

# Providing an alternative, reliable, global supply of Critical Metals

May 2022



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## Competent Person

The information in this document that relates to the Ore Reserves and Mineral Resource Estimates of the Dubbo Project are extracted from the Company's ASX Announcement dated 29 July 2020 titled "Information Memorandum and Demerger Booklet" available to view on the Company's website ([www.asm-au.com](http://www.asm-au.com)) and [www.asx.com.au](http://www.asx.com.au) and was completed in accordance with the guidelines of the JORC Code (2012).

The Company 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 material assumptions and technical parameters underpinning the Ore Reserves and Mineral Resource Estimates in the relevant market announcement continue to apply and have not materially changed.

The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

# ASM: De-risking the Global Supply Chain

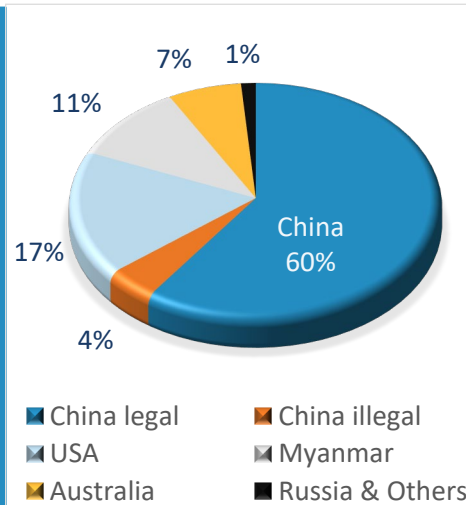


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**Global supply chain:**  
 Concentrated  
 Lacks transparency  
 Significant risk across all stages

## Global Bottleneck

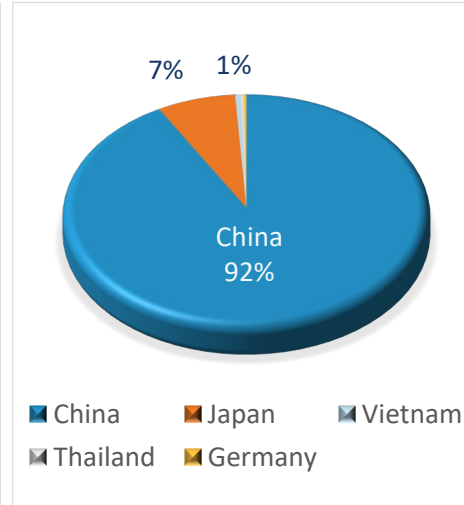
**Upstream**  
Mining & Extraction



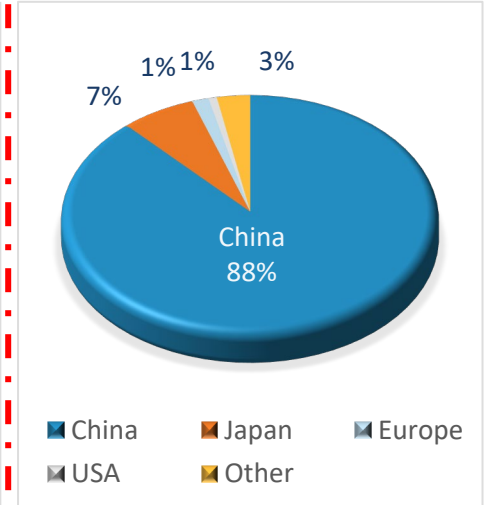
**Midstream**  
Separation & Refining



**Downstream**  
Metallisation & Alloying



**End Use**  
Magnetisation & Forming



Rare Earth Products →  
 2021 Annual Production →  
 2035 Forecast Production →

**Concentrates/Carbonates**

**226,000 t<sup>1</sup>**

**Oxides**

**55,952 t<sup>2</sup>**

**103,342 t<sup>3</sup>**

**Metals and Alloys**

**205,000 t<sup>2</sup>**

**NdFeB Magnets**

**175,000-180,000 t<sup>2</sup>**

**341,950 t<sup>3</sup>**



# Our Vision

An alternative, secure and environmentally responsible supply of critical metals to the world

## Dubbo Source

- Zirconium
- Rare earths
- Niobium
- Hafnium

## External Source

- Titanium
- Rare earths

Dubbo oxides

3<sup>rd</sup> Party oxides

A global, vertically integrated mine to metals business

## High Purity Metal Product

- Titanium metal, powder, alloy
- Permanent magnet alloy
- Dysprosium
- Ferro-niobium
- Niobium
- Hafnium
- Terbium
- Zirconium



