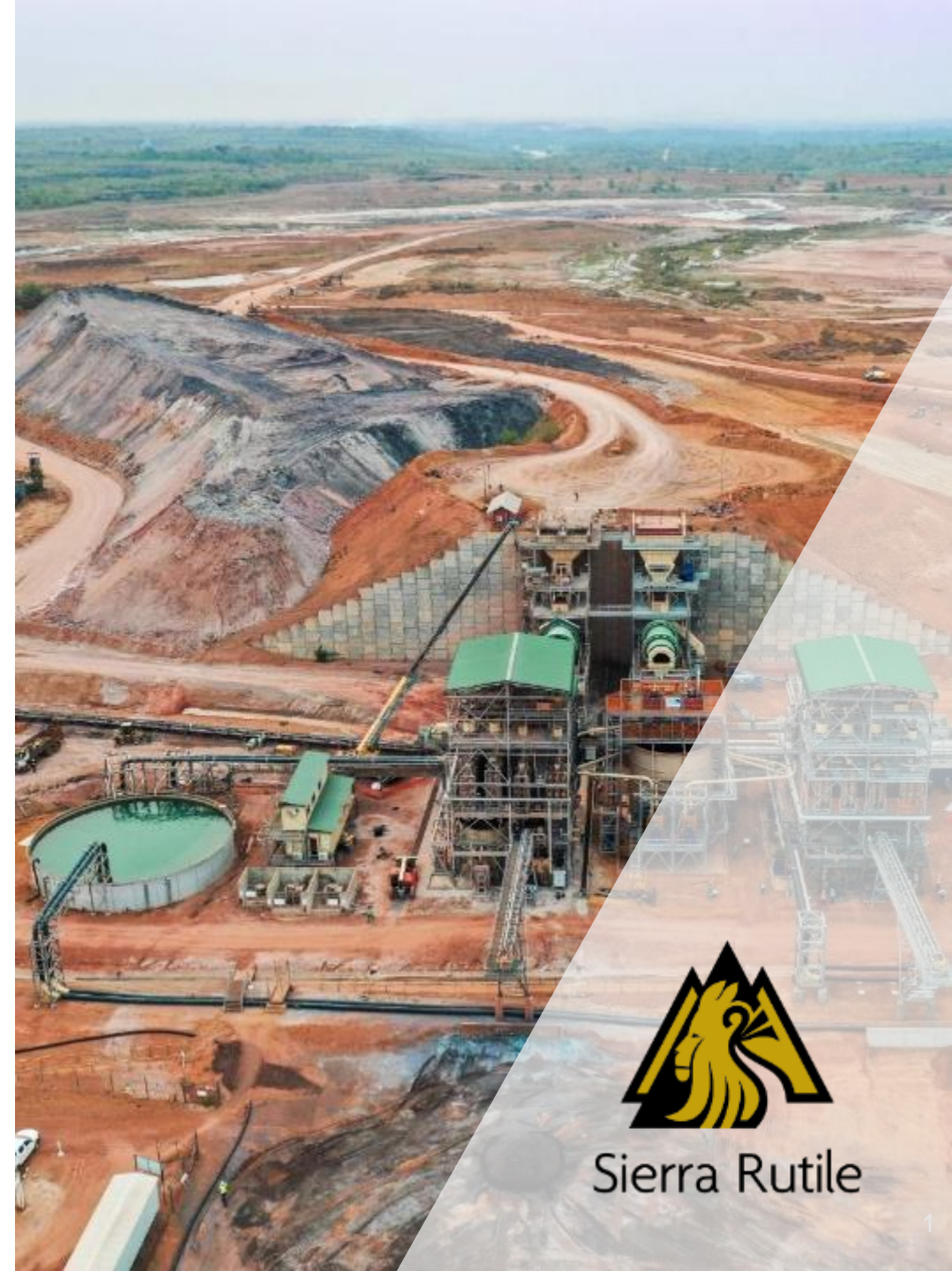


# Sierra Rutile Sembehun Project DFS

April 2024

ASX: SRX



Sierra Rutile

# Important Notices and Disclaimer



## Forward looking statements

Certain statements in or in connection with this announcement contain or comprise forward looking statements. Such statements may include, but are not limited to, statements with regard to future production and grades, capital cost, capacity, sales projections and financial performance and may be (but are not necessarily) identified by the use of phrases such as “will”, “expect”, “anticipate”, “believe” and “envisage”. By their nature, forward looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside Sierra Rutile’s control. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in product prices and exchange rates and business and operational risk management. Subject to any continuing obligations under applicable law or relevant securities exchange listing rules, Sierra Rutile undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events.

## Mineral Resources, Ore Reserves Estimates and Production Guidance

In preparing the DFS, the Sembehun Ore Reserve as previously announced (see following paragraph) has not materially changed from when the Ore Reserve estimates were last reported and is therefore not re-reported in this announcement.

