Dr Chris Baker
October 2022

SHEFFIELD RESOURCES LTD (SFX AU, $0.50. Market cap A$173m)

SFX trading at >70% discount to NPV_8 at FID

Investment view:

SFX is a remarkably inexpensive exposure to the attractive mineral sands sector. Thunderbird is without doubt a Tier 1 project, with relatively low costs (R/C of 2.5), world scale and expandable production levels and a minimum 30-40 year minimum mine life. Our project NPV_8 of A$1.48bn (vs SFX's revised estimate of $1.4bn) translates to a fully funded valuation of $2.25/share. SFX is trading on an EV/EBITDA of 1.5x (24/25) and 1.3x (25/26) based on its 50% share of project economics. SFX is inexpensive on all metrics. Importantly, gearing (at the project level) we estimate as modest with the lowest forecast EBIT/interest of around 4.4x (2025e).

We believe SFX's Thunderbird will begin delivering zircon into what will continue to be an undersupplied market for several years. Zircon has been the victim of a lack of exploration success and lack of capital investment by the major suppliers over recent decades (in particular Richards Bay Minerals, Iluka, Tronox). New supply has been driven by the juniors, such as Image, Base and Kenmare and from Strandline's soon-to-be commissioned Coburn project. In all, this bodes well for zircon pricing in the medium term.

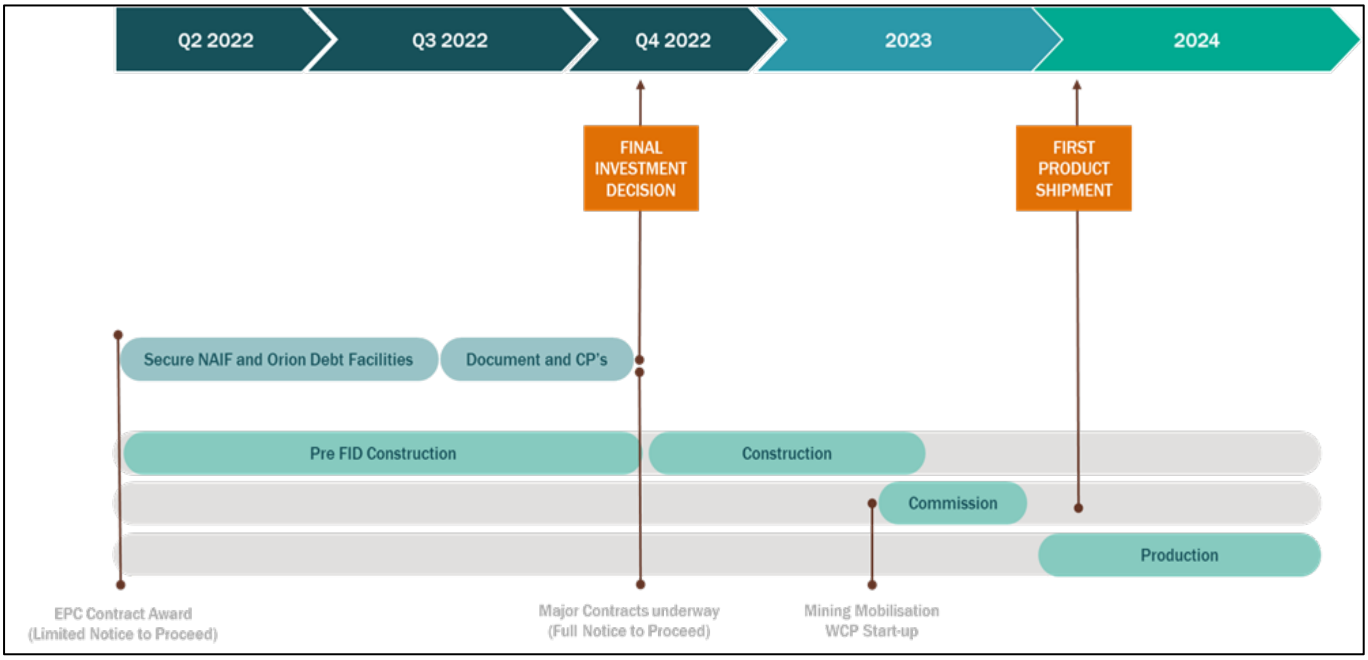
Yansteel's $130m equity injection in late 2020 allowed construction of the project to commence. Somewhat unusually, at FID the project is now 45% complete, with commissioning to start in under 12 months. It really doesn't get any better than this for investors.