Commissioning



Under consideration



Direct to Customers

# Delivering a Vertically Integrated Solution

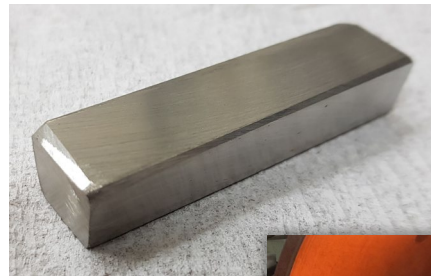
## Dubbo Project

- Polymetallic resource - light and heavy rare earths, zirconium, niobium and hafnium
- Project approvals issued
- 20 year mine life producing metal oxides



## Metallisation Business

- High purity metals and alloys
- Patented “green” metallisation process
- Low capital intensity and easily expanded



## High Tech Manufacturing

- Diversified critical metals
- Permanent magnet alloys
- Product development to customer’s specifications





# Korean Metals Plant

## Metals Plant

- Low capital, small footprint and readily scalable
- Located in Ochang Foreign Investment Zone, 115km south of Seoul
- Will produce metal, alloy and powder to customer specification

## Rapid Development

- Acquisition of facility July 2021 expanded and registered in April 2022
- Phase 1 installation and commissioning continuing – installed capacity 2,200tpa
- Stabilise and improve efficiency of Phase 1, commence Phase 2 to capacity 5,200tpa

## Technology

- Proven, innovative low energy metallisation process with lower environmental impacts
- ASM owned patented technology
- ASM R&D team developed the unique technology

## Pilot Plant High Purity Metals Produced

Praseodymium	5.3kg	99.3%
Dysprosium	7.5kg	99.53%
NdPr	9kg	99.65%
Zirconium powder	8.6kg	>98% (Hf ~1%)
Titanium powder	9.2kg	99.83%
CuTi Alloy	60kg	(70%,30%)
NdFeB	6kg	(32%, 67%, 1%)



# Korean Metals Plant

## Production and Financials

- Korean Metals Plant updated production and financials<sup>1</sup>:
  - Phase 1 2,200tpa installation and commissioning through Q2 2022 with optimisation and ramp-up over second half 2022
  - Phase 2 5,200tpa installation anticipated mid 2023, with ramp up by end 2023, aligned to securing customer sales contracts
  - Capital in line with original estimate of USD 35-45 million
- Sales discussions progressing with potential customers in Korea and the USA for Korean Metal Plant products
- Korean Metal Plant provides the proof of concept for potential expansion based on market demand in Korea and globally

Korean Metal Plant – 5,200tpa Summary	
<b><u>Production</u></b>	
NdFeB Alloy	3,600 tpa
CuTi Alloy	1,600 tpa
Total Production Capacity	5,200 tpa
<b><u>Financial</u></b>	
Annual Revenue	USD 270 million
Annual EBITDA	USD 40 million

### Footnotes<sup>1</sup>:

- Final Production mix, revenue and EBITDA will be subject to customer demand and could include Nd, NdPr, Dy, CuTi and NiTi metals, NdFeB alloy or Ti powder
- Operating costs other than feed material costs are in line with original estimates [ASX announcement: March 2<sup>nd</sup> 2021 Scoping Study Demonstrates Feasibility of ASM Korean Metals Plant](#)
- Reliable published benchmark data for KMP end products is not available. Raw materials and sales price assumptions are based on key raw material inputs from Argus (5<sup>th</sup> May 2022) and Adamas (April 2022) and ASM's assessment of achievable sales pricing. This remains uncertain until customer sales contracts are secured.

# Korean Financing Update

## Original Korean Consortium Agreement

- USD 250 million equity investment for 20% of the Dubbo Project
- 2,800 tpa NdFeB 10 Year Offtake
- Exclusive Agreement

## Revised Korean Consortium Framework Agreement

- Potential investments include post completion of the Engineering, Procurement and Construction Design<sup>1</sup> of the Dubbo Project:
- Facilitate a strategic investor to acquire 10% of Australian Strategic Materials (Holdings) Ltd (ASMH) shares for USD 125 million, and
  - An investment of USD 50 million via a convertible bond for a 30% stake in KSM Metals Co Ltd (ASM's subsidiary that owns the Korean Metals Plant).
  - A further USD 105 million equity investment in ASM,
    - 2,800 tpa NdFeB 10 Year Offtake – check consistency
  - Non-exclusive Agreement

## Korean Consortium Financing Milestones and Next Steps

- Dubbo due diligence – completed
- Dubbo Engineering, Procurement and Construction Design<sup>1</sup> – mid 2023
- Completion of Agreement – Q3 2023