The information in this announcement relating to Mineral Resource and Ore Reserve estimates for the Sembehun Project is extracted from the Sembehun announcement released on the Australian Securities Exchange by Iluka Resources Ltd on the 24th of February 2022, titled: “Sembehun Ore Reserve and Mineral Resource Update, Sierra Leone” which was re-stated and released by the Company in its ASX Release on 24 March 2023 “Sierra Rutile Annual Statement of Resources and Reserves” (Sembehun Announcement), available at [www.asx.com.au](http://www.asx.com.au). Sierra Rutile confirms that it is not aware of any new information or data that materially affects the information included in the Sembehun Announcement and that all material assumptions and technical parameters underpinning the estimates in the Sembehun Announcement continue to apply and have not materially changed.

The Mineral Resource Estimate and Ore Reserves underpinning the DFS have been prepared by Competent Persons in accordance with the 2012 JORC Code. The production target referred to is based only on Mineral Resource estimates which are classified as Measured (56%), Indicated (28%) and Inferred (16%). There is a low level of geological confidence associated with Inferred mineral resources, and there is no certainty that further exploration work will result in the determination of Indicated mineral resources or that the production target itself will be realised.

**Note: All figures are in US\$ unless otherwise noted**

# 1. DFS Summary

Highlights and key financials



Sierra Rutile

# DFS Results Reinforce Strategic Value of Sembehun Project

## Compelling NPV and IRR

NPV<sub>8</sub> US\$408M  
IRR 27.8%

## Long Life Project

14 year expected mine life



## Capex Reduced by 11% on PFS

US\$301m vs US\$339 in 2022

## Tier -1 Production

175kt steady state annual rutile production

**Expected payback**  
within 55 months

**173.8Mt LOM**  
Ore Treated

**US\$600/t**

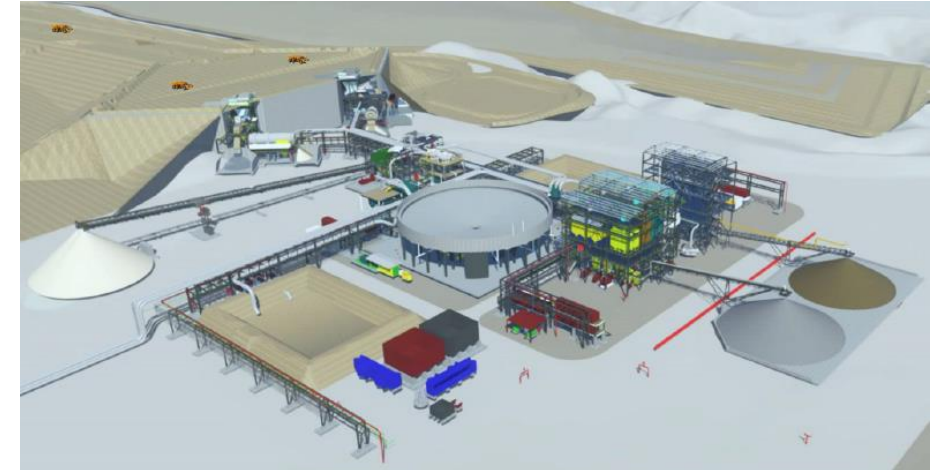
Steady state cash production cost (net of credits)

**US\$1,391/t**  
Long term rutile price assumed

# DFS Completion an Important Value Milestone

## Highlights

- **DFS demonstrates the significant incremental value of the project, and its ability to fundamentally change the cost base and production economics for Sierra Rutile.**
- **Expected 14-year mine life demonstrates potential to contribute economic benefits over an extended period to both Sierra Rutile and local stakeholders in Sierra Leone.**
- **Experienced management, existing infrastructure, and established marketing operations support development options.**
- **Existing infrastructure includes proven Mineral Separation Plant (MSP) and Port facilities, with a potential replacement value well in excess of US\$100M.**
- **Sierra Leone EPA approval received – last major approval (granted Mining Lease).**
- **Longer term, global growth and limited substitution/recycling of titanium is anticipated to support natural rutile demand.**
- **The DFS results demonstrate Sembehun is by far the major contributor to the strategic value of Sierra Rutile.**





# Sembehun Outcomes

*Long term production profile with compelling financial metrics - \$USD*

Key Production Outcomes	Unit	Sembehun
Life of Mine (LOM)	Years	14
LOM Ore Treated	Mt	173.8
Ore Grade	%	1.45
Ore Recovery - Rutile	%	91.4
Production – Total Rutile	kt	2,155
Production – Total Ilmenite	kt	1,242
Production – Total Zircon in Concentrate	kt	107
Annual average production rate (rutile)	ktpa	175

Key Financial Outcomes		
LOM Total Revenue	\$m	3,724
LOM Cash Production Costs	\$m	1,874
Capex	\$m real	301
Sustaining Capex	\$m	120
Closure Costs	\$m	30.6
Free Cash flow	\$m	935
Long Term Rutile Price Assumption (real)	\$/t	1,391
Cash Production Costs, net of credits	\$/t rutile	622
Cash Production Costs, net of credits (steady state)	\$/t rutile	600
LOM EBITDA	\$m	1,705
Payback period	# months	55
NPV <sub>8</sub> (post-tax, real)	\$m	408
IRR	%	27.8