Final Investment decision for Thunderbird

The ducks are now all in a line, and debt drawdown can begin for SFX's 50%-owned world class Thunderbird mineral sands project.

Little has changed for the financial metrics. Pre-production capex is up around 5% from the BFS estimate but total funding requirement ($484m) remains unchanged. Importantly SFX has been more than able to fund its share of an equity gap of $36m.

The project is now 45% complete with commissioning scheduled to start in August 2023, just 10-11 months away. First sales are scheduled for early 2024.

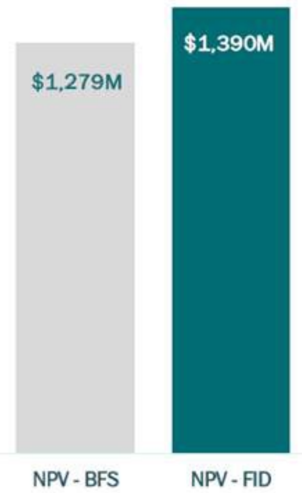


Summary

- Comparing BFS and FID economics below, pre-production capex is up slightly (which is hardly surprising in the current inflationary environment in WA). Importantly, there are no changes to the funding requirement, as we discuss below.
- The revenue to cost ratio (or R/C which represents the operating margin) has improved slightly, with 2.5x now likely to be in the top half of the mineral sands margin curve. This has been driven by slightly higher underlying long term TZMI-derived zircon price estimates (recently revised at US$1607/t, now in line with our own estimates).
- This has bumped up SFX's NPV_8 by 8.5% to A$1.4bn.
- Note that SFX are using 75c for its long term FX assumptions, which in our judgement is conservative. (We use 70c).
- The IRR has dropped slightly driven by the slightly higher capex but is still very attractive at 26.6% (post tax), and employing a long term zircon price around 30% lower than current spot.

ROBUST STAGE 1 & 2 ECONOMICS

Metric	2022 BFS[1]	2022 FID
NPV_8 post-tax	A$1.28B	A$1.39B
IRR post-tax	27.5%	26.6%
Revenue to Cost Ratio (first 10 yrs)	2.4	2.5
Project Capital (Stage 1)	A$361m	A$379m
Total Funding Requirement (Stage 1)	A$484m	A$484m
Process rate (Stage 1 tonnes p/hour)	1,085	1,085
Production (kt pa all products)	1,365	1,365
Mine Life	36 years	36 years
LT Average FX (A$/US$)[2]	0.75	0.75
Long Term Zircon Price – FOB (TZMI)[3]	US$1,516	US$1,607



Reference:
1. ASX Announcement: "KMS Bankable Feasibility Study Presentation" 24 March 2022
2. 2022 FID assumes 0.71:1.00 AUD:USD for 2023, increasing to 0.75:1.00 by 2025
3. 2022 BFS real 2020, 2022 FID real 2021

- Major contracts have now been awarded by management company Kimberley Mineral sands (KMS). These include:
  - EPC to GR Engineering.
  - Mining services to mineral sand specialists Piacentini.
  - Gas supply to Woodside.
  - Power supply with Pacific Energy.
  - A port access agreement with the Shire of Derby.
  - Offtake agreements coving around 80% of forecast production of zircon (in a non-magnetic concentrate) for the first 5 years and 100% of the TiO_2 concentrate (to Yansteel).

