29 April 2021

MAKUUTU DELIVERS POSITIVE SCOPING STUDY AND DEMONSTRATES POTENTIAL TO DEVELOP A SUSTAINABLE, LONG-LIFE, CRITICAL AND HEAVY RARE EARTH SUPPLY

Scoping Study Cautionary Statement

This Scoping Study has been undertaken to determine the potential viability of an open pit and heap leach process plant to produce a mixed rare earth carbonate product onsite at the Makuutu Rare Earths Project ("Makuutu" or the "Project"), and to provide Ionic Rare Earths Limited ("IonicRE" or "the Company") with the confidence to advance to a Bankable Feasibility Study (BFS). The results should not be considered a profit forecast or a production forecast.

The Study is a preliminary technical and economic study of the potential viability of the Makuutu Rare Earths Project. In accordance with the ASX Listing Rules, the Company advises it is based upon low-level technical and economic assessments (+/- 50%) that are not sufficient to support the estimation of Ore Reserves, or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Study will be realised.

Further evaluation work including infill drilling, metallurgical testwork and appropriate studies are in progress and required before IonicRE will be in a position to estimate Ore Reserves and to provide assurance of an economic development case.

In accordance with ASX and ASIC guidance, the Base Case Production Target over an initial life of 11 years referred to in this announcement is based upon JORC Mineral Resources which are classified as approximately 69% Indicated and 31% Inferred. The Company has concluded that it has reasonable grounds for disclosing this Production Target. This 11-year period covers the full allocation of installed process plant capital investment.

IonicRE confirms that the Base Case financial viability of the Makuutu Rare Earths Project is not dependent on the inclusion of Inferred Resources in the production schedule.

The Company has concluded that it has reasonable grounds for disclosing this Production Target given that the Base Case has been shown to be financially viable.

The Study is based upon material assumptions outlined elsewhere in this announcement. These include assumptions about the availability of funding. While IonicRE considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Study will be achieved.

The Company has concluded it has a reasonable basis for providing forward-looking statements included in this announcement and believes that it has a reasonable basis to expect it will be able to fund the development of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Study.

This announcement contains a series of forward-looking statements. Generally, the words "expect," "potential", "intend", "estimate", "will" and similar expressions identify forward-looking statements. By their very nature forward-looking statements are subject to known and unknown risks and

uncertainties that may cause actual results, performance or achievements, to differ materially from those expressed or implied in any forward-looking statements, which are not guarantees of future performance. Statements in this announcement regarding IonicRE's business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties, such as Mineral Resource estimates, market prices of metals, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, and statements that describe IonicRE's future plans, objectives or goals, including words to the effect that IonicRE or management expects a stated condition or result to occur.

Forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by IonicRE, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made.

IonicRE has concluded it has a reasonable basis for providing these forward-looking statements and believes it has reasonable basis to expect it will be able to fund development of the project. However, a number of factors could cause actual results or expectations to differ materially from the results expressed or implied in the forward-looking statements. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of this study.

The project development schedule assumes the completion of a BFS by the end of Q3 2022. Environmental permitting and development approvals are the main time determining factors to first production, scheduled for the first half of 2024. The key document for the environmental approval process is the Environmental and Social Impact Assessment (ESIA) and this is due to be lodged in Q1 2022. Delays in the environmental approval process or any other development approval could result in a delay to the commencement of construction (planned for early 2023). This could lead to a delay to first production. The Company's stakeholder management and community engagement programs are also intended to increase awareness and communication across the local districts within Uganda to assist with facilitating approvals. Given these factors, the dates are indicative only.

To achieve the range of outcomes indicated in the Scoping Study, pre-production funding of approximately US$89 million will likely be required. Investors should note that there is no certainty that IonicRE will be able to raise that amount of funding when needed. It is also likely that such funding may only be available on terms that may be dilutive to or otherwise affect the value of IonicRE's existing shares.

It is also possible that IonicRE could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce IonicRE's proportionate ownership of the Project. Alternatively, IonicRE could seek to increase its ownership in the Project given the nature of the existing earn-in arrangement to the Project.

It is anticipated that finance will be sourced through a combination of equity from existing shareholders, new equity investment and debt providers. In February 2021, the Company completed a A$12 million share placement of which A$10 million was corner-stoned by highly experienced institutional investors. Further, strong indications of equity support exist from various groups including strategic partner interest and investment houses. The Board considers that the Project cash flows outlined in the Scoping Study are supportive of pre-production debt funding of the Project.

The Board considers that the Company has sufficient cash on hand to undertake the next stage of planned work programs, including the completion of a BFS, continued metallurgical testing, the commencement of further technical studies and ongoing exploration of the project area.

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Makuutu Scoping Study Results

Ionic Rare Earths Limited ("IonicRE" or "the Company") (ASX: IXR) is pleased to announce positive outcomes from the Scoping Study ("Study") completed on its 51% owned Makuutu Rare Earths Project ("Makuutu" or the "Project"), located 120 km east of Kampala, Uganda.

Makuutu is an ionic adsorption clay (IAC) deposit. IAC deposits contain rare earth elements (REE) ionically bonded to the clay rather than existing as primary minerals in the ore. IAC deposits are prevalent in southern China which have been the source of the world's lowest cost critical and heavy REE production. The strategic nature of these resources has been highlighted in recent years, with numerous deposits being exhausted and quotas also introduced to prevent over mining. Makuutu represents one of only a handful of such deposits outside of southern China. As such its strategic importance is becoming increasingly clear.

The Scoping Study outcomes demonstrate the potential for Makuutu to become a sustainable, long-life, relative low capital development cost supplying critical rare earth oxide (CREO[1]) and heavy rare earth oxide (HREO[2]) to global markets, generating strong financial returns while also delivering significant social and economic benefits for the local communities in Uganda.

The Study was completed by IonicRE with input from a group of leading independent consultants.

The Base Case Scoping Study considers open pit mining over an initial 11-year mine life, with the IAC run of mine (ROM) feed to a modular heap leach plant where the REO is recovered from the IAC mineralisation via salt desorption to produce a mixed rare earth carbonate (MREC) product. The Base Case assumes the first module will process 2.5Mtpa ROM and produce approximately 800 tpa rare earth oxide (REO) equivalent product. Additionally, the Base Case then assumes given the low-cost capital modular development approach, additional modules will be added in years 2, 4, 6 and 9 to increase the plant throughput up to 12.5Mtpa by year 10.