*Contribution from Sembehun is calculated from the difference between Area 1 continuing alone, versus a combined Area 1 and Sembehun operation, as outlined in the DFS ASX Announcement*

## 2. Sembehun Project

One of the largest and highest-grade natural rutile deposits globally



Sierra Rutile

# World's largest natural rutile supplier



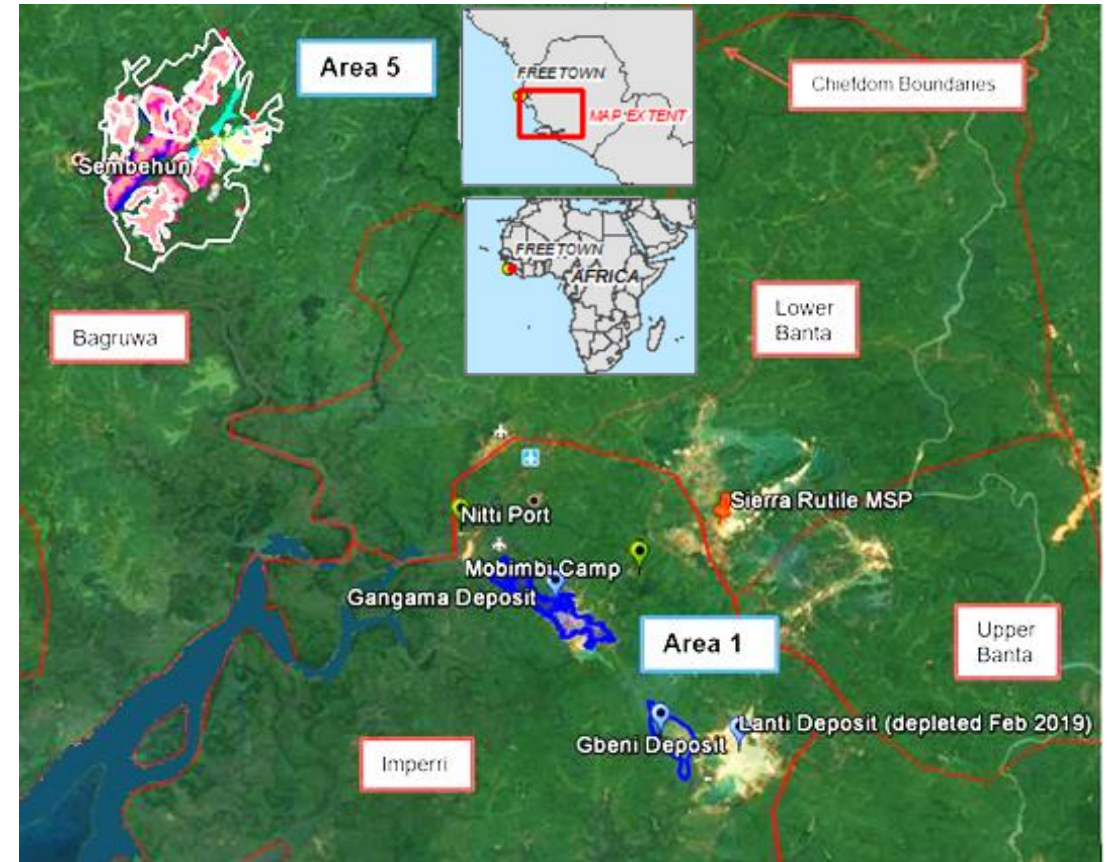
Sierra Rutile

*Positioned to significantly extend mine life and reduce costs through Sembahun development*

## Highlights

- 50+ years in operation supplying >20% of the world's supply of high-quality natural rutile for pigment, sponge/metal and welding markets.
- Historically one of the largest employers in Sierra Leone for over 40 years.
- Attractive growth pathway from the development of Sembahun, one of the world's largest and highest-grade natural rutile deposits, to add **14 years to mine life**.
- Sembahun expected to generate **low-risk attractive returns**, leveraging existing Area 1 equipment and infrastructure.
- **Long-standing customer relationships** with strong long-term fundamentals for **premium natural rutile**.
- Extensive long term local community relationships, and proven track record on rehabilitation for Area 1.
- Titanium is a critical mineral and feedstocks are a US\$4bn+ market. Alternatives to natural rutile are lower grade and more energy-intensive to produce.