Sources and uses of funds

As highlighted in a recent presentation Thunderbird is now fully funded, and in line with what SFX said back in March. There have been minor changes:

- Process plant: capex up to $185m against BFS estimates $171m in March.
- Other capex up slightly.
- Financing costs have offset this, now $43m vs $62m at March.

Note there is a fairly healthy contingency and cost overrun ($64m combined). Recent discussions with the company suggest that only part of the contingency is likely to be employed, and, save events from left field, the overrun facility should remain untouched.

STAGE 1 FUNDING IN PLACE

Stage 1 capex of A$379m with total funding requirement of A$484m[1,2]

- >75% of Stage 1 capex (before contingency) is fixed price or already spent as at 30 June 2022
- Total funding requirement includes $40m cost overrun facility in addition to $36m of project contingency
- NAIF and Orion facilities completed and available for drawdown
- A$34m of equity contributed by Sheffield – fully funded from existing SFX cash of A$40m

Cost	A$m	Comments
Processing	185	Fixed price EPC contract
Other Capex	170	
Stage 1 Capex	355	$298m is fixed price or spent by 31 August
Contingency	24	Contingency at 31 August
Stage 1 Capex + Contingency	**379**	
Working Capital	22	Start-up & commissioning
Financing Costs	43	Interest during construction, fees & costs
Cost Overrun Facility	40	
Total Other Requirements	**105**	
Total Uses[3]	**484**	

Capital	A$m	Comments
NAIF	160	Includes $40m cost overrun facility
Orion	155	(US$110m @ 0.71 AUD/USD FX)
Loan Facilities	**315**	
JV Assets	111	JV cash on hand + incurred construction expenditure
Equity Proceeds	58	Sheffield share = $34m
Total Equity	**169**	
Total Funding[3]	**484**	

BSCP valuation

As presented in our earlier report our valuation is now $2.25/share, assisted by a change in our FX assumptions (AUDUSD now 0.70, previously 0.75) offset by our estimate of increasing operating costs (+10%, largely driven by fuel and labour costs in WA) and a minor adjustment to capex assumptions. Our zircon price assumption remains unchanged at US$1,600/t (FOB).

Sum-of-the-Parts	A$m	Equity	Risk	A$m	A$/share
Thunderbird	1,484	50%	100%	742	2.10
Exploration	74	50%	100%	37	0.10
Corporate Costs	(18)	100%	100%	(18)	(0.05)
Net Cash (Debt)	40	100%	100%	40	0.11
Total	**1,581**			**802**	**2.25**
WACC					**8.0%**
FPO Shares					347
Options					2
Performance Rights					5
Fully Diluted SOI					**354**

SFX remains a deeply undervalued company, despite the fact that it is now positioned to emerge as one of the preeminent suppliers of zircon to global markets.

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FINANCIAL SUMMARY

Sheffield Resources Limited (SFX.AX)

Share Price	A$/sh	0.50
Shares on Issue	m	354
Market Cap (A$m)	A$m	177
Net Debt / (Cash) (A$m)	A$m	(40)
Enterprise Value (A$m)	A$m	137

Target Price	2.25
Upside / (Downside)	350%
Dividend Yield	0%
Total Return Forecast	350%

Profit & Loss	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Sales and Other Income	A$m	50	174	192	184	238
Expenses	A$m	(40)	(97)	(104)	(104)	(126)
EBITDA	**A$m**	**10**	**77**	**88**	**80**	**112**
D&A	A$m	(12)	(22)	(18)	(18)	(22)
EBIT	**A$m**	**(2)**	**55**	**70**	**62**	**90**
Interest	A$m	(11)	(12)	(10)	(13)	(12)
Tax	A$m	-	(13)	(18)	(15)	(23)
NPAT	**A$m**	**(13)**	**30**	**42**	**34**	**54**

