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For full Scoping Study details, refer TSL ASX release dated 12 May 2023, TSL Scoping Study Mannar Heavy Mineral Project. TSL confirms that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning that release continue to apply and have not materially changed.

For latest MRE details refer to Updated Mineral Resource Estimate – Mannar Heavy Mineral Project, ASX Announcement 15 March 2023. TSL confirms that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning that release continue to apply and have not materially changed.

#### **Competent Persons Statement**

Except where indicated, exploration results above have been reviewed and compiled by James Searle BSc (hons), PhD, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy, with over 38 years of experience in metallic and energy minerals exploration and development, and as such has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration 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 Searle is the Managing Director of Titanium Sands Limited and consents to the inclusion of this technical information in the format and context in which it appears.

# Delivering high-grade mineral sands in Sri Lanka





### **Project Milestones**

- Drilling exploration completed at Mannar Island
- Significant JORC resource of 318Mt @ 4.17% THM
- Scoping study completed identifying stage 1 NPV of \$545m



#### **Share Risk & Reward**

- Form Joint Ventures with experienced well funded partners
- Seek committed offtake agreements
- Pursue Government co-funding opportunities



## **Approval Status**

- GSMB approved: economically viable project with recommendation to Central Environment Authority (CEA) to proceed.
- CEA and Environmental Impact Assessment (EIA) underway and pending approval
- Mining License approval to follow

#### **Competent Persons Statement this Announcement**

The Mannar Island Scoping Study reported here has been compiled from source reports as indicated, exploration data and other information by James Searle BSc (hons), PhD, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy, with over 37 years of experience in metallic and energy minerals exploration and development, and as such has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration 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 Searle is the Managing Director of Titanium Sands Limited and consents to the inclusion of this technical information in the format and context in which it appears.

# **Corporate Overview**



#### **Our Team**

### Lee Christensen, Chairman

- Experienced ASX company director
- Senior Perth lawyer with over 30 years experience
- Appointed to TSL board April 2015

# Dr. James Searle, Managing Director

- 35 years' experience in base / precious metals, HMS deposits
- Worldwide experience and is a member of AIMM
- Experienced ASX company director appointed to TSL board March 2016

### Jason Ferris, Non-Exec Director

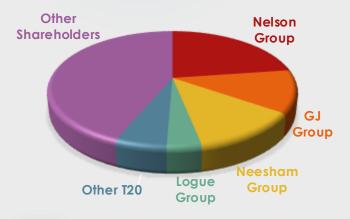
- MBA (Finance) with over 25 years corporate finance experience
- Has facilitated many JV opportunities in property, tech and mining sectors
- Experienced ASX company director, appointed to TSL board July 2014

## Investment Highlights & Company News flow

- Tight capital structure with Top 20 holding 55.65% of shares on issue
- Scoping study completed, environmental studied pending
- Mining License anticipated FY26
- HMS project to commence late 2026

## **Capital Structure**

ASX Code	TSL
Shares on Issue	2.33b
Options:	
- listed	551m
- unlisted	1.01b
Share Price	\$0.006
Market Cap	\$13.98m
Cash	\$0.63m



# 2023 Scoping Study



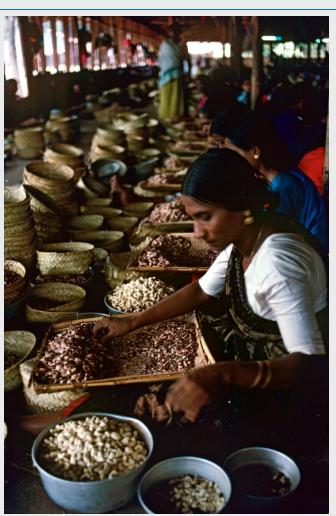
## **Highlights**

- Stage 1 project life of 20 years
- Project NPV of \$545m
- Stage 1 Gross revenue \$2.01b (EBITDA \$1.2b)
- Internal Rate of Return (IRR) 52%
- Revenue to Cost ratio of 2.75
- Job creation of 300 and up to 1,200 jobs
- Rehabilitation via sustainable plantations





Images: Examples of benefits of rehabilitation



# **Project Generators**



## **Mannar Island Mineral Sands Project**

- 100% owned through Kilsythe Group
- High quality ilmenite based Mineral Sands Deposit
- Minor credits to other mineral components
- Economically robust long-life project

