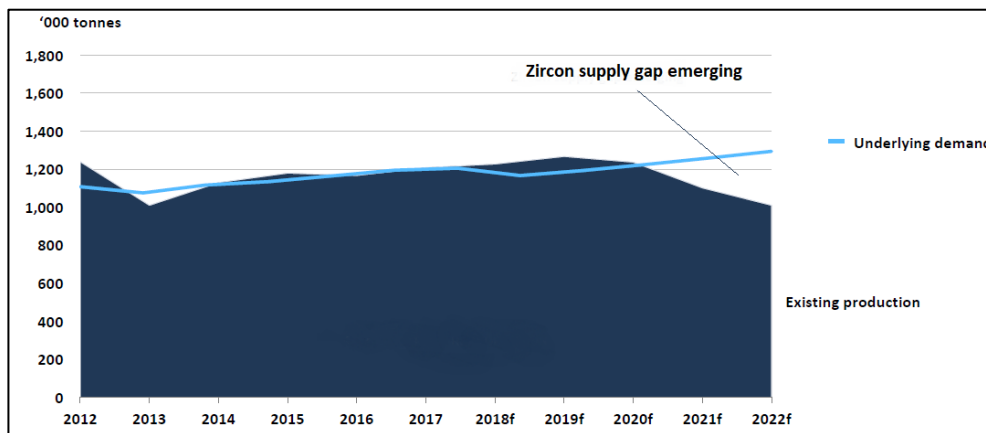




SHEFFIELD RESOURCES LTD (SFX AU, \$0.30)

African risk re-emerges as RBM's operations curtailed SFX's Thunderbird project well positioned to fill the emerging gap

- The recent TZMI mineral sands conference confirmed that the emerging supply gaps for both zircon and TiO₂ feedstock remain unchanged, and may be getting worse.
- Fuelling the gap, Rio Tinto announced in early December that it had curtailed operations at its Richards Bay Minerals operations (RBM) in South Africa following social unrest. Two employees were shot in previous weeks.
- RBM produces around 18% of the world's TiO₂ units for pigment manufacture. As well it produces around 20% of the world's zircon, an important opacifier in the ceramics industry.
- RBM's existing operations are in decline, and engineering had commenced on the new Zulti South Mine. RIO had already advised the market that the start of construction had been delayed due to community issues. Work on this new project has now come to a halt.
- Base Resources is also facing geopolitical headwinds at its Toliara development in Madagascar. Last year, Mineral Commodities suffered a blow with the effective cancellation of its Xolobeni mineral sands lease in Eastern Cape, South Africa due to community conflicts.
- In December Iluka reported a huge write-down of its Sierra Rutile operations (down to meagre US\$50m) citing operational issues. Kenmare, a major global producer of ilmenite, flagged a miss to guidance for 2019.
- Industry consultants, TZMI, continue to forecast supply deficits for zircon and TiO₂ feedstock, with the following projections made prior to RBM's curtailment.



Source: modified from TZMI presentation, November 2019.

- SFX's 100%-owned Thunderbird project is unquestionably the best fully permitted, undeveloped mineral sand opportunity globally. The project's Bankable Feasibility Study Upgrade (BFSU) was significantly better than expected and we would expect the Strategic Partner Process (SPP) to attract a number of quality potential partners from either industry or private equity. SFX have stated that the SPP process will be concluded by the end of 2019. That deadline is now looking tight.
- Our post-tax NPV₁₀ for Thunderbird remains at A\$845m (zircon at US\$1550/t FOB; A\$/US\$ at 0.75). This produces a valuation for SFX above \$1.50/share, dependent on the deal struck with an incoming partner. With a market capitalisation now under A\$100m, SFX looks to us to be significantly undervalued.

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Commodity overview

We live in unpredictable times. There have been several events in Africa over the last few months which may impact the future supply of ilmenite, titaniferous slag and zircon, and a concerning outcome from a year ago where a mineral sands mining permit was overturned by a South African High Court. Around 22% of the world's TiO₂ feedstock and 30% of the world's zircon is derived from African operations.