KEY SCOPING STUDY HIGHLIGHTS

Base Case – 11 Year mine life based on Indicated Mineral Resources

- The Base Case study delivers a Life of Mine (LOM) **EBITDA of A$1.71 billion (**US$1.28 billion[3]**), Post Tax Free Cash Flow** totalling **~ A$1.02 billion** (US$766 million), **Net Present Value ("NPV_8") (post-tax) of A$428 million (**US$321 million**) and an IRR (post-tax) of 38%,**
- Production of mixed rare earth carbonate via a modular heap leach salt desorption processing plant

[1] CREO = Nd, Eu, Tb, Dy and Y from U.S. Department of Energy, Critical Materials Strategy, December 2011
[2] HREO = Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Y.
[3] A$1.00 = US$0.75

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- First module is 2.5 Mtpa, with additional modules added in years 2, 4, 6 and 9 increasing total ROM throughput to 12.5 Mtpa
- REO anticipated production capacity increases from ~ 800 tpa REO equivalent (Year 1) up to ~ 3800 tpa REO equivalent in year 11

Physical Parameters

- Initial 11-year Production Target of 84.5 Mt @ 810 ppm Total Rare Earths Oxide (TREO) for 68,400t of contained TREO
- Initial 11-year Process Plant Feed comprises 69% Indicated Mineral Resources and 31% Inferred Mineral Resources[4]
- Initial 11-year strip ratio of 0.76
- Initial 11-year TREO production of 29,400 t REO equivalent (~ 45,000 t MREC grading >90% TREO)
- Potential to produce appreciable Scandium Oxide by-product credit (~740 t Sc2O3) over initial 11-year period
- Uniquely Positioned to be a Long-Term Sustainable CREO / HREO Producer
- Makuutu basket to provide balanced CREO and HREO product, which combined makes up approximately 73% of the basket over initial 11-year period, the ideally positioned to benefit in looming inadequacies in CREO and HREO supply
- First production is targeted for early 2024, based on current environmental approvals timeline
- Makuutu Base Case to produce the magnet rare earths (Nd, Pr, Tb and Dy) to enable approximately 35 GW of direct drive gearless offshore wind turbine capacity

Capital Costs & Operating Costs

- Pre-production Capital Expenditure ("CAPEX") (including contingency) of ~US$89 million for Module 1 including mining fleet
- Module 2 expansion in Year 2 for ~US$40 million (including contingency) inclusive of mining, process plant plus infrastructure
- Expansion from 2 to 5 Modules, CAPEX of ~US$172 million funded by project cashflow
- Initial 11-year AISC cash costs of operations of ~US$12.60/t ROM feed
- Initial 11-year AISC cash costs of operations of ~US$36.40/kg REO equivalent produced
- Initial 11-year AISC cash costs of operations of ~US$23.70/kg REO equivalent produced (including Sc2O3 by-product credit)
- Power for the Project to be delivered from low-cost hydroelectric power accessible from 132 kV power transmission corridor running immediately through project tenement

[4] 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.

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Strong Financial Returns

- Post-tax **NPV_8** of ~US$321 million (~A$428 million)[5]
- Post-tax IRR of ~38%
- Post-tax capital payback of ~5 years from first MREC production
- Net Revenue totalling ~US$2.52 billion (~A$3.63 billion)
- Initial 11-year revenue forecast of ~ US$73/kg REO equivalent produced (excluding Scandium) payable
- EBITDA totalling ~US$1.28 billion (~A$1.71 billion)
- Post Tax Free Cash Flow totalling ~ US$766 million (~A$1.02 billion)

Significant Upside Potential

- Base case utilises only 84.5 Mt of the Company's 315 Mt Mineral Resource (refer Table 6)
- Upside identified considering all Mineral Resource Estimate at Makuutu would deliver a significant extension to the Project's LOM
- IonicRE to shortly commence a drilling program to convert further Inferred Resources to Indicted Resource status

Strong Cash Position

- Strong cash position of over A$12 million on 31 March 2021 and A$1.5 million in-the-money options to drive ongoing drilling in parallel with project development work in 2021 and 2022

Commenting on the positive results of the Scoping Study, IonicRE's Managing Director, Mr Tim Harrison said, *"the results reinforce not only the significant strategic value of an ionic adsorption clay deposit like Makuutu and the basket it can potentially produce, but the potential long-life free cash flow generating potential achieved with the modular, low capital intensity development plan and simple operation indicated in the Study."*

"The completion of this Study with its positive project economics represents a critical milestone for the Company. Combining the long life potential, with the low-cost modular capital development and high margin basket potential at Makuutu, confirms the Project as one of the best potential new sources of critical and heavy rare earths in the near term."

"We see this Project as technically and financially robust and eminently financeable, and the Company has received strong expressions of interest from strategic parties interested in accessing Makuutu's unique basket composition that contains approximately 70-75% critical and heavy rare earths. We look forward to advancing this Project expeditiously towards production that will see IonicRE transition from an exploration company to a producer."

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"The style of the deposit should deliver a high margin asset, driven by the near-surface, efficient open pit mining and simple heap leach processing methods. The low capital requirements and simplicity is a clear attribute of the IAC mineralisation and further defines the highly sought after appeal of IAC deposits. The impact of the by-product Sc_2O_3 is substantial, and potential exists in the future stages of the Project to look at generating a higher purity Sc_2O_3 product to enhance the overall Project economics further."

"The Base Case lays a robust foundation for the Project with significant potential to extend the life with increased confidence in the resource at Makuutu. We believe that with additional Project related work programs that have recently been initiated, and utilising proven know-how on the mining and processing of IAC deposits, IonicRE can only improve the overall nature of the Project."

"The outcomes of the Study reinforce our belief that Makuutu is a rare and strategically important Project with a very robust business case and scope for significant growth. We are very happy with the progress achieved since acquiring our initial interest in Makuutu in August 2019, and we are excited by the direction the Project is taking. We now move formally towards the BFS which we plan to complete by Q3 2022, prior to submitting the Mining Licence in October 2022 that will allow us to make a Final Investment Decision with a low capital development threshold, and capable of generating strong shareholder returns over a long-life operation at Makuutu."

"The Project is presently 51% owned by IonicRE, and as previously indicated in November the board of directors of IonicRE unanimously agreed to advance to the BFS which has now commenced. The completion of the BFS will increase our ownership to a 60% Project interest. IonicRE also has the right to negotiate and purchase the final 40% ownership if mutually agreeable."

"The potential to develop the asset to encompass ESG initiatives has also been highlighted in the Study, and work programs have also been initiated to deliver an ESIA, Stakeholder Engagement Plans and Socio-Economic Baseline Study that can help IonicRE identify suitable community engagement plans to help leave a positive lasting footprint in the Makuutu area."

"The carbon footprint of the Project has been assessed to be low, with the added benefit of producing the raw materials, the critical magnet elements Nd, Pr, Dy and Tb required to produce approximately 90 GW of offshore wind turbine capacity over the potential life defined by the existing Mineral Resource Estimate at Makuutu."

"The forecast shortfall in critical and heavy rare earths sees the forecast pricing start to increase dramatically from 2029 onwards, if not before. The REO forecasts prices adopted reflect the most recent pricing estimates available at this time considering the recent Export Control Ban laws within China, and the long-term impact may be significantly higher. The Base Case considers a scenario that sees the forecast basket pricing for Makuutu increasing to US$118/kg by 2030 driven by insatiable demand for rare earth magnet elements to meet ambitious electric vehicle and global wind turbine targets."

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Scoping Study Summary

This Study provides an initial analysis of the economic parameters on the development of the Makuutu Rare Earths Project, with the economic highlights of the Makuutu Rare Earths Project provided in Table 1. The Study has been completed to an accuracy of +/- 50%.

All currency amounts in this Study are US$ otherwise stated.

Table 1: Makuutu Rare Earths Project Base Case economics, Years 0 to 11.

Parameter	Unit	Nominated	Range
YEARS 0 – 11	Years	11	
YEARS 0 - 11 Production Target	tonnes, dry	84,500,000	
YEARS 0 - 11 Waste	tonnes, dry	64,600,000	
YEARS 0 - 11 Strip Ratio		0.76	
YEARS 0 - 11 TREO Head Grade	Ppm	810	
Total REO Feed	tonnes	68,400	
Total REO Production	tonnes	29,400	
Average REO Production	tonnes / annum	2,680	
YEARS 0 - 11 Sc_2O_3 Head Grade	Ppm	30	
Total Sc_2O_3 Feed	tonnes	2,480	
Total Sc_2O_3 Production	tonnes	740	
Average Sc_2O_3 Production	tonnes / annum	70	
Total YEARS 0 - 11 Revenue	US$M	$2,522	
REO Revenue, YEARS 0 - 11	US$M	$2,151	
Sc_2O_3 Revenue, YEARS 0 - 11	US$M	$371	
REO Revenue (excl Sc_2O_3)	US$ / tonne Plant Feed	$25.40	
REO Revenue (excl Sc_2O_3)	US$ / kg REO	$73.20	
Total YEARS 0 - 11 OPEX	US$M	$1,069	
OPEX, average	US$ M/ annum	$97	
OPEX, average	US$ / tonne Plant Feed	$12.60	
OPEX, average	US$ / kg REO	$36.30	
OPEX, average less Sc_2O_3 credit	US$ / kg REO	$23.70	
CAPEX, pre-production	US$M	$89	$80 to $97
CAPEX, expansion (from cash flow)	US$M	$212	$191 to $233
EBITDA	US$M	$1,281	$1,030 to $1,530
Free Cash Flow (Post Tax)	US$M	$766	$630 to $951
Net Present Value (Post Tax)			
NPV_8	US$M	$321	$248 to $421
IRR	%	37.6%	34% to 48%
Payback	Years	5	5
Taxes and Royalties Paid in Uganda	US$M	$399	

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Table 2: Base Case Financial Model Assumptions

Parameter	Unit	Value
REO Payability	%	70%
Sc_2O_3 Payability	%	70%
Mixed Rare Earth Carbonate (MREC) grade	% REO	> 90% REO
REO Pricing		
Year 1 - 2024	US$/kg	$60.50
Year 2 – 2025	US$/kg	$68.69
Year 3 – 2026	US$/kg	$56.45
Year 4 – 2027	US$/kg	$58.68
Year 5 – 2028	US$/kg	$69.96
Year 6 – 2029	US$/kg	$82.64
Year 7 – 2030 and onwards	US$/kg	$118.88
Sc_2O_3 Pricing		
< 25 tpa	US$/kg	$800/kg
> 30 tpa	US$/kg	$700/kg
Exchange Rate	AUD : USD	0.75
Debt Allocation (Pre-production capital)	%	60%
Debt Interest Rate	%	8%
Debt Finance Period	Years	5
Uganda Corporate Taxation Rate	%	30%
Royalties	%	5%
Discount Rate – Real	%	8%
Depreciation		
Year 1	%	50%
Year 2	%	30%
Year 3	%	20%

The Mine Plan was developed to prioritise Indicated Resources into the mining and processing schedule. Over the first 11 years of mining and processing operations at Makuutu, a Mineral Resource inventory of 84.5 Million tonnes is proposed to be mined and processed.

The modular development strategy that has been nominated in the Study will look to initially develop the first 2.5 Million Tonnes per annum ("Mtpa") module with an additional module added in Year 2. Beyond this continued increases to the overall project throughput is to de delivered by additional processing modules being added in Years 4, 6 and 9. This will see the asset increase the Process plant throughput up to 12.5 Mtpa, producing up to 3,800 tpa of REO equivalent production in Years 10 and 11.

This proposed mining and processing plan represents a split of 69% Indicated Resource and 31% Inferred Resource[6] which is illustrated in Figure 1, showing the distribution over the nominated years,

[6] 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.

with the mining and plant feed tonnage prioritised with Indicated Mineral Resource early in the schedule. Also illustrated in Figure 1 is the annual total mining rate that has been used in the Study, which has been smoothed to ensure the fleet requirements are best optimised.

The proposed REO production profile is illustrated in Figure 2, showing the increase in REO equivalent production as additional modules are brought into operation at Makuutu.

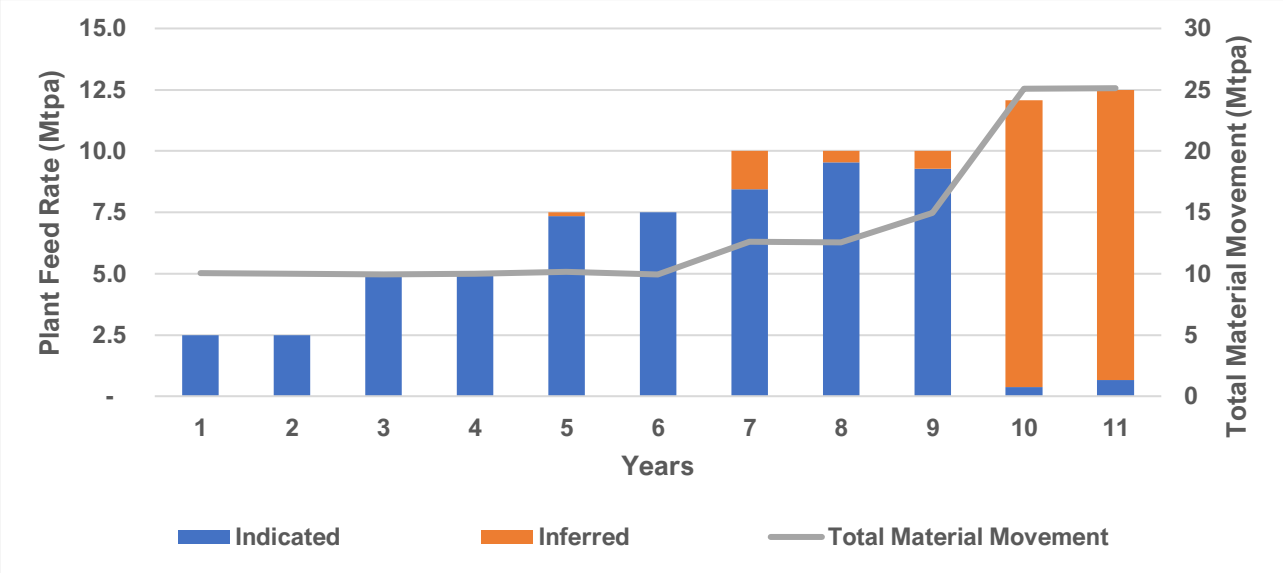

Figure 1: Mining and plant processing plan for Years 0 to 11.

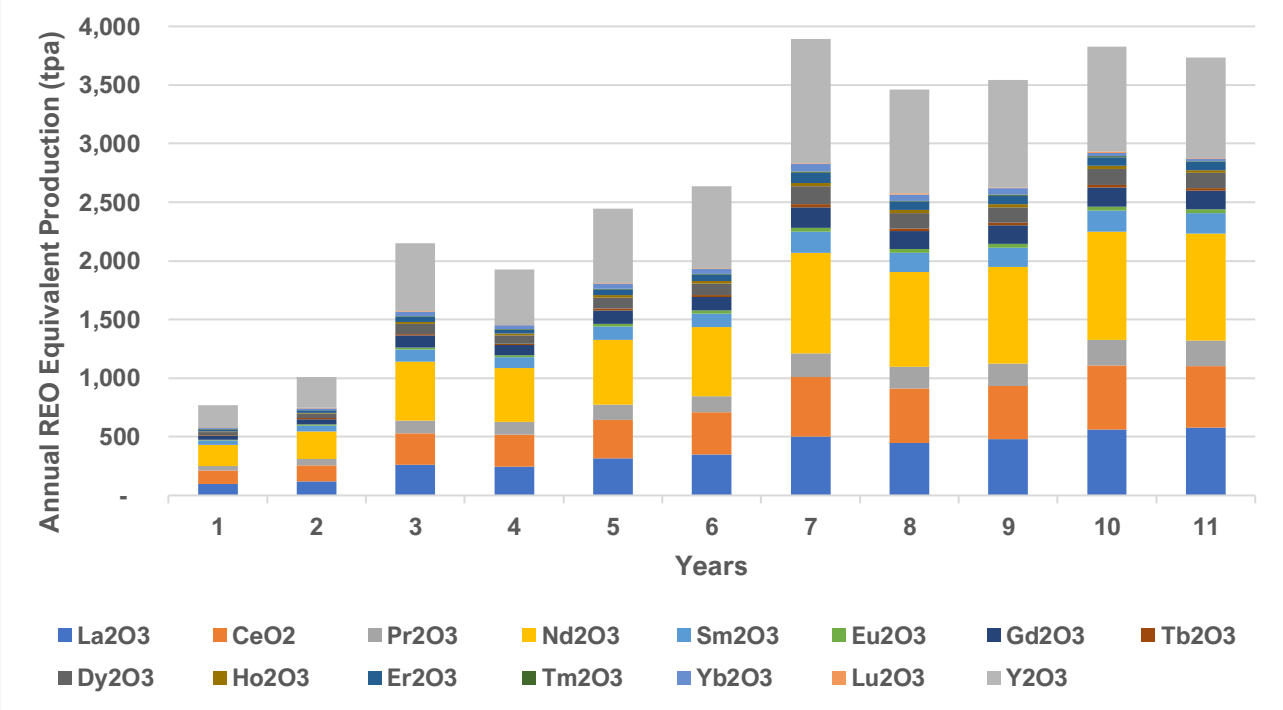

Figure 2: Annual REO production profile from Makuutu across Years 0 to 11.

The capital development profile for Makuutu reflects the staged modular expansion strategy showing the capital investment that is made across the first 10 years of the Project. This modular expansion strategy allows modest upfront pre-production capital requirements (including contingency) of approximately US$89 million. The addition of further process modules is clearly illustrated in Figure 3, which shows the staged capital investment at Makuutu with a further US$212 million spent over Years 2 to 9 to ramp up the mining rate to 25 Mtpa and the process plant throughput up to 12.5 Mtpa. This staged capital investment is expected to be financed from operating cash flows, alleviating the need to seek debt or equity financing above that required for pre-production capital. A breakdown is provided in Table 3.

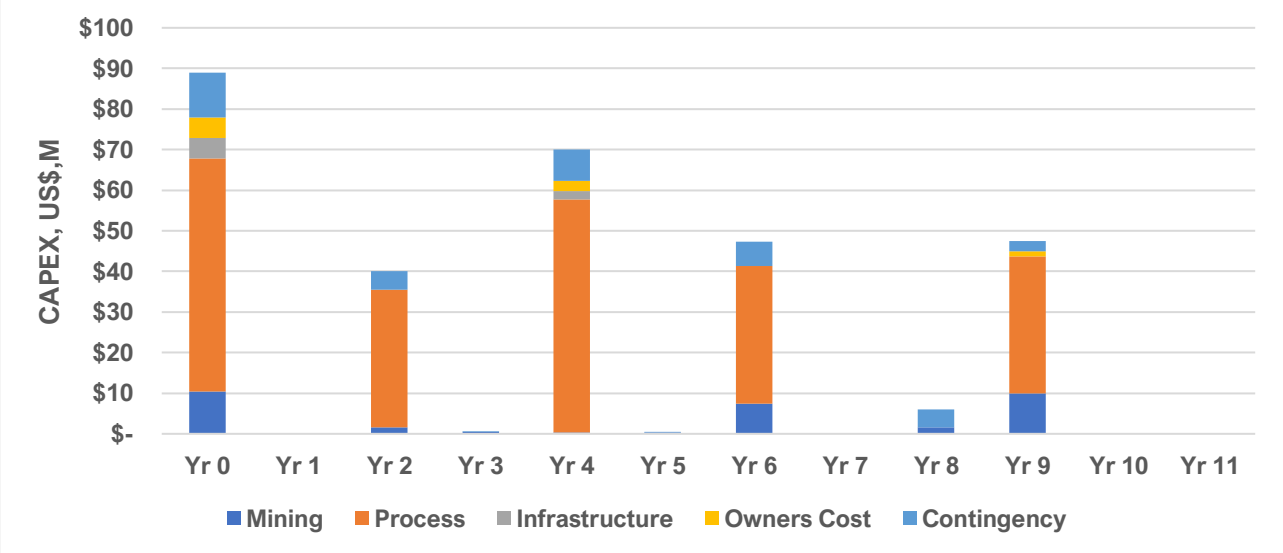

Figure 3: Makuutu CAPEX development profile from Years 0 to 11.

Table 3: Makuutu CAPEX breakdown (in US$M) over Years 0 to 11.

Breakdown	Total	Yr 0	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 8	Yr 9
Mining	$32.2	$10.4	$1.7	$0.5	$0.3	$0.3	$7.5	$1.5	$9.9
Process	$216.3	$57.5	$33.8	-	$57.5	-	$33.8	-	$33.8
Infrastructure	$7.00	$5.0	-	-	$2.0	-	-	-	-
Owners Cost	$8.8	$5.0	-	-	$2.5	-	-	-	$1.3
Contingency	$36.7	$11.1	$4.6	$0.1	$7.8	$0.1	$6.0	$4.5	$2.5
Total, US$M	**$301**	**$89**	**$40.0**	**$0.7**	**$ 70.1**	**$0.4**	**$47.3**	**$6.1**	**$ 47.5**

Note that the above table includes rounding.

The operating cost estimate was developed from a bottom-up approach. Mining cost is approximately US$5 per tonne ROM, inclusive of waste costs. Processing costs combine to US$6.71 per tonne ROM with General and Administration costs totalling on average US$0.91 per tonne ROM. The OPEX breakdown is provided in Table 4.

Table 4: OPEX cost breakdown into the major operational areas for Years 0 to 11.

OPEX Breakdown	Years 0 to 11 OPEX US$M	Years 0 to 11 Average Annual OPEX, US$	Years 0 to 11 Average OPEX, US$/kg REO	Years 0 to 11 Average OPEX, US$/tonne ROM
Mining	$422	$38.4	$14.36	$4.99
Process	$567	$51.6	$19.30	$6.71
G&A	$77	$7.0	$2.61	$0.91
Total, US$	**$1,066**	**$97.0**	**$36.27**	**$12.62**

Note that the above table includes rounding.

Rare Earth pricing basis was developed based upon the Makuutu basket composition forecast to be produced over the life of the asset using Argus Metals Analytics pricing forecast data. The pricing basis is the first to adopt the net impact of recent changes to China's export control with respect to CREO and HREO supply. Makuutu is likely to be a key beneficiary of such policy given its unique basket derived from its IAC mineralisation.

The Makuutu basket, which consist of approximately 33% magnet REE (Nd, Pr, Dy and Tb) is highly leveraged to the deployment of permanent magnets in electric vehicle (EVs) and wind turbines. Additionally, the forecast shortfall in CREO and HREO supply, which makes up approximately 73% of the basket, is likely to have a substantial impact on long term basket prices at Makuutu.

Makuutu product basket, as a MREC, typically attracts a 70% payability which reflects the high purity and chemical precipitate nature of the intermediate product produced. As a chemical precipitate, no REE mineral 'cracking' is required. This is a distinct advantage of the IAC mineralisation over hard rock REE mineral concentrates, and as such attracts a higher payability.

Further exploring the potential fluctuation on REO pricing, a low and high REO pricing scenario were released by Argus, which has been used to calculate Makuutu basket product pricing provided in Table 5 and illustrated in Figure 4.

Table 5: Rare Earth Oxide pricing forecast applied (Argus Metal Analytics 26th March 2021).

REO		2024	2025	2026	2027	2028	2029	2030
Forecast Low	US$/kg	$60.05	$65.35	$52.41	$52.16	$58.15	$62.20	$73.01
Base Case	US$/kg	$60.50	$68.69	$56.45	$58.68	$69.96	$82.64	$118.88
Forecast High	US$/kg	$62.91	$74.50	$60.48	$64.65	$79.66	$105.30	$203.90

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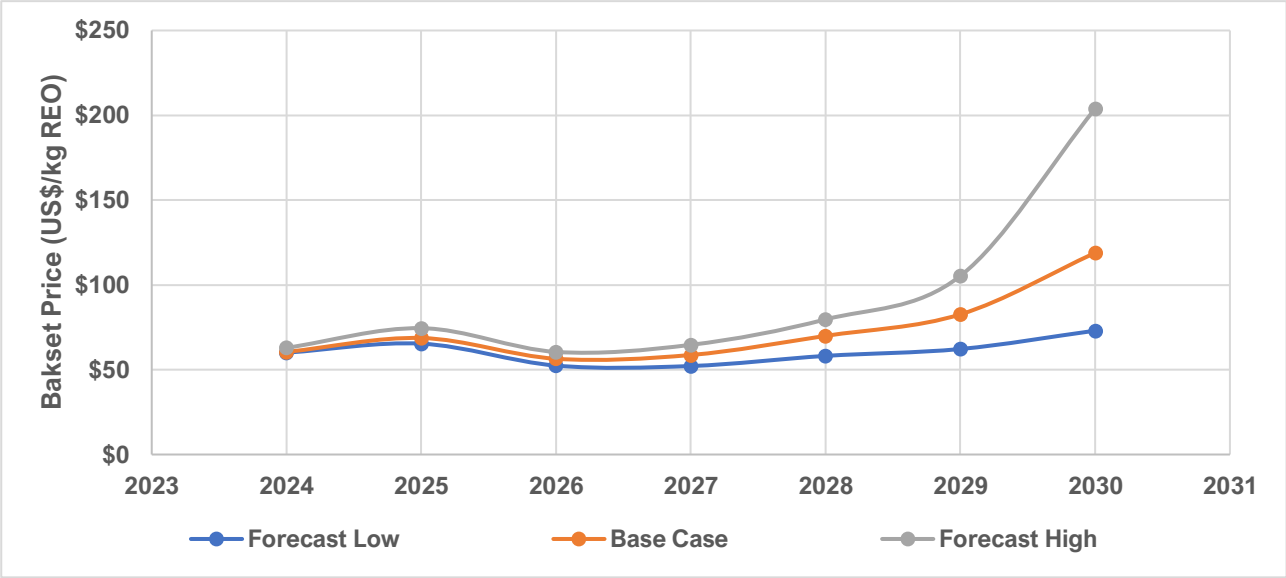

Figure 4: Forecast Makuutu REO basket pricing. Prices from 2030 adopted for the LOM onwards.

Sc2O3 pricing applied to the Study reflects a sliding pricing basis that considers initial pricing up to 25 tonnes of anticipated product per annum for US$800 per kg with long term pricing basis being US$700 per kg for 30+ tonnes of anticipated product per annum. A payability of 70% has been applied to the Sc2O3 product sold with the MREC Makuutu product.

The sensitivity analysis completed on the Study demonstrated that the Project is primarily sensitive to fluctuation in operating cost, and highly leveraged to metallurgical recovery and REO pricing, as illustrated in Figure 5.

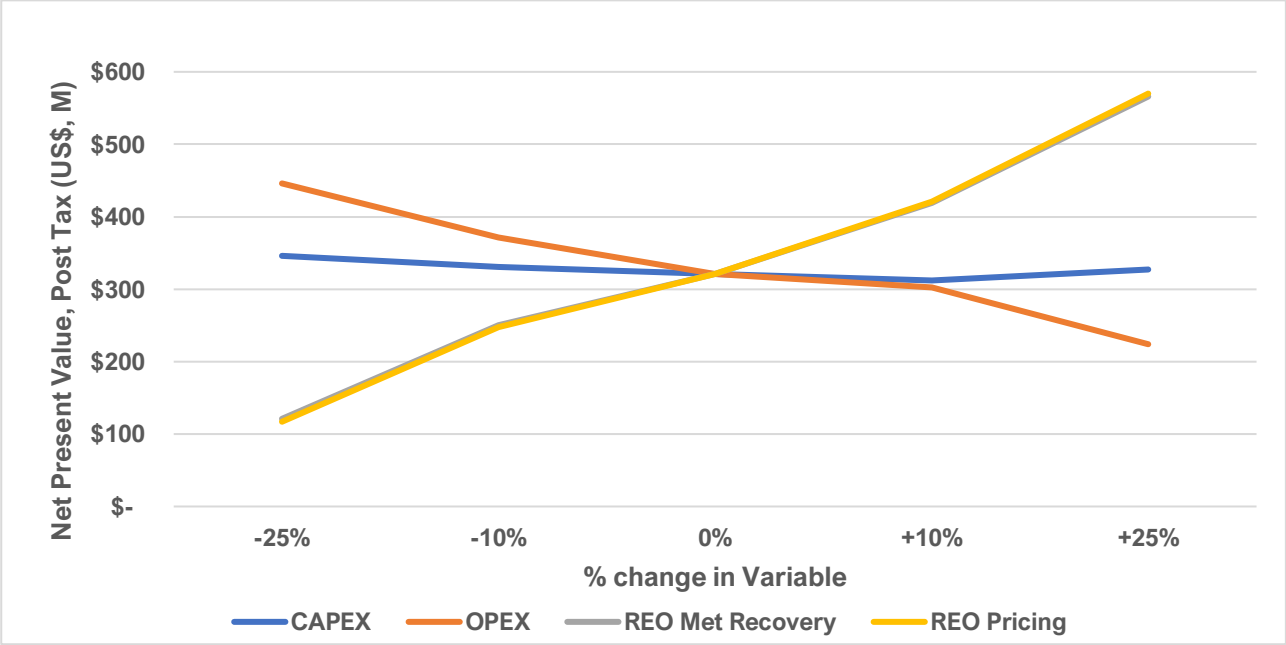

Figure 5: Post-tax NPV_8 sensitivity to +/-25% change in key inputs used for the Study

Upside Case

An additional Upside Case has been identified to include the remaining Inferred Resources from Makuutu. This case has the potential to extend the life of the asset out to 27 years based upon the current estimated Mineral Resource at this time. The Upside Case demonstrated the long-term however additional confidence in the Inferred Resource was deemed required to permit this scenario to be reported.

Project Overview

IonicRE is the 51% owner of Rwenzori Rare Metals Limited (RRM), a Uganda registered private limited company, which is investigating the development of the Makuutu Rare Earths Project located 120 km east of Kampala, Uganda. RRM owns 100% of the Makuutu Rare Earths Project.

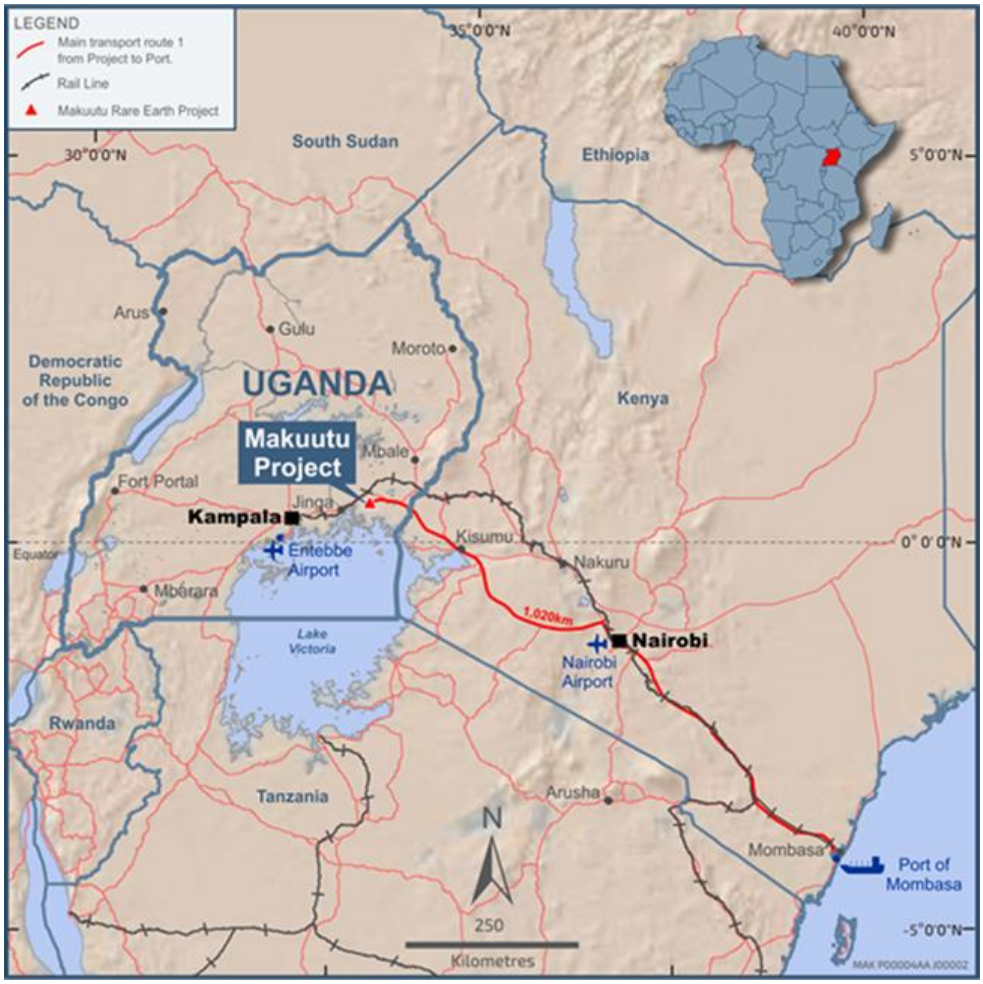

Figure 6: Map of Uganda showing location of the Makuutu Rare Earths Project.

The Makuutu Rare Earths Project is an IAC hosted REE deposit well serviced by existing high quality infrastructure including roads, rail, power infrastructure and cell communications. The installed infrastructure is illustrated in Figure 7.

The current resource is identified over a 20 km length. The potentially mineralised basin is 37km in length and has demonstrated potential for a long-life, low-cost capital source of critical and heavy

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rare earths. These IAC deposits are prevalent in southern China which have been the source of the world's lowest cost critical and heavy REE production, however these deposits are gradually being exhausted and Makuutu represents one of only a handful of such deposits outside of southern China.

The Makuutu deposit is shallow, with less than 3 m of cover over a 9 m average thickness clay and saprolite zone which results in low-cost bulk mining methods with low strip ratio. A maximum thickness of 19.5 m has been identified at Makuutu. Processing is via simple acidified salt desorption heap leaching, breaking the chemical ionic bond which washes the rare earths (in a chemical form) from the plant feed into a pregnant leach solution (PLS). The PLS is concentrated up using membrane technology, from which the rare earths are precipitated as a mixed rare earth carbonate product; a product which attracts both a higher payability and achieves a high basket price due to the dominant high value critical and heavy rare earths which make up over 70% of the product basket.

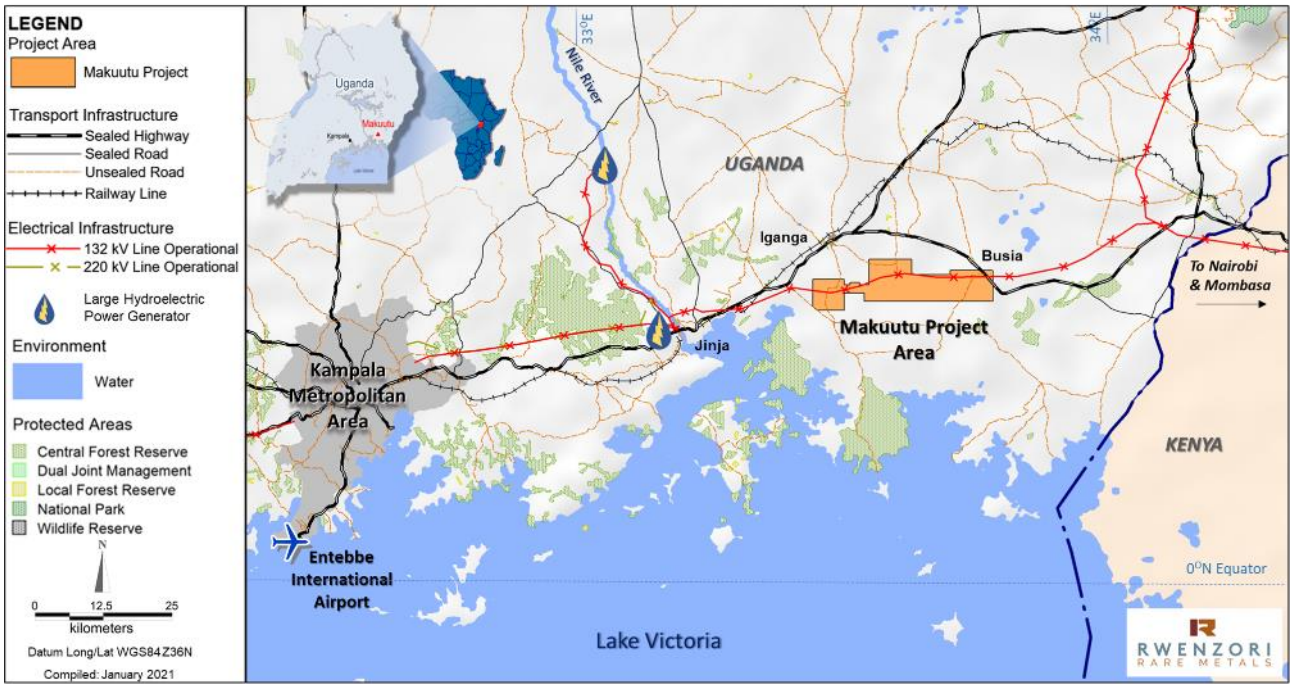

Figure 7: Makuutu Rare Earths Project tenements located within 120km of Kampala, Uganda.

The Project has the potential of generating a high margin product with a Base Case operation life of 11 years identified in the Study, and potential to extend beyond 27 years. The Project is also prospective for a low-cost Scandium co-product.

IonicRE has collaborated with the other shareholders of RRM in preparing the Study, which has also included packages completed by independent consultants to complete the Scoping Study.

This report has been prepared by IonicRE based upon a review of project specific information including geological reports, maps, assessment files, retention and exploration licences, technical papers and spreadsheets, publicly available reports and data generated by RRM and IonicRE over the past 3 years.

IonicRE has coordinated a group of leading industry consultants during over the past 12 months to complete technical and commercial studies into the project in support of the Scoping Study. Contributing consultants include;

- Community Engagement: Atacama Consulting Ltd (Uganda)
- Geological Management and Studies: GJ Exploration Pty Ltd (Australia)
- Environment and Community: Environment Plus Pty Ltd (Australia)
- Environmental and Social Impact: JBN Consults and Planners Ltd (Uganda)
- Membrane Technology Plant Design: Chimerical Technology (Pty) Ltd (South Africa)
- Metallurgical Testwork: ALS Metallurgy (Australia)
- Mineral Resource Estimation: Cube Consulting Pty Ltd (Australia)
- Mine Planning: Libertas Infinity Pty Ltd (Australia)
- Mine Capital and Operating Estimation: ADT Africa, Kampala (Uganda)
- Process Plant Design and Capital Estimation: NewPro Consulting Pty Ltd (Australia)
- Technical Field Services: Benzu Minerals Ltd (South Africa)

The Makuutu Rare Earths Project has been explored since 2012. RRM and its shareholders have completed all exploration works on the Project, which includes Retention Licences RL 1693 (Makuutu Central), RL 00007 (Makuutu West) and Exploration Licence EL 1766. In October 2020, RRM applied for two additional tenements, Explorations Licences EL 00147 and EL 00148 which now extend the potential mineralisation up to 37 km long as defined by eU/eTh radiometric anomalies. The tenements are illustrated in more detail in Figure 8.

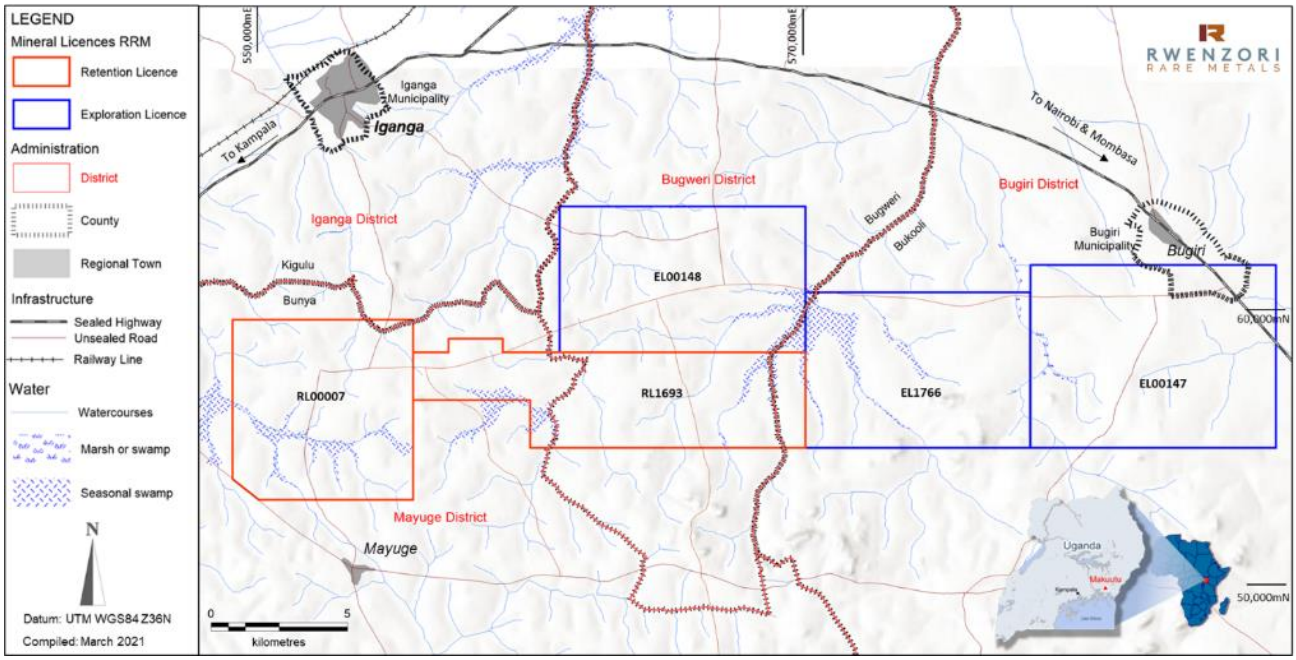

Figure 8: Makuutu Rare Earths Project Mineral Licences and administrative sectors.

Since