## Australian headquartered, African mineral sands producer





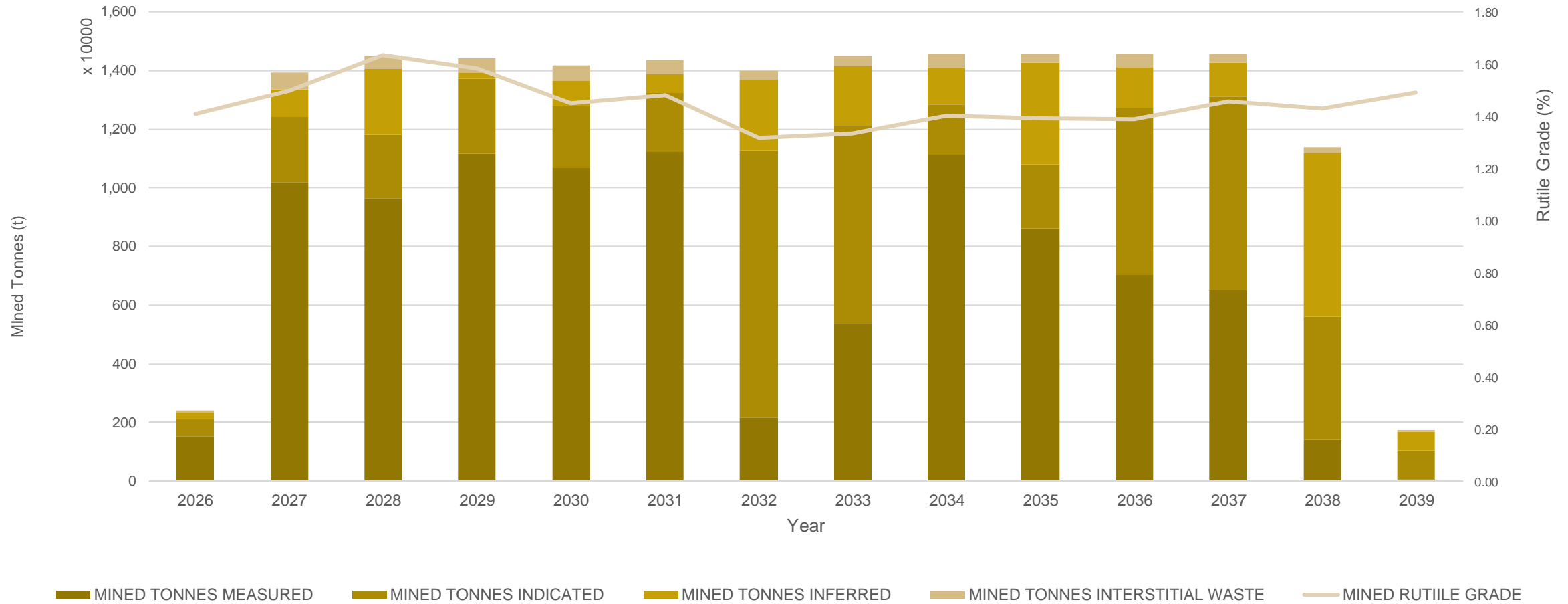
# Annual Production Projection

*Average steady state of 175kt/pa of rutile production*



Sierra Rutile

Ore by Resource Category per Year



# Reduced Capex Requirements

*11% lower than 2022 PFS estimate*



Total capital cost of US\$301 million, including a US\$41 million contingency which covers 16% of the base estimate.



Significant reduction from the 2022 PFS Capex figure of US\$337 million.



Management efficiencies, leveraging in country experience, the primary reason for the reduction in Capex.



Major component of Capex consists of well understood engineering for Concentrator, using conventional technology in widespread operation at Area 1 and elsewhere.

## Estimated Capital Cost Breakdown

Key Components	US\$ Million
Mine Site Wide	17.9
Concentrator	155.5
TSF Infrastructure	15.2
Process Water Infrastructure	12.98
Mineral Separation Plant	5.2
Power Plant Infrastructure	0.15
Access Road - Nitti	24.6
Bridge B6116	7.5
Stockpile Access Road	0.2
Water treatment	0.94
Camp	4.7
Solar Plant - Infrastructure	3.3
Resettlement Costs	4.49
Escalation to Base Date	0.94
Taxes and Duties - Withholding Tax	6.4
Contingency (16.1%)	41.0
<b>Sembehun Rev 2 - Base Line VE</b>	<b>301.27</b>