Temporary closure of Richards Bay operations, including delay of construction of the new Zulti South project

- The Rio Tinto Group (RIO AU and LSE) halted mining operations at its Richards Bay Minerals unit in South Africa amid escalating violence in surrounding communities that led to employees being shot and injured. The following detail is from Reuters.
- Smelters at the site in the KwaZulu-Natal province are operating at a reduced level and a \$463 million expansion project (Zulti South) has been temporarily paused, Rio said. There's been an escalation of criminal activity directed at the operation's staff, Rio said.
- Output for 2019 is now expected to be at the low end of a guidance range of 1.2 million to 1.4 million tons and Rio is contacting customers to minimize disruptions. It isn't clear when operations will resume and the company is appealing to the government to step in and end the violence, Werner Duvenhage, the managing director for RBM, said by phone.
- "The losses are quite clearly going to be a significant amount of money," Duvenhage said. "We continue to work to see how the situation can be resolved, but we don't have a timeline on when operations can resume."
- The decision to halt operations was preceded by weeks of protests around the area where the mine is located, causing "on-and-off disruptions," Duvenhage said, adding that the demonstrations are not related to the company. South African protests against everything from poor municipal services to strikes are often marred by violence, assaults against non-striking workers, the blocking of roads or burning of tires.
- "We have taken decisive action to stop operations to reduce the risk of serious harm to our team members," Bold Baatar, chief executive officer for the energy and minerals unit, said in an earlier statement. "Our goal is to return RBM to normal operations in a safe and sustainable way."
- The South African press have suggested that the incidents are related to a long-standing issues with a local traditional council and a succession battle within a clan for chieftainship.
- We were also interested in the following quote from the FT (6/12/19): "The violence is happening particularly with mining communities who aren't having water and power provided by the company," said Indigo Ellis, head of Africa at Verisk Maplecroft, a risk consultancy. "And there's a political dimension that goes further than poor service provision. The area is incredibly anti-Ramaphosa," she said, referring to South Africa's president.
- We note from Rio Tinto's September 2019 production report that construction of the \$463m Zulti South project, which was forecast to commence in June, has been delayed due to ongoing negotiations with local communities.

BSCP's view: We have long held the view that Richards Bay Minerals treads a fine line, and the social unrest we've been seeing for the past 2-3 years may well continue to disrupt the supply of ilmenite, slag and zircon. This must translate into further delays for the new Zulti South project. Furthermore, Eskom, the state's electricity provider seems to lurch from one disaster to the next. A recent technical fault at the Medupi power station saw load-shedding throughout the mining industry. RBM is a major user of electricity in its smelting operations.

Madagascan risk emerges at Base Resources' Toliara project

- On 7 November 2019, Base (BSE AU) announced that the Government of Madagascar had issued a statement requiring suspension of on-ground activities at the 100%-owned Toliara project.
- On 8 November an environmental website (Mongabay) provided further colour suggesting the shut-down was due to opposition from local communities and unfavourable fiscal terms. This report questions the validity of the Toliara mining lease which was granted in 2012 by a transitional government which was replaced by a coup in 2009.
- As a reminder BSE purchased Toliara in early 2018 for a total cost of US\$92m. The recently completed DFS identified a pre-production capital of US\$442m. Some US\$116m of this is required for the construction of the access road and port. The study delivered an IRR of 21% using "internal commodity price forecasts" for the first 8 years, and TZMI long term forecasts thereafter.

BSCP's view: We find it curious that BSE appears to be taking a 'head in the sand' approach to this issue, with no mention of this interruption presented in the presentation to the TZMI conference just a week later. Those that ignore geopolitical risk in Africa (Tanzania in 2017 is still fresh in our minds) do so at their own peril.

Mineral sand mining rights denied in Eastern Cape: the Xolobeni judgement

- Australian mineral sand miner Mineral Commodities Ltd (MRC AU) had applied for mining rights for a very large mineral sand deposit within the coastal area of the Eastern Cape province of South Africa. The Xolobeni project is located some 350km to the south of Richards Bay, on the Indian Ocean coast.
- In September 2016 the Minister of Mineral Resources announced an 18-month moratorium on mining in the Xolobeni area. In September 2018, it was proposed that the moratorium be extended for another two years.
- On 22 November 2018, Judge Annali Basson of the Pretoria High Court stated that even if the informal rights of customary communities had not been protected by law previously, they had the right to decide what would happen to their land. Therefore the Minister of Mineral Resources cannot grant mining rights to the Xolobeni lands without first obtaining the full and formal consent of the Xolobeni community. In spite of the decision, Mineral Resources Minister Gwede Mantashe continues to support the mining project. (Source Wikipedia).