Cashflow	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Cash From Operations	A$m	10	77	88	80	112
Interest	A$m	(11)	(12)	(10)	(13)	(12)
Tax	A$m	-	(13)	(18)	(15)	(23)
Working Capital	A$m	(3)	(6)	(2)	3	(8)
Net Cash From Operations	**A$m**	**(3)**	**45**	**59**	**56**	**68**
Capex	A$m	(60)	(9)	(17)	(73)	(41)
Exploration	A$m	-	-	-	-	-
Acquisitions / Investments	A$m	-	-	-	-	-
Free Cash Flow	**A$m**	**(63)**	**37**	**41**	**(18)**	**27**
Borrowings (repaymnt of borrowings)	A$m	69	(18)	(35)	107	(41)
Equity	A$m	-	-	-	-	-
Dividend	A$m	-	-	-	-	-
Net Increase / (Decrease) in Cash	**A$m**	**5**	**18**	**6**	**89**	**(14)**

Balance Sheet	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Cash	A$m	96	114	120	209	195
Receivables	A$m	4	14	15	15	19
Inventory	A$m	3	9	10	9	12
PP&E	A$m	157	144	143	198	217
Other	A$m	116	116	116	116	116
Assets	A$m	**376**	**397**	**404**	**548**	**560**
Creditors	A$m	4	14	15	15	19
Borrowings	A$m	145	127	92	199	158
Other	A$m	1	1	1	1	1
Liabilities	A$m	**150**	**142**	**108**	**214**	**178**
Net Assets	A$m	**226**	**255**	**296**	**333**	**382**

Liquidity & Leverage	Units	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Borrowings	A$m	145	127	92	199	158
Net Debt / (Cash)	A$m	49	13	(28)	(10)	(37)
Gearing: Net Debt / (Net Debt + Equity)	%	18%	5%	-11%	-3%	-11%
Net Debt / EBITDA	x	4.7x	0.2x	(0.3)x	(0.1)x	(0.3)x
EBIT Interest Cover	x	(0.2)x	4.4x	7.0x	4.9x	7.3x

Per Share Data	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Shares Out (m)	354	354	354	354	354
EPS (¢)	(3.5¢)	8.4¢	11.8¢	9.7¢	15.4¢
Dividend (¢)	-	-	-	-	-
Payout Ratio (%)	0%	0%	0%	0%	0%
Book Value (A$/share)	0.64	0.72	0.84	0.94	1.08
Operating Cash Flow (A$/share	(0.01)	0.13	0.17	0.16	0.19
Free Cash Flow (A$/share)	(0.18)	0.10	0.12	(0.05)	0.08
EBITDA (A$/share)	0.03	0.22	0.25	0.23	0.32

Valuation Metrics	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
P/E (x)	(14.1)x	6.0x	4.2x	5.1x	3.3x
Dividend Yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%
EV / Sales	2.7x	0.8x	0.7x	0.7x	0.6x
EV / EBITDA	13.1x	1.8x	1.5x	1.7x	1.2x
EV / EBIT	(68.6)x	2.5x	2.0x	2.2x	1.5x
FCF Yield (%)	-35.7%	20.7%	23.2%	-10.1%	15.3%

Operating Metrics (%)	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
EBITDA Margin	21%	44%	46%	43%	47%
EBIT Margin	-4%	31%	36%	34%	38%
Net Profit Margin	-25%	17%	22%	19%	23%
ROIC	-1%	20%	26%	19%	26%
Return on Assets	-3%	7%	10%	6%	10%
Return on Equity	-6%	12%	14%	10%	14%
Effective Tax Rate	0%	30%	30%	30%	30%

Key Assumptions	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Non-mag Concentrate (US$/t)	852	887	828	759	739
Mag Con (US$/t)	119	137	133	131	111
NM Finisher mag (US$/t)	115	117	113	109	104
AUDUSD	0.70	0.70	0.70	0.70	0.70