# Mining Process

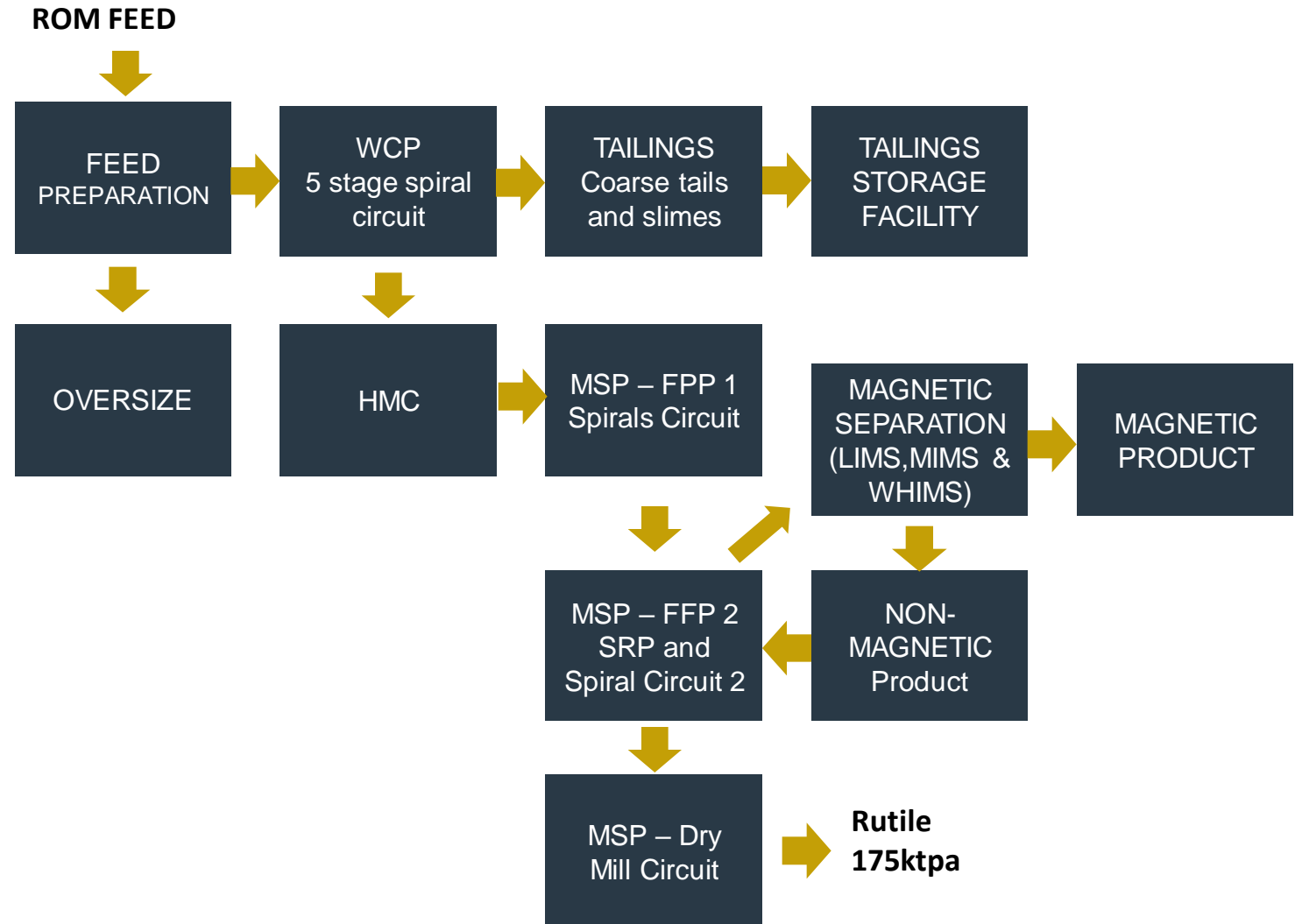
## Streamlined mining processes

- Process plant consists two identical streams from the ROM tip through to HMC stockpiling.
- New magnetic separation section included to assist with chrome rejection
  - meet final product specifications, and
  - de-bottlenecking to accommodate the increase in ilmenite.
- Target ratio of 2:1 rutile to ilmenite (over the LOM).
- Processing design based on annual ore mined of 14,4Mt (according to the PFS Mine Plan 2025-2038) and MSP Rutile Recovery Rate of 91.36%.
- Powered by a dedicated electrical power plant. The dedicated power producer will be responsible for the design, supply, installation, and operation of the plant.



Sierra Rutile

## High Level Mining Process Flow Diagram



# Operating Costs

*Sembehun to drive significantly reduced operating costs for Sierra Rutile*



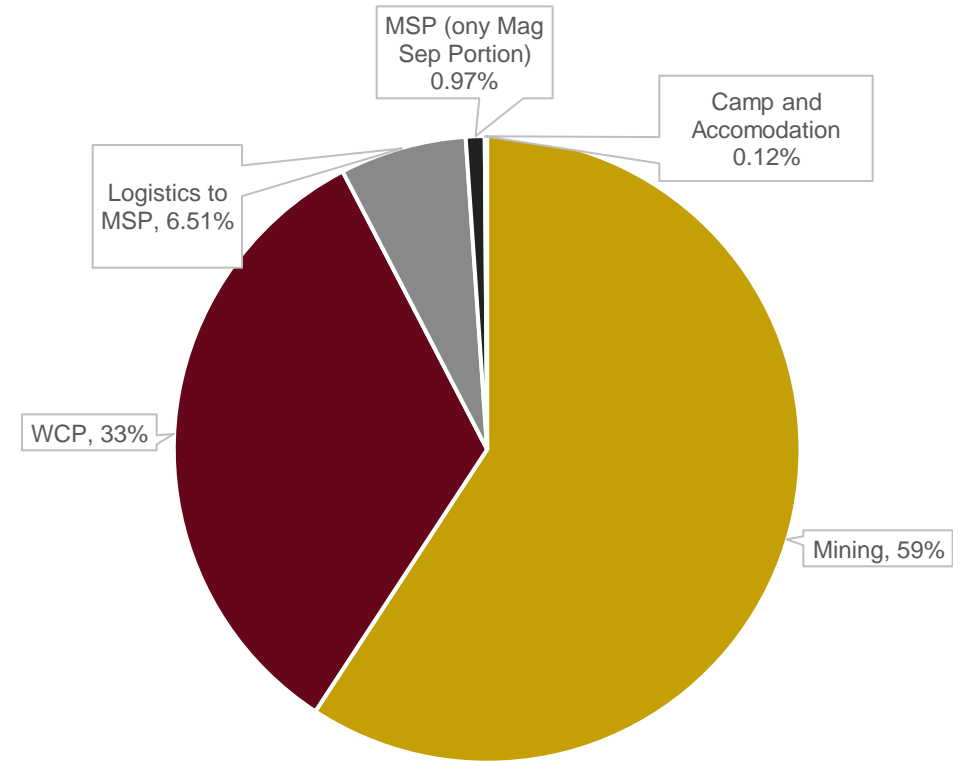
## Operating Costs Streamlined Due to Existing Area 1 Operations

