capital allocation remains key focus**



- High grade titanium feedstocks - limited response to shortage
- Zircon - aside from Iluka, 2018 industry response limited to Kalimantan swing producers

## Indonesian Zircon Exports – Total and to China, 2010 to 2018



Source: Iluka, TZMI, Export Genius

- Inducement price for Kalimantan exports generally regarded to be ~US\$1,400/t
- Indonesian exports in Q4 2018 at ~80ktpa rate



# Iluka's Response - ZIC Production

- Produced by upgrading / blending current and stockpiled MSP byproduct streams
- Simple reclaim with minimal processing and low cost
- Match production / sales to market

## Iluka's ZIC<sup>1</sup> sources

- US: almost depleted
- South west: +2 years remaining
- Sierra Rutile: ongoing for life of mine
- Narngulu: ongoing
  - stockpile of ~600kt
  - 2019 guided production of 40ktpa
- Provides flex of an additional ~50ktpa

## Mineral Processing Unit, Narngulu (90ktpa capacity)



1. Zircon in Concentrate recognised as production upon sale. All tonnages refer to contained zircon in zircon in concentrate. All tonnages are annual averages.

# Iluka's Approach



Catby, Western Australia, Australia



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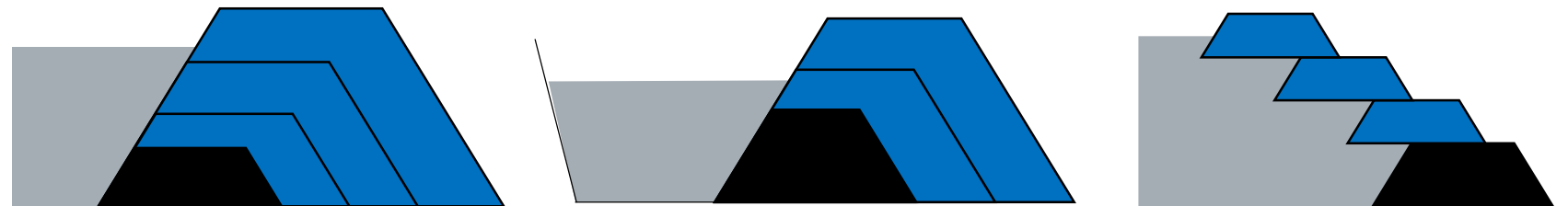
## DELIVER SUSTAINABLE VALUE

Disciplined capital allocation	Preserve and advance growth opportunities	Creation of a sustainable operating environment
<p>Iluka's capital allocation framework prioritises funds for investment where financial criteria and strategic rationale are met</p> <p>Return to net cash in two years since debt financing acquisition of Sierra Rutile, while simultaneously investing over \$400 million in the business</p> <p>Paid 40% of free cash flow in dividends in 2018</p>	<p>Iluka's position within the industry and the wider community requires a holistic view to project development and execution</p> <p>Cataby project development</p> <ul style="list-style-type: none"> <li>advanced when new SR feed source required</li> <li>offtakes secured underpinning return on investment</li> </ul> <p>Ambrosia mine move</p> <ul style="list-style-type: none"> <li>accelerated move to Ambrosia deposit, smoothing production profile as zircon supply deficit emerges</li> </ul> <p>Sierra Rutile expansion projects</p> <ul style="list-style-type: none"> <li>increasing rutile production</li> </ul> <p>Other growth projects including:</p> <ul style="list-style-type: none"> <li>Wimmera Project</li> <li>SR1 kiln restart</li> <li>Sri Lanka (PQ)</li> <li>Balranald</li> </ul>	<p>Exhibit leadership and discipline to support a transparent, stable and sustainable operating environment for:</p> <ul style="list-style-type: none"> <li>the industry</li> <li>our customers</li> <li>our stakeholders</li> <li>our people</li> </ul> <p>while optimising returns for our shareholders</p>



## Tailings Storage Facilities (TSF) Overview

- Iluka employs downstream construction method on all TSFs (including SRL)
  - Upstream construction method is not used at all (higher risk associated with upstream method)
- Iluka has one in-pit TSF (full-height), and one external TSF (in rehabilitation) at Jacinth-Ambrosia
- Sierra Rutile TSFs are located at Lanti, Gangama and at Sierra Rutile MSP