## **Equity Holdings & Investments**



Kilsythe Investments (Private) Limited



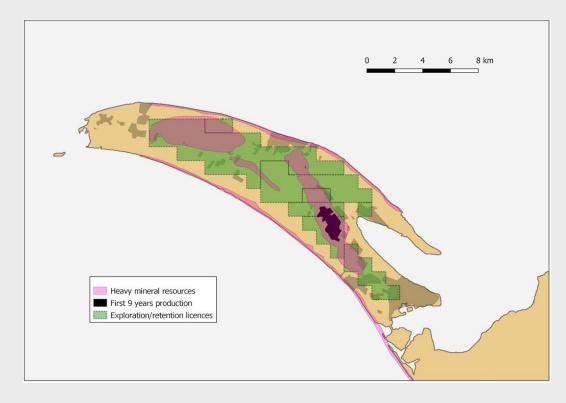


## **Overview**



## **Deposit Location**

- Mannar Island, located off the north-western coast of Sri Lanka in the Gulf of Mannar is connected to the mainland by a causeway with an elevation in the interior of the island around 3 m above mean sea level.
- Five exploration licenses covering 69km<sup>2</sup> of predominately underutilised land
- Region is rich in heavy minerals
- Local infrastructure is in place with accessible water, adequate power capacity, existing road and rail systems.



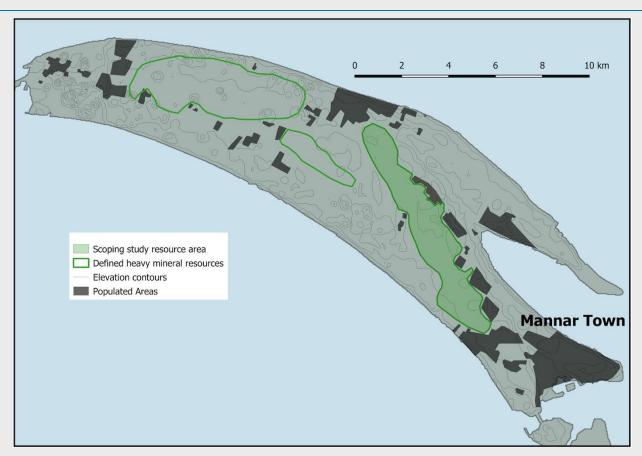
Above: The location of the Mannar Island HMS resource including proposed mineral separation plant

### Overview



## **Deposit Geology & Resource**

- Mannar is an extensive concentrated deposit with continuous zones of heavy mineralization up to 3km wide and 10km long and 10-12m deep.
- Deposit geology formed extensive zones of heavy mineral Concentration rather than just narrow shoreline strands.
- TSL's mineral resource estimate (March 2023) defined a JORC 2012 Resource (~46% indicated) of 318Mt grading 4.17% Heavy Minerals (HMS).
- TSL's stage 1 scoping study further defined a JORC 2012 resource (~74% indicated) of **82Mt grading 6.03% HMS for a total HMS content** of **4.82mt** using a low-grade HMS cut-off of 3%<sup>1</sup>.
- Heavy mineral assemblage: 46.4% Ilmenite, 1.5% Rutile, 2.2% Zircon, 12.4% Garnet all from surface.
- Resource at surface, no overburden
- Very low fines / slimes content

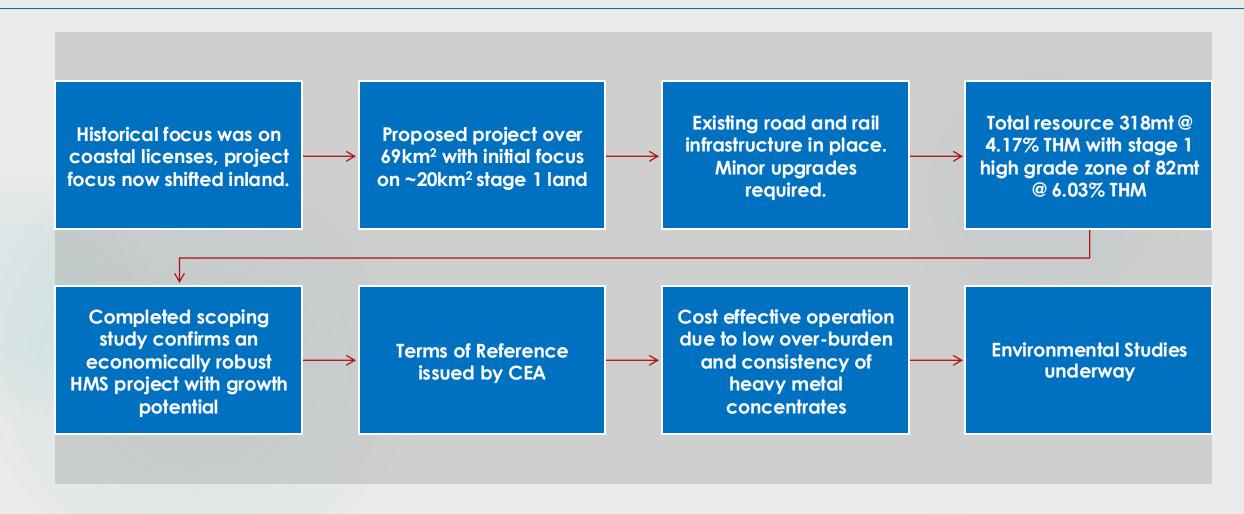


Above: Layout of resources and scoping study area

<sup>&</sup>lt;sup>1</sup> ASX:TSL 12 May 2023: Scoping Study Mannar Heavy Mineral Project

# **Existing infrastructure, Significant HMS**





# Licenses, Minerology, Project Valuation



Project stage 1 NPV of \$545m

Retention status\* on all 5 of the major project licenses (\*EL370 pending)

Abundant ilmenite based heavy mineral resource

Environmental Impact
Assessment (EIA) in
progress - being
managed by highly
credentialed industry
experts

Overall Recovery	
Ilmenite Recovery	90.3%
Leucoxene Recovery	81.0%
Rutile Recovery	81.0%
Zircon Recovery	57.0%
Garnet Recovery	54.0%

Mineralogy	
Contained Ilmenite	46.4%
Contained HiTi	8.1%
Contained Rutile	1.5%
Contained Zircon	2.2%
Contained Garnet	12.4%

Material Mined	4M†/yr
Heavy Mineral	6.03%
llmenite Product	117,010 t/yr
Rutile Product	2,911 t/yr
Zircon Product	2,970 t/yr
Garnet Product	16,203 t/yr
Trash Product (to tailings)	102,106 t/yr
Saleable Product	139,094 t/yr

ASX:TSL 12/05/2023 – Scoping study Mannar heavy mineral project

### **Market Outlook**



Substantial growth expected between 2024 and 2031. The global ilmenite market is projected to expand at a CAGR of 4.1% from 2023 to 2032, reaching USD 16.6 billion by 2032

The industry is driven by the rising demand for titanium dioxide in sectors like paints, coatings, automotive, and aerospace, with a focus on lightweight alloy applications

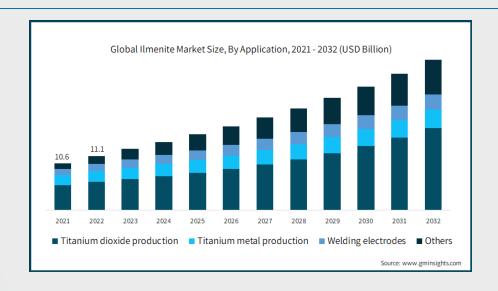
Economic issues not expected to affect ongoing development, especially in regions with strong industrial and construction sectors

The global ilmenite market is anticipated to reach USD\$16.6b by 2032, with a CAGR of 4.1% during the forecast period of 2022 to 2032



# **Industry Key Trends**





**Sustainability Focus**: strong emphasis on sustainability throughout sourcing and production processes

Technological
Advancements: Expected
to drive contributing to
expansion between 2024
and 2031

#### Plentiful Availability:

Fuelled by the abundant and hassle-free availability of this mineral, supporting increased demand Product Types and
Applications Applications
such as titanium dioxide
material and titanium
metal material, influencing
market growth strategies

# **Applications and Uses**



#### **Ilmenite**

Ilmenite is the most important ore of titanium. Ilmenite is the main source of titanium dioxide, which is used in paints, printing inks, fabrics, plastics, paper, sunscreen, food and cosmetics.