Mining costs/t of rutile reduce largely due to higher volumes and significantly lower LOM haulage distances.

Magnetic Separation and Camp Accommodation leverage existing operations.

Concentrator costs also lower/t of rutile reflecting use of Gangama technology on larger scale and newer plant (lower maintenance).

Total OPEX of US\$683.0M is expected over the life of mine.



High-Level OPEX Breakdown



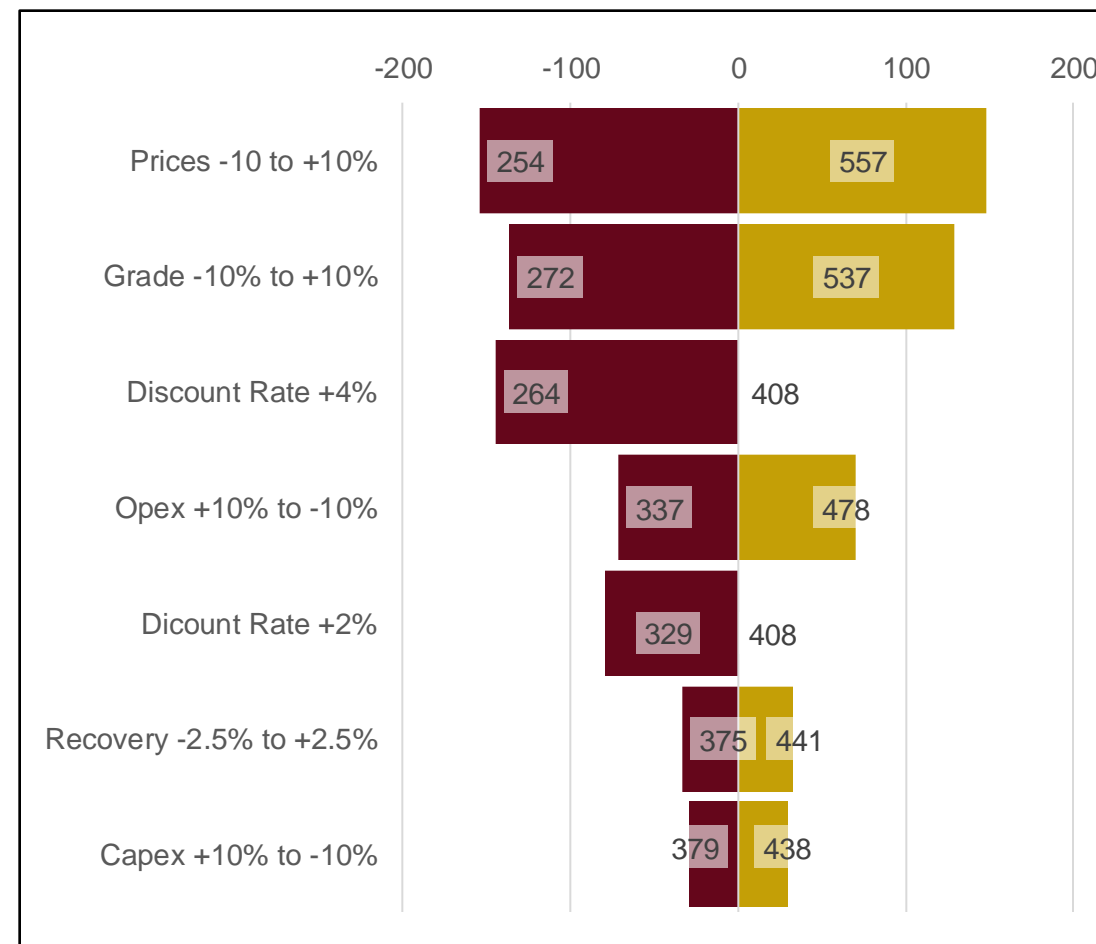
# Key Assumptions & Sensitivity Analysis