Production	Jun-24e	Jun-25e	Jun-26e	Jun-27e	Jun-28e
Mag Con (kt)	211	654	747	759	1,058
Non-mag Concentrate (kt)	55	179	209	213	297
Paramagnetic Concentrate (kt)	23	77	90	91	127

Valuation	A$m	Equity	Risk	A$m	A$/share
Thunderbird	1,467	50%	100%	734	2.07
Exploration	73	50%	100%	37	0.10
Corporate Costs	(18)	100%	100%	(18)	(0.05)
Net Cash (Debt)	40	100%	100%	40	0.11
Total	**1,563**			**793**	**2.25**
WACC					**8.0%**
FPO Shares					347
Options					2
Performance Rights					5
Fully Diluted SOI					**354**

Note: *Our SFX forecasts are based on a 50% equity share of KMS which owns 100% of the Thunderbird project. The data displayed represents 50% of all components of the production, P&L, cashflow and balance sheet (adding assets as at December 2021). Accounting standards will require SFX to equity account its interest in KMS, which will therefore report dividend and interest income and overhead costs only. This standard provides limited transparency and so we have decided to proceed with this more visible reporting method.*

Commodity outlook

In the following pages we repeat an overview of zircon markets from our last report. Very little has changed in the 6 years since we started our coverage of SFX. In 2016 we classified the broader mineral sands industry as mature and undercapitalised and with several of the major producers having done a pretty poor job of aggregating a resource inventories.

Zircon prices have moved up steadily over the intervening period, in response to flat to declining production levels at major operations. Premium zircon prices are now around US2300/t FOB (or a remarkable A$3500/t).

The major zircon producers continue to send out strong messages to end users: inventories are low and grades are declining, so prices have been steadily lifting.

To us, this suggests that prices of mineral sand commodities zircon (together with ilmenite and rutile) will remain stronger for longer to incentivise new production. Yet another positive for SFX and a good environment in which to deliver new production.

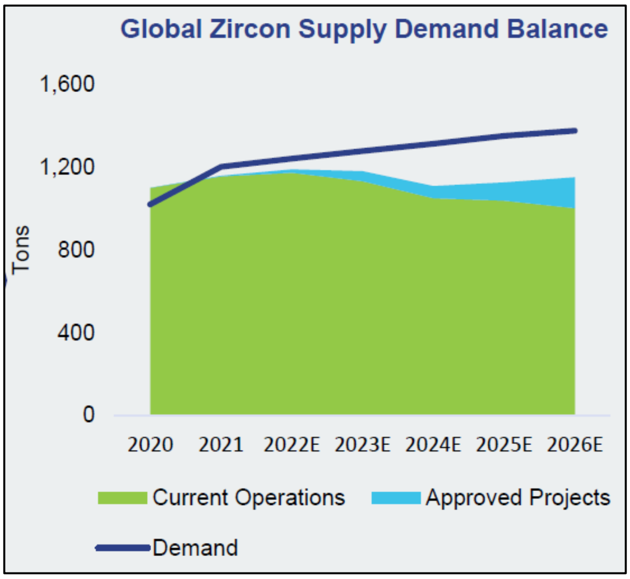
In our initiation report on SFX, nearly 6 years ago, we said the following:

We read about other likely large sources of supply of feedstock and zircon, and with one exception, none stand out as short to medium term sources of supply. These include:

WIM150 *(Australian Zircon). Very large but low grade.*
Toliara *(WTR), a large medium grade deposit located in Madagascar controlled by a minnow. Hard to see how a +$200m capex spend can be funded.*
Strandline Resources *in Tanzania, which might struggle to fund a project in East Africa.*
Coburn *(Strandline). Unlikely to be economic at current prices.*
Moebase *(Pathfinder). Assets appear to have been illegally acquired by Mozambique investors.*
Fingerboards *(Kalbar). A large zircon-dominant deposit located in Gippsland, Victoria. A high grade zone may be developed to produce a zircon-rich concentrate for sale into Asia. This to us looks like it could generate strong returns.*
(Source: Pulse Markets report, 1 November 2016)