Downstream construction

In-pit construction (downstream)

Upstream raised construction  
Not used at all by Iluka

Dam starter wall 

Wall extensions 

Tailings 



## Internal risk management protocols

- TSFs constructed using risk based design, according to ANCOLD guidelines
  - Downstream raising design method or final height embankments
- Increased storm water management at downstream cascaded facilities (high rainfall areas and valley topography)
  - Design and construction of water diversion drains
- Risk focused surveillance systems and internal geotechnical risk reporting
- Tailings and water management focused meetings

## External risk management protocols

- Geotechnical audits undertaken by internationally reputable geotechnical specialists
- Sites with higher risk under rehabilitation have additional auditing according to risk

# Addressing The Deficit

Test Pit, Wimmera Project, Victoria



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- Zircon market tightness eased toward end H2 2018; underlying structural deficit remains
- High grade feedstock market tight as a result of industry wide production interruptions
- Iluka can continue to release additional ZIC to assist customers / balance market
- Project initiated to scope SR1 re-start to supply high-grade synthetic rutile
- Will continue to apply lessons of the past in product pricing strategy
- Executing projects for short term, progressing pipeline of growth projects for medium to longer term

	Project	Zr	R	Ilm <sup>1</sup>	SR
Execute (projects underway)	Ambrosia mine move	✓		✓	
	Cataby	✓	✓	✓	✓
	Lanti and Gangama expansions		✓	✓	
Evaluate (projects in scoping / PFS / DFS)	SR1 restart				✓
	Balranald	✓	✓	✓	
	Sembehun		✓	✓	
	Wimmera Project <sup>2</sup>	✓	✓	✓	
	Other deposits <sup>3</sup>	✓	✓	✓	✓
Other	ZIC release <sup>4</sup>	✓			

1. Potential for ilmenite to be used as SR feed.  
 2. Also includes rare earth co-product.  
 3. Includes Eucla Basin satellite deposits, Euston, South west deposits, IPL north, Puttalam  
 4. ZIC release not technically a project, no further capital required to continue production





# Commissioning of Cataby

## Project enters commissioning

- Core construction activities complete, on schedule and within budget
- Wet commissioning commenced late Q4 2018
- In-pit mining unit in place and production of HMC has commenced

## Material flow

- HMC stockpiled on-site and separated into magnetic and non-magnetic material
- Non-magnetic material (zircon and rutile) trucked to Narngulu MSP
  - Upgrade of pad for non-magnetic material at Narngulu complete
- Magnetic material (ilmenite) trucked to Capel SR2 kiln for upgrading to synthetic rutile



## Project Metrics

- Initial capital cost estimated higher end of \$250 - \$275 million
- Tracking well and costs more likely to be mid-range between \$250 - \$275 million
- Reduced capital costs by ~\$100 million through use of repurposed plant from Newman, Douglas and Gingin
- 8.5 year mine life, with potential to extend a further 4 years
  - Subject to approvals and land access grants
- Offtake agreements secured for 85% of SR production with reputable Western pigment producers
  - Underpins financial returns of the project
  - Minimum 4 years
- Expect production at annualised rates from mid year 2019



Production Outlook		2019-2022 <sup>1</sup>
Zircon	ktpa	60
Rutile	ktpa	35
Synthetic Rutile <sup>2</sup>	ktpa	200
<b>Total Z/R/SR</b>	<b>ktpa</b>	<b>295</b>
Ilmenite	ktpa	440

1. Average production

2. Synthetic rutile produced at SR2 kiln, fed by Cataby ilmenite



## Assisting Iluka to meet Group zircon production targets of ~335 thousand tonnes per annum over the next three years<sup>1</sup>

- Iluka Board approved accelerated mine move to Ambrosia in 2018
- The mine move is expected to be completed by October 2019 (previously 2022)
- Capital expenditure of ~\$35 million in 2019
  - deferred capital of ~\$20 million cost over 2020-21 for tailings management
- Expect similar production levels to current operations in early years of Ambrosia
- Ambrosia mining supplemented with heavy mineral concentrate stockpile from Jacinth