*Sembahun provides significant leverage to an improvement in currently depressed rutile prices*

## Key Project Assumptions

Criteria	Assumption
<b>Long-Term Pricing</b>	Pricing is the largest risk to Project economics and is based on TZMI Titanium Feedstock Base Price Forecast (TZMI, Issue 4 December 2023). Long-term TZMI prices were escalated from 2022 \$ terms to 2024 \$ terms using CPI of 4.1% to 2023 terms by another 2.7% to 2024 money terms (6.9% overall). This resulted in the long-term bulk rutile price of \$1301/t to be escalated to \$1391/t in 2024 terms.
<b>Ore Grades</b>	174 Mt at 1.45% rutile, 0.91% ilmenite, and 0.11% zircon, of which 111 Mt is classified as proved and 63 Mt as probable as announced by Iluka Resources Ltd on 24 February 2022 which was re-stated and released by the Company on 24 March 2023 in the ASX Release "Sierra Rutile Annual Statement of Resources and Reserves."
<b>Area 1</b>	The DFS models some continued production from Area 1 prior to and during ramp up of Sembahun. Such production would be contingent on the outcome of negotiations with the Government of Sierra Leone with respect to a restart of Area 1, part of which may involve continuing the arrangements under the Third Amendment Agreement or reaching a compromise with the Government of Sierra Leone on the fiscal arrangements and/or the Government of Sierra Leone taking an agreed equity interest.
<b>Processing Recoveries</b>	In relation to WCP recoveries, 94% rutile, 92% ilmenite and 97% zircon are assumed to be recovered from HMC. As for the MSP recoveries, 91.4% Rutile, 85% Ilmenite and 65% Zircon recovered to final products. MSP Rutile recovery has been reduced by expected losses of 0.4% to the WHIMS and 0.24% to the LIMS.
<b>Operating Costs</b>	Sembahun mining (\$4.0/t ore), Sembahun WCP (\$2.3/t ore) and haulage to Area 1 (\$14.3/t HMC) is based on the Hatch DFS estimates, the balance of SRL operating cost was derived from current cost structures at Area 1.  Overhead costs are \$38.5m pa and are included for Sembahun, which include Perth-based corporate overheads of ~\$4.1m. Overhead or support cost for Sembahun has been developed by SRL following zero-based approach to reflect the reduced footprint of operations from 2027 onwards.
<b>Fiscal Regime</b>	Tax assumptions are based on the Sierra Rutile Act 2002, including the application of the third amendment agreement tax concessions to Area 1 volumes.
<b>Timelines</b>	The DFS assumes a timeline for execution as detailed in the full announcement. Delay to earlier Key Project Milestones, may lead to additional delay to later Key Milestones. The current critical path is commencement of detailed engineering work in May 2024.
<b>Exchange Rate</b>	The estimate base date is October 2023 (Q4,2023). No provision has been made for escalation beyond this date. The exchange rate used is 18.9389 South African Rand (ZAR) to 1 United States Dollar (USD).

## Sensitivity Analysis Breakdown



## 3. Rutile Market

New supply required to meet projected long term demand



Sierra Rutile

# Global Rutile Supply Declining Materially

*Natural Rutile demand driven by Titanium for high technology applications and pigments*

Titanium is a critical mineral

Minimal recycling

Growing demand expected

- Natural rutile is the highest-grade form of naturally occurring titanium feedstock.
- Preferred raw ingredient for the cleaner, greener chloride pigment production process.
- Benefits of natural rutile over ilmenite/ synthetic rutile or titanium slag include higher purity, superior optical properties, and reduced environmental footprint.
- Titanium is also used in aerospace, defence, construction, shipbuilding, medical devices, sporting goods...

## Three Key Applications Of Rutile

1

*TiO<sub>2</sub>  
Pigment*



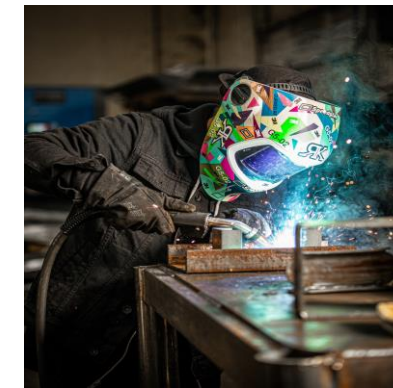
2

*Titanium  
Metal*



3

*Welding*



# Sembehun is critical to meeting the world's rutile demand

*Existing reserves are nearing the end of their mine life*

## Demand

- Sembehun is critical to meeting the world's rutile needs due to falling production globally, as predicted by industry consultant TZMI.
- Existing reserves are nearing the end of their mine life and there are not enough first-tier resources coming into development to maintain rutile supply at historical levels.