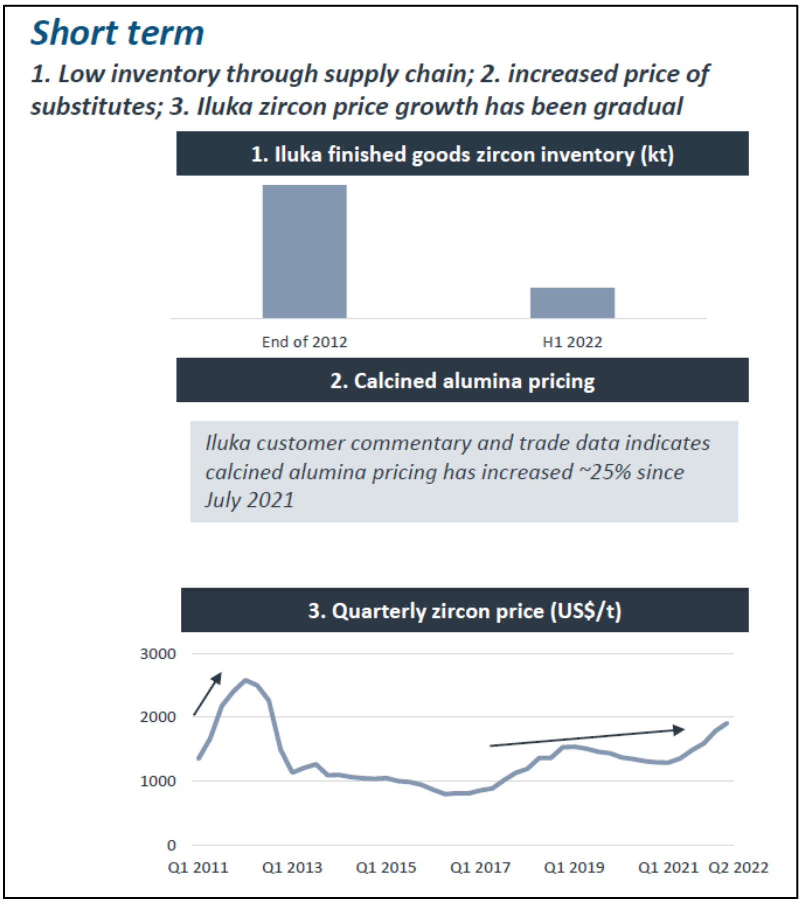
In the intervening period, only one of these projects, Coburn, has moved towards production. Now owned and operated by Strandline, the impact of higher commodity prices has allowed funding of the project. STA has wasted no time, and the wet plant is currently being commissioned. Others have stalled due largely due to permitting issues.

The lack of new supply has left an emerging supply gap, which has largely been filled by swing production from Indonesia and with the reprocessing of tailings from Iluka's Eneabba mine. This supply gap was an important point stressed by Tronox (the world's second largest producer of zircon) in its mid-year market update.



Source: Tronox Investor day, June 2022.

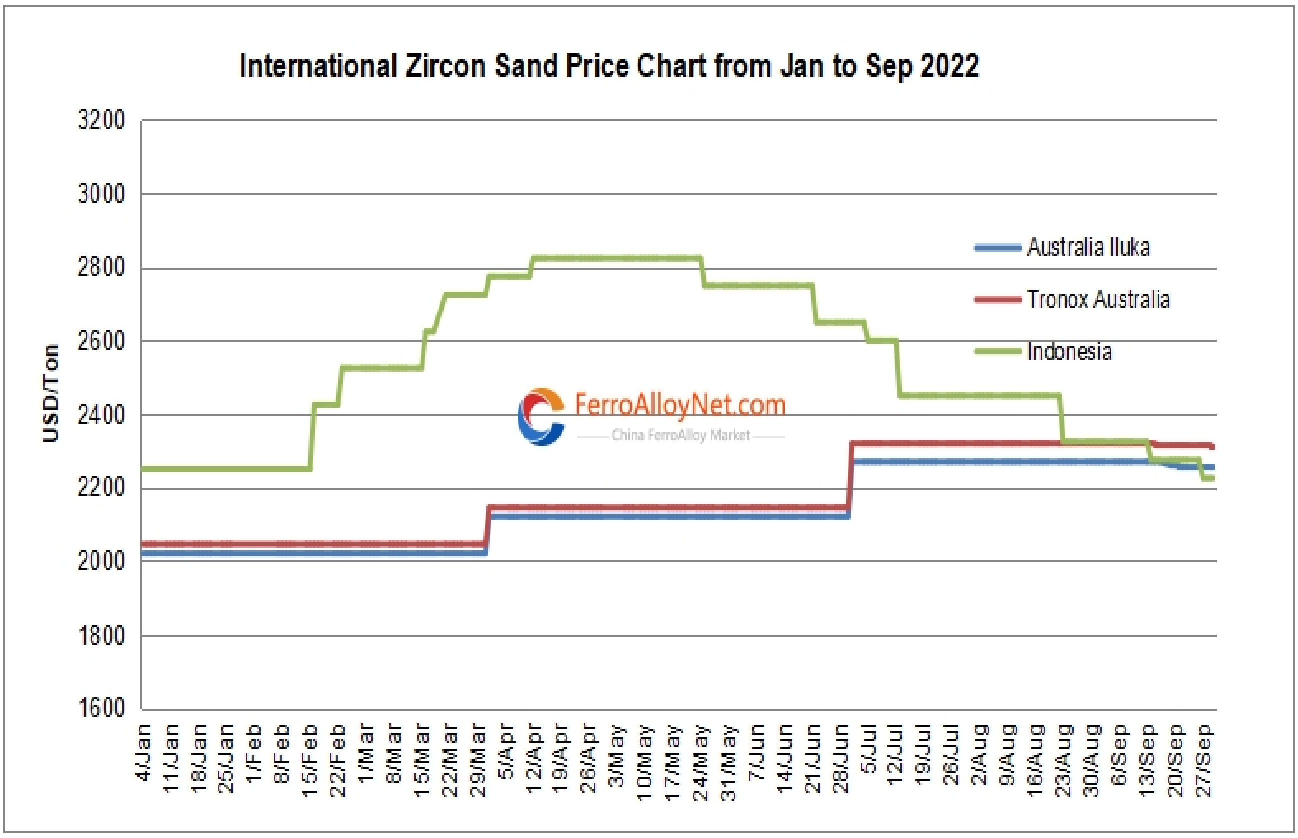
More recently Iluka at its half yearly presentation (August 2022) focussed on the tightness of the zircon market and commented on tightness in its major markets, including Europe, Brazil and Mexico. Chinese tile production had been impacted by COVID restrictions. Not only are customer inventories low, ILU noted, but so are those of the suppliers. This is illustrated in the following chart.