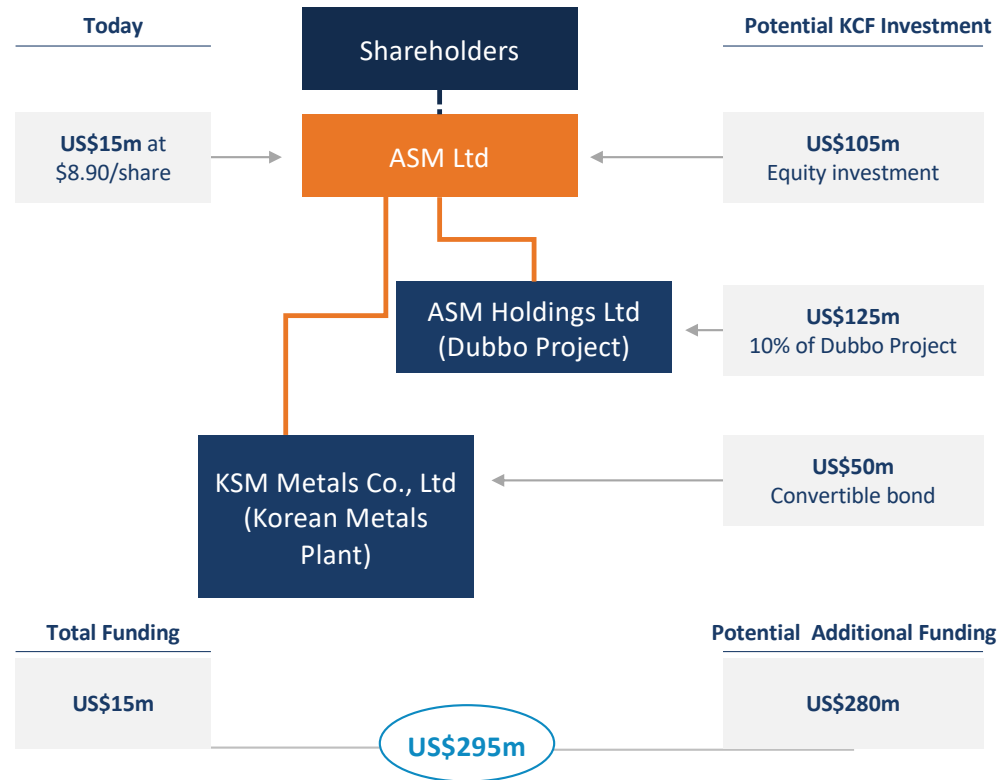
- Note 1: Engineering, Procurement and Construction Design:
- Front-end Engineering and Design (FEED)
  - Early Design of Key Work Packages
  - Open Book Project Cost Estimate



# Overview of Revised Framework Agreement



## Investment Structure



## Comments

KCF has invested US\$15m in ASM Limited at A\$8.90 per share  
Potential for a further US\$105m future investment as milestones are achieved

Potential for a 10% investment in the Dubbo Project, for US\$125m by a strategic partner

Potential investment of US\$50m into KSMM as a convertible note for 30% of KSMM

### Milestones and Potential Next Steps

<b>Dubbo Due Diligence</b>	Successfully completed
<b>Proposed Hyundai and Construction Contract</b>	Mid - 2023
Front-End Engineering Design	
Early Design of Key Work Packages	
Open Book Capital Cost Estimate	
Completion of Potential KCF Investments	Q3 2023



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# Dubbo: Long Life Project - Strong Financials

## Project

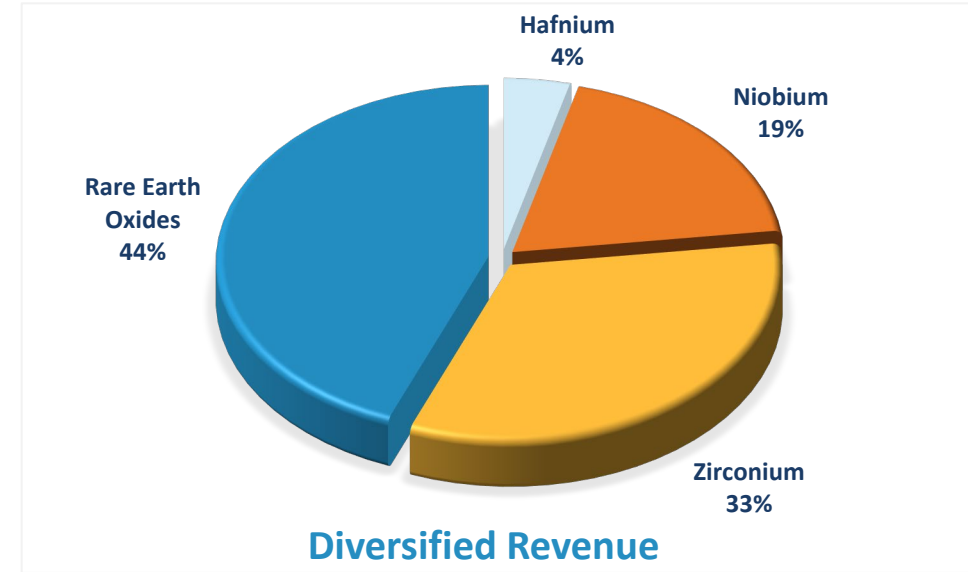
- 400km northwest of Sydney and 25km from Dubbo
- Proven flowsheet with Australian Nuclear Science & Technology Organisation
- Construction ready - major permits received, water license and land owned