BSCP's view: This outcome received very little press at the time, but the judgement sets an important precedent for South Africa. It seems as though the traditional owners of the land were not consulted (nor compensated) by Mineral Commodities. We wonder if similar land conflict issues at RIO's Zulti South project could delay the project indefinitely.

Major writedown in the carrying value of ILU's Sierra Rutile operations

- Not surprisingly, ILU has had to take the axe to its book value of Sierra Rutile. This project has failed to deliver production levels expected at the time of the US\$330m acquisition. Projected production levels of 175ktpa (rutile + zircon) have never been achieved (135kt is expected for 2019; 122kt was achieved in 2018). A further ca. US\$150m has been spent by ILU since acquisition on 'capacity increases' and sustaining capital.

- The carrying value of the asset is now just US\$50m.
- We estimate that the remaining mine life at the current dry-mining operations at Lanti and Gangama could be as little as 3-4 years, with additional potential life from small satellite orebodies.
- Work is continuing in an attempt to commercialise the neighbouring Sembehun rutile project.

BSCP's view: ILU's acquisition of Sierra Rutile in 2016 was one of the craziest we had seen in the mining industry for a long time. SRL was a mature asset in a difficult geopolitical environment, and it seemed to us at the time that inadequate due diligence was conducted by management at the time. In a bizarre sequence of events, ILU paid up for an asset it once owned, and which was nationalised by the Sierra Leone Government in 1996 following a civil war. (One of the predecessor companies of ILU, Renison Goldfields Consolidated, owned a majority stake in Consolidated Rutile, which in turn owned 50% of Sierra Rutile).

Given the project's poor track record, we'd be surprised if SRL can ever achieve its rutile production goal of 170ktpa, which will further stress the emerging TiO₂ feedstock shortage.