### Ambrosia Preparatory Works

- Haul road complete and pre-strip has commenced
- Construction workforce mobilised in January 2019
- Project is tracking well on schedule and budget

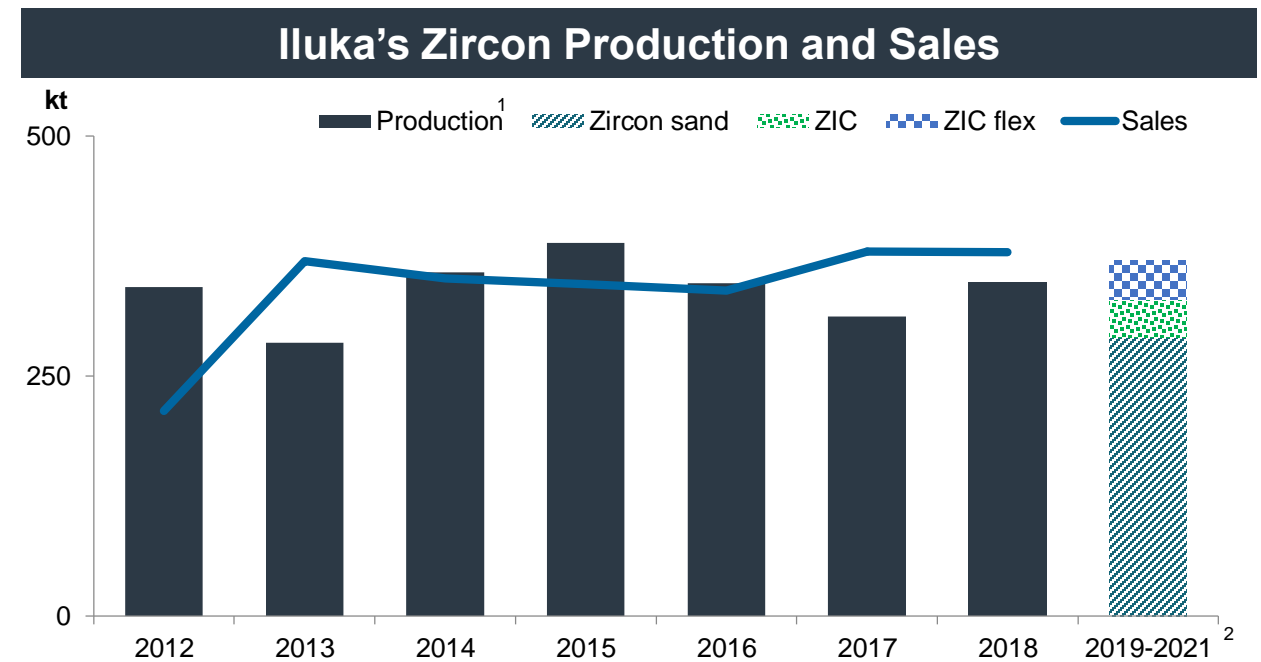
Jacinth-Ambrosia, South Australia, Australia



<sup>1</sup> The Production Target is underpinned by Ore Reserves as stated in a release to the ASX on 21 February 2017, 'Updated Mineral Resource and Ore Reserve Statement' and as updated in the Ore Reserve and Mineral Resource Statement included in Iluka's 2018 Annual Report. The production target is underpinned by 88% Proved and 12% Probable Ore Reserves. Iluka confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all the material assumptions and technical parameters underpinning the Production Target continue to apply and have not materially changed.

## Iluka's response to tight market conditions<sup>3</sup>

- Guided 2019-2021 zircon production of ~335ktpa
  - Cataby project tonnes available in 2019
  - early Ambrosia mine move (smoothing production)
  - Incl. ~20% zircon in concentrate (ZIC) from multiple sources
- Potential for additional ZIC production ~40-50ktpa from Narngulu
- Gap filled by inventory release in 2017 and 2018
- Inventories at normal levels in 2019



1. Production denotes finished zircon product (includes ZIC)  
 2. 2019-2021 production guidance of 335ktpa  
 3. All outlook production figures are expected annual average 2019-21, subject to market conditions



# SR2 Major Maintenance Outage

- Capital expenditure of ~\$35 million
- MMO generally conducted every four years
  - the previous five year campaign processed record tonnes
- Production ceased during MMO - approximately 51 day outage
- ~400 employees and contractors on site per day
- Prioritises reliability and sustainability of core asset
  - prepares SR2 for coming four year campaign
  - SR2 will process all ilmenite from Cataby from Q2 2019



## Critical works

- Kiln refractory re-line
- Cooler shell replacement
- Quench tower and spray replacement
- Commissioning



# Sierra Rutile Expansion Projects – Gangama

Expansion project underway to double capacity to 1,000-1,200 tonnes per hour

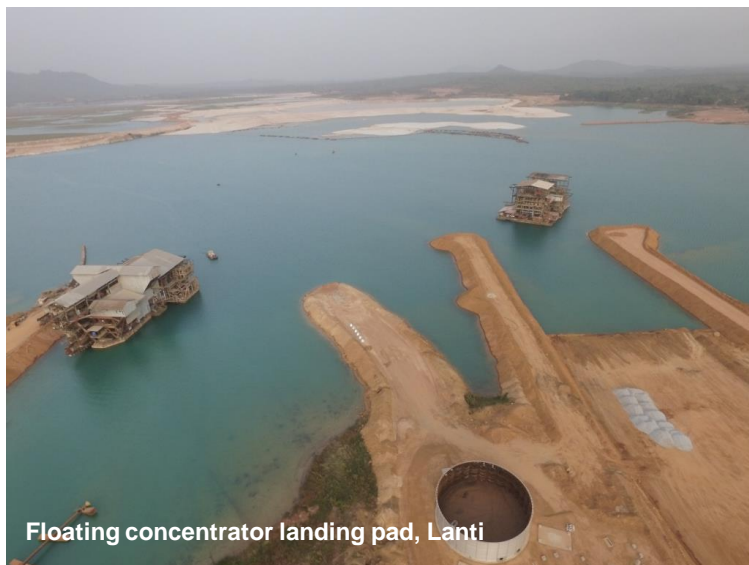
- Construction of second concentrator nears completion
- All heavy lifts and equipment installation complete
- Construction of second ramp complete
- Commissioning expected second quarter 2019
- Project remains on schedule and budget



# Sierra Rutile Expansion Projects – Lanti

Expansion project underway to double capacity to 1,000-1,200 tonnes per hour

- Fabrication of second dry mining unit complete (DM4)
- Operations at dredge have ceased
  - Floating concentrator to be beached at purpose built landing pad
  - Re-purposed for use at DM4
- Commissioning expected third quarter 2019
- Project remains on schedule and budget



# Sierra Rutile Expansion Projects – Sembehun

## Sembehun development

- Sembehun contains ~70% of remaining Reserves at Sierra Rutile
  - Equates to mine life of over 20 years
- Value optimisation studies underway to consider development approach
- Studies scheduled to conclude alongside DFS in H2 2019



## Mineral separation plant upgrade

- MSP upgrade required to meet additional capacity from Sembehun development
  - additional benefits from improvements to safety, operational and metallurgical efficiencies
- Value optimisation studies currently underway also consider ideal MSP configuration





## Previously referred to as the 'Fine Minerals Project'

- PFS commenced in August 2018 with completion of test pit ahead of schedule
- Ore transported for testing and preparation of customer samples
- Industry, competitor and market analysis underway
- Strategic rationale of development
  - large, long life deposits, close to infrastructure
  - new source of zircon and diversification to rare earths
  - first mover advantage
  - leverage expertise in developing technical solutions
  - zircon and rare earth product suite



### Rare Earth Elements

The assemblage of each rare earth deposit is different and some elements are more common than others. Iluka's current focus is a deposit with high value elements, including Neodymium, Dysprosium, Terbium and Praseodymium, commonly used in permanent magnets, such as in electric cars, wind turbines and consumer electronics.



Test Pit, Wimmera Project, Victoria

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