#### Rutile

Rutile is used in the manufacture of refractory ceramic, as a pigment, and for the production of titanium metal

#### **Zircon**

Zircon forms the basis for specialty uses include fibre optics, glass, paints, underarm deodorants, adhesives, cosmetics, dental ceramics plus various research applications

#### **Garnet**

Garnet is used as an abrasive in high pressure paint stripping and industrial cleaning solutions



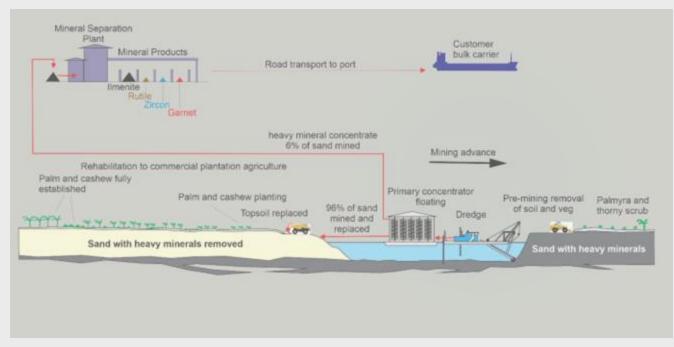
# **Potential Mining Methodology**

titaniumsands

- •Primary concentrate from floating WCP transported to centrally located Mineral Separation Plant (MSP)
- •MSP will use conventional electrostatic, electromagnetic and further gravity spiral separation only to produce saleable feedstock ilmenite and subsidiary rutile, zircon, and garnet.



Above: Example of two mineral dredges and floating wet concentrator



Above: Schematic representation of project operational scenario

<sup>\*</sup> Cautionary Statement: CONCEPTUAL ONLY not a technical / economic study of the viability of mineral resources.

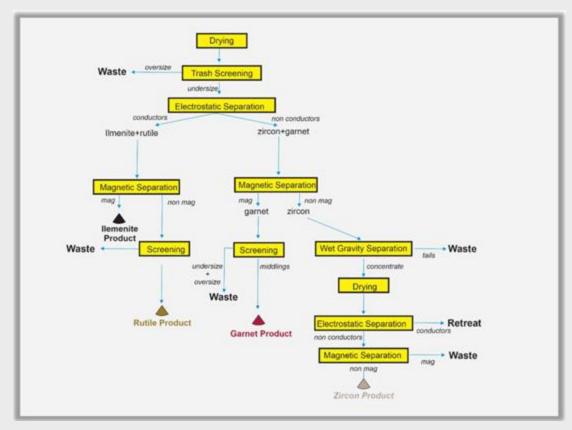
# **HMC Conceptual Processing**



- Wet Concentrator Plant (WCP) using gravity spirals for separation process.
- Screen incoming ore with oversize to waste and undersize through electrostatic separation.
- Conventional gravity circuit applied with magnetic separation identifying conductor and nonconductor products.
- Process continues to retrieve maximum product.



Above: Spirals / process worker



Above: Project conceptual process flow sheet



<sup>\*</sup> Cautionary Statement: CONCEPTUAL ONLY not a technical / economic study of the viability of mineral resources.

## **Mannar Overview**





The Mannar Island mineral resource project is a high-grade ilmenite-based project in North-West Sri Lanka which has a significant resource ready to be brought into production

- Production Up to 150,000tp.a Growing to 450,000 tonnes per year as approvals are obtained.
- Land Access Access granted for EIA studies and terms agreed for extended mining access once mining license issued.
- Sustainable plantations Developed for landowner and communities post mining to create ongoing income and job creation for generations to come
- Protection a priority Environmentally friendly mining proposed away from coast and dense habitation.
- Employment and Care Job creation of up to 1,200 jobs and protection of community groundwater a priority.

ASX:TSL 12/05/2023 – Scoping study Mannar heavy mineral project

## **Deliverables and Next Steps to IML**





Central Environment Authority have issued to project Terms of Reference (TOR)

Geological Survey and Mines Bureau (GSMB) have approved retentions (\*EL370 pending)

Environmental Studies have commenced

Offtake and Joint venture partner discussions to commence

Production joint venture partner to be identified and Capex secured

Environmental (EIA) approval and CEA recommendation to commence project

Industrial Mining Licence (IML) granted



### **Investor Contact**

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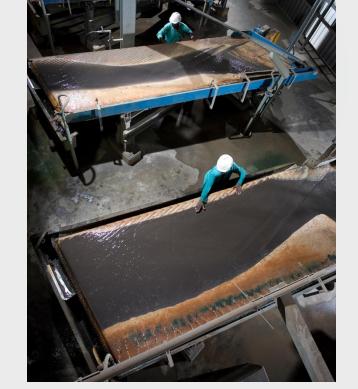
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