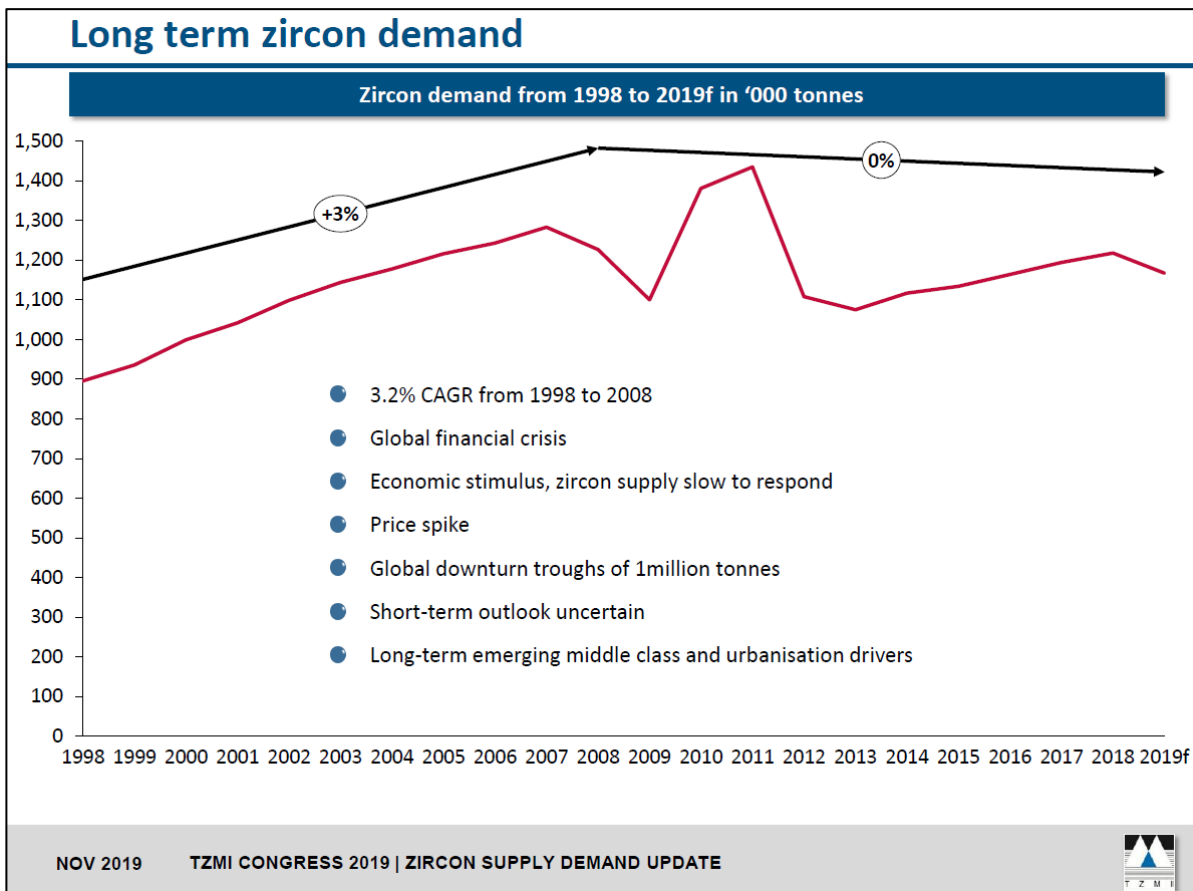
Zircon overview

As we reported 2 months ago, market sentiment toward zircon turned down abruptly following Iluka's interim profit release. ILU's interim results were poor, down 23% half-on-half, much worse than the market had expected. Furthermore, the outlook for ILU's December 2019 half looked to be fairly grim, with the company flagging flat zircon sales and declining price achievement.

Management have tried to soften the impact of these poor results by referring to a softening of the zircon market. This has certainly been picked up by the analysts, with all reports sighted focussing on zircon oversupply, rather than the poor prognosis for ILU.

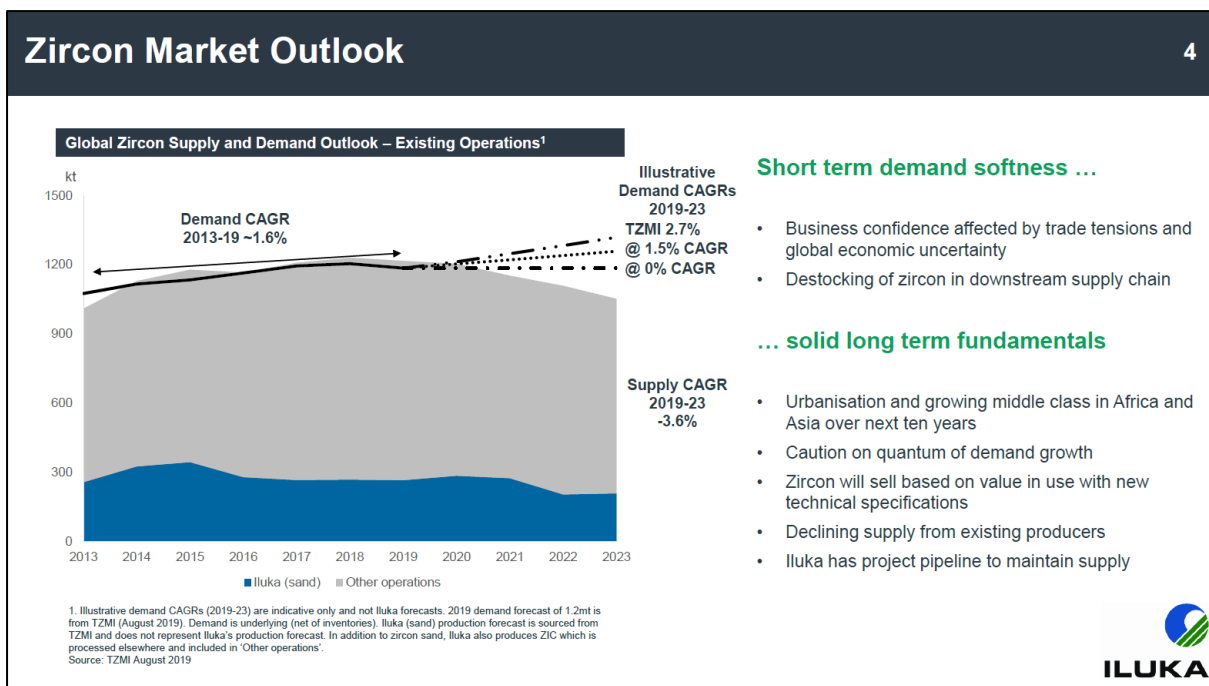
The zircon market as a whole has been soft for 12 months as end user and producer inventories reached normal levels. (A reasonable supply/demand balance had been disrupted with the rapid decline of mineral sand grades at RBM in 2017). Chinese demand began to weaken in 2H18 and into early 2019. Despite this, the price makers, ILU and Tronox, have been able to maintain their reference price for premium zircon at around the US\$1600/t mark. ILU states that it will maintain its reference price at US\$1580 until March 2020.

We were somewhat surprised by TZMI's recent analysis of the market where they believe that zircon demand remains steady on last year, extending a trend of limited growth for the past 10 years. In part this was due to thrifting of zircon in ceramic bodies, in turn driven by the industry-driven and ill-timed price spike in 2012. Most in the market (including ourselves) had assumed that this had passed, and that growth would move back toward global GDP.



Source: TZMI presentation, TZMI conference, November 2019

At the recent TZMI conference, ILU confirmed its positive outlook for zircon over the long term, and highlighted delivery risk even if there is no growth in demand.



Source: ILU presentation, TZMI conference, November 2019

We believe that ILU is balancing the zircon market currently. Without the supply of concentrate from ILU's own Nangarlu tailings project (which they have flagged can produce ca. 50ktpa) the zircon market would be in deficit.

Feedback from the TZMI conference included the following (and recall this is before the RBM curtailment):

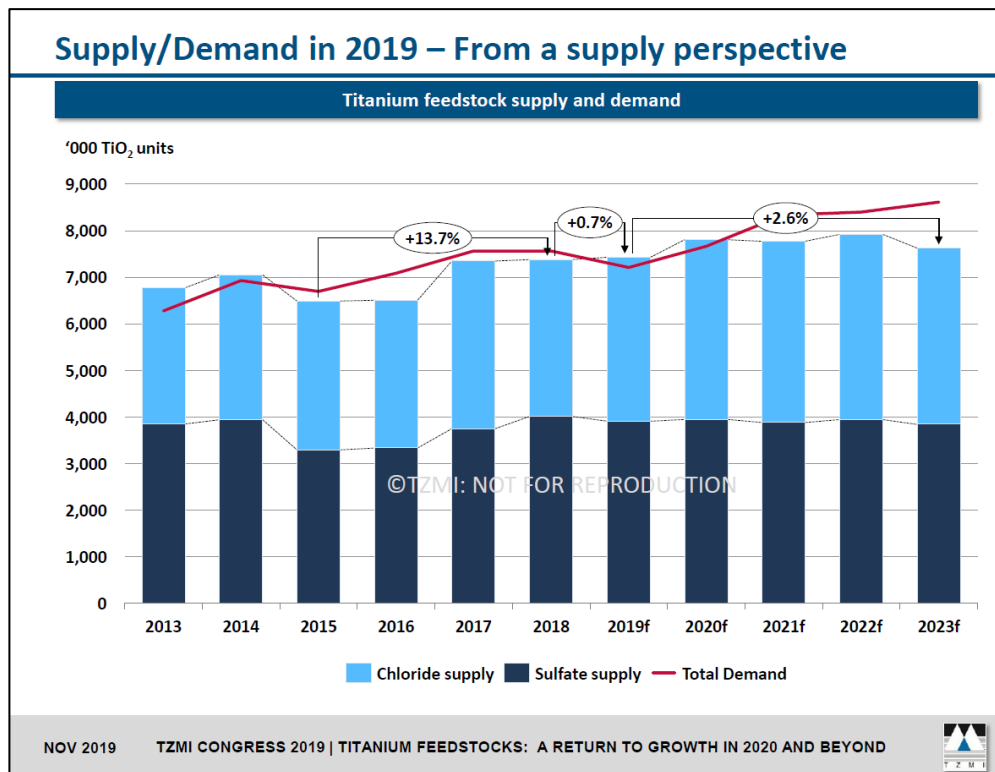
- There were two broad trains of thoughts on zircon from the conference. A small number of end-users believe there is pricing pressure coming from short term oversupply and a weakening demand (for an extended time). Pricing will be depressed for the medium term.
- The majority acknowledge that there is a softening in the market at the moment (6-12 months perhaps) but that any pricing pain for the miners will be short lived.
- This group agreed that substitution is at a point that cannot be easily increased so there is little fear of further substitution. They concede prices need to be a little higher to incentivise new production and so keep the market in balance.
- One point was stressed: the zircon millers like a very balanced market or one where there are continued price rises over an extended period. A price decline can hurt their business.

In summary, we see no reason to change our views (nor our commodity price forecasts) for zircon, nor ilmenite. As we have said on numerous occasions, the mineral sand industry is mature, mines are closing and production is in decline, and without new projects such as Thunderbird, there will be a huge gap in zircon supply by 2021.

TiO₂ feedstock outlook

For many months now we have been flagging that pricing is starting to look quite positive for the likes of rutile and ilmenite. Tightness in the rutile market is undoubtedly down to ILU's woes in Sierra Leone, together with the imminent closure of the Stradbroke Island operations. We are hearing prices of up to US\$1200/t (CIF), 10-20% higher than earlier in 2019. This is starting to flow through to ilmenite pricing. We noted in an earlier report that Industrial Minerals (9 September 2019) reported that a shortage of supply has translated to a pricing range of US\$190-210/t, up \$10/t on the previous week (47-49% TiO₂ basis). Numbers of \$220-230/t were also mentioned, but no firm deals have yet been confirmed.

The most up to date chart from TZMI projects an ever-widening supply/demand gap emerging (around 12% of demand it looks like to us). And this we assume includes 100% of Richards Bay Minerals, where the future is far from clear.



Source TZMI presentation, November 2019.

No surprise then that Bengbu swooped on Thunderbird's iron-rich ilmenite concentrate. The emerging Chinese chloride pigment industry is proving to be quite positive for demand for feedstock.

Capital Structure

Sheffield Resources Ltd (SFX AU)		
Share price	A\$	\$0.30
Number of shares (fpo)	m	309
Market capitalisation	A\$m	\$92.7
Share options	m	17.2
Cash (current, est.)	A\$m	\$11.5
Debt	A\$m	\$0.00
Top 50 shareholders, appr.		50%
Institutional holding, appr.		35%
Directors, management		11%

Sensitivities

		EBIT (2022e)		Project NPV(10), post tax	
<i>Change from base</i>	<i>Base</i>	<i>+10%</i>	<i>-10%</i>	<i>+10%</i>	<i>-10%</i>
Capital costs (pre prod'n)	A\$373m	0%	0%	-4%	4%
Opex	A\$132/t	-15%	8%	-11%	11%
Zircon price	US\$1550/t	15%	-15%	21%	-21%
Ilmenite conc. price	US\$80/t	5%	-5%	6%	-6%
A\$/US\$	0.75	22%	-18%	30%	-25%

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Dr Chris Baker, an authorised representative of BSCP, certifies that the advice in this report reflects his honest view of the company. He has 29 years investment experience in wholesale capital markets. He worked as a mining analyst for brokers BZW and UBS for 11 years and has a further 16 years' experience as a mining analyst and portfolio manager with Colonial First State and Caledonia Investments. He now provides independent financial advice on a part time basis. He may own securities in companies he recommends but will declare this when providing advice. He currently owns shares in SFX. He is remunerated by BSCP but is not paid a specific fee for providing this report. BSCP, its directors and consultants may own shares and options in SFX and may, from time to time, buy and sell the securities of SFX.

BSCP earned fees from the recent capital raising undertaken by SFX.

Appendix 1

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