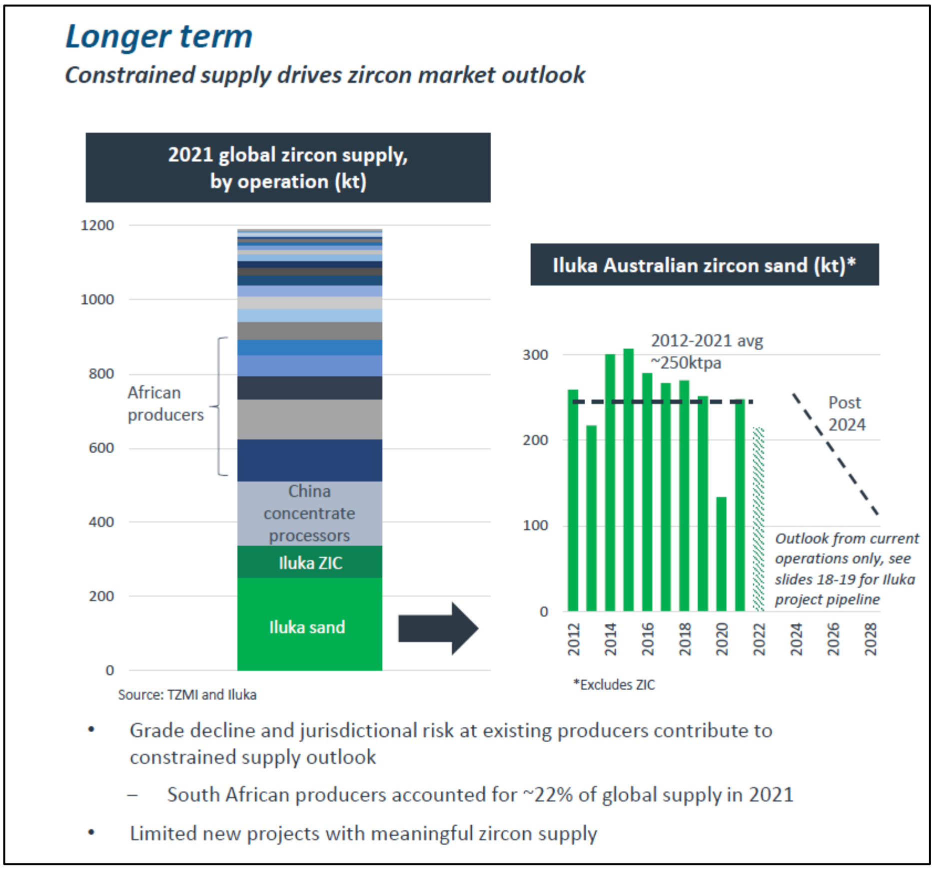
Source: ILU, August 2022

The major suppliers have done an excellent job in 'managing' the price response, by flagging modest future price increases to end users. This allowed the ceramics industries to in turn manage their costs and allow them to pass through price increases to their customers. No one wants a repetition of the very rapid and highly disruptive price increases seen in 2011, highlighted in the chart above.

In its recent quarterly, SFX states that mineral sand markets are buoyant but are of the view that zircon demand is showing signs of demand softness, in part attributable to COVID lockdown in China in the forthcoming quarters. However, the drop is not expected to be rapid as supply is tight and inventories are low. Much of this is being felt from the swing producers in Indonesia where prices for premium zircon achieved eye-watering levels (but for relatively small parcels).



In a recent presentation Iluka also focussed on the longer term and confirms that supply remains constrained by a lack of new projects, with a dramatic fall in its own production post 2023 (admittedly excluding new projects, few of which are committed).



Source: ILU, August 2022

Beyond Strandline's new Coburn project (around 60ktpa zircon) new supply will now come from the Thunderbird project (around 150ktpa pure zircon basis, or around 8-10% of global supply). These two projects are essential to fill the supply/demand gap.

Beyond these two projects there appears to be few new projects in the short to medium term. The Murray Basin of Victoria should become the world's next major source of zircon (together with titanium dioxide feedstock and monazite) but permitting issues are certainly causing delays. The next most likely project is WIM Resources' Avonbank project (ca. 150ktpa) which may be in production in 2025/26. Here the company is dealing with the final issues associated with the EES, and it is not yet funded. Other significant projects in Victoria appear to have stalled due to permitting or technical issues. Outside Australia, we see no change to the status of the massive Zulti South project (despite its approval back in May 2020) and permitting issues are continuing for the Toliara project in Madagascar.

In summary, we see a robust price environment for zircon into the ramp up of the Thunderbird project into late 2023 and 2024.

As a reminder, zircon makes up over 60% of the mine's revenue.

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