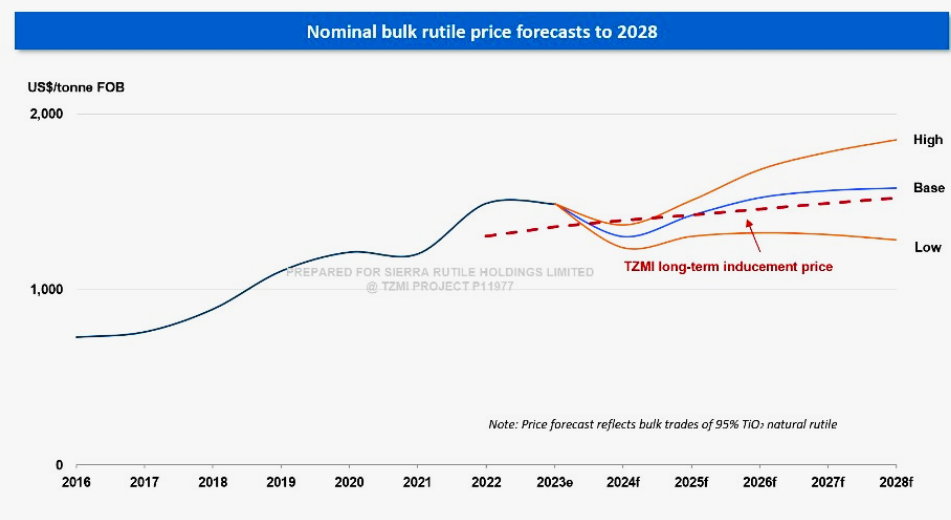
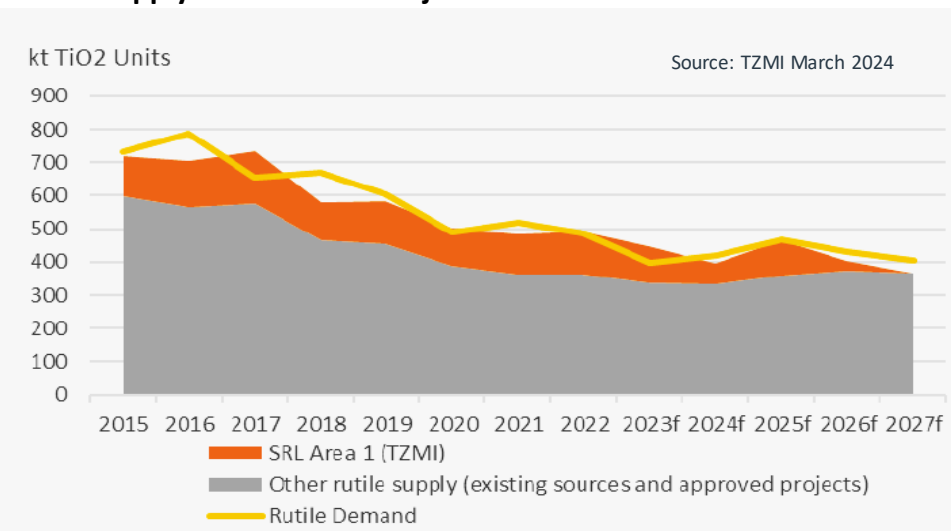
## Supply

- TZMI's December 2023 forecast indicates future rutile demand is supply-constrained.
- Since supply from existing producers and approved projects is declining, Sierra Rutile's customers and consumers worldwide need supply from Sembehun Area 5 to maintain consumption at the 500 ktpa TiO2 unit level seen in recent years.

## Pricing

- Sembehun's low unit costs ensure the mine is competitive regardless of what stage the economic cycle is in.
- Should the market find itself in an extended downturn, as the only mineral sands operation focused on rutile, Sierra Rutile will be able to compete against competitors producing by/co-product produced rutile.

## Rutile Supply and Demand Projections





# Commitment to Sustainable Operations

*Historically a major contributor to the Sierra Leone economy and community*



Sierra Rutile



Country-leading safety performance with LTIFR of 0.33 and TRIFR of 0.55.



2023 milestone rehabilitation of 285ha against regulatory requirement of 150ha, planting over 305,000 seedlings.



Improving local communities through education and healthcare. The Sierra Rutile Clinic is one of the best-equipped clinics in Sierra Leone.



Sierra Leone Environmental Protection Agency approved Sembehun ESHIA.



Priority to award DFS contracts to local companies, facilitating further support for local communities and employment.



# Next Steps



Sierra Rutile

*DFS has demonstrated the significant value of Sembehun, with NPV significantly greater than current market capitalisation*

## DFS supports discussions to determine best outcome for Sierra Rutile Shareholders

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- DFS to facilitate resumed discussions with major development partners.
- Will also encompass key industry participants.
- May occur within either the context of:
  - discrete funding or joint venture arrangements for Sembehun,
  - or within the context of a complete corporate transaction involving Sierra Rutile.
- These discussions will occur concurrently with ongoing discussions with the GoSL on matters relating to Area 1.
- The DFS has clearly demonstrated the significant strategic value of the Sembehun Project, with the NPV outlined by the study significantly more than the Company's current market capitalisation or enterprise value.
- Sembehun remains a key future contributor to the stable supply of rutile, commencing within the timeframes outlined in the DFS.





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