## Strong Financials

- Strong Free Cash Flow
- Meets all typical debt financial ratios
- **Pre-tax IRR 23.5%, Post-tax IRR 20.1%**

## Robust Diversified Output

- Polymetallic project de-risking exposure to commodity price variation
- All products can be integrated into ASM's metal business
- Opportunity to increase hafnium production



Key Outputs	USD million
Gross Revenue	\$11,851
Total undiscounted pre-tax Free Cash Flow	\$5,581
Annual Free Cash Flow (full ramp up)	\$319
Pre-tax Project IRR %	23.5%
Post-tax Project IRR %	20.1%
Pre-Tax NPV	\$1,770
Post-tax NPV	\$1,186

\* Exchange Rate (A\$:US\$) - 0.75; Discount Rate (real, post-tax %p.a.) 8.0%; Corporate Tax Rate (%) - 30%



Source: 1- ASM ASX Announcement 'Dubbo Project Optimisation Delivers Strong Financials', dated 7 December 2021

# ESG: Responsible Stewardship

## Targeting operational net-zero

- Reduce emissions -
  - Refurbish railway
  - Chlor-alkali plant
  - Use renewable energy where possible
- Metallisation process lower footprint than conventional methods
- Protecting biodiversity -
  - Improved process to reduce water use
  - Biodiversity offset areas protected in perpetuity
  - Project within a working farm



## Supporting community

- Solid history of successful engagement with local, regional, state and federal stakeholders
- Integrating development and operating plans for mutual benefit with the community
- Engagement with First Nations community



## Strong, credentialed leadership

- Led by a diverse and experienced Board and leadership team
- Comprehensive systems of control and accountability, implemented with openness and integrity
- Engage all ASM people, suppliers and customers to ensure adherence to our guiding values and principles



# Australian Strategic Materials

Secure, stable and sustainable  
critical metals to the world







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# Dubbo Project Resources & Reserves

## Dubbo Project – Mineral Resources

Resource Category	Tonnes (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	TREO* (%)
Measured	42.81	1.89	0.04	0.45	0.03	0.14	0.74
Inferred	32.37	1.90	0.04	0.44	0.03	0.14	0.74
<b>Total</b>	<b>75.18</b>	<b>1.89</b>	<b>0.04</b>	<b>0.44</b>	<b>0.03</b>	<b>0.14</b>	<b>0.74</b>

\*TREO% is the sum of all rare earth oxides excluding ZrO<sub>2</sub>, HfO<sub>2</sub>, Nb<sub>2</sub>O<sub>3</sub>, Ta<sub>2</sub>O<sub>5</sub>, Y<sub>2</sub>O<sub>3</sub>

## Dubbo Project – Ore Reserves

Reserve Category	Tonnes (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	TREO* (%)
Proved	18.90	1.85	0.04	0.440	0.029	0.136	0.735
<b>Total</b>	<b>18.90</b>	<b>1.85</b>	<b>0.04</b>	<b>0.440</b>	<b>0.029</b>	<b>0.136</b>	<b>0.735</b>

\*TREO% is the sum of all rare earth oxides excluding ZrO<sub>2</sub>, HfO<sub>2</sub>, Nb<sub>2</sub>O<sub>3</sub>, Ta<sub>2</sub>O<sub>5</sub>, Y<sub>2</sub>O<sub>3</sub>



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# Corporate Profile

## Capital Structure

Ordinary Shares (m)	139.5
Share Price (14 April 22)	A\$7.34
Market Capitalisation	A\$1.02B
52 week low/high	A\$4.08/A\$14.15
Cash (31 Dec 21)	A\$56.9M
Enterprise Value	A\$1.08B
Average Daily Turnover (3 Months)	A\$3.5M

## Board

- **Ian Jeffrey Gandel** (Non-Executive Chair) LLB, BEc, FCPA, FAICD
- **David Woodall** (Managing Director) BSc Mining, MSc (Mineral Economics) and Graduate Diploma (Business)
- **Nic Earner** (Non-Executive Director) BEng (Hons)
- **Kerry Gleeson** (Non-Executive Director) LLB (Hons), FAICD
- **Gavin Smith** (Non-Executive Director) B.Com, MBA, MAICD



## Share Price and Volume (6 Months)



## Shareholders (at 31 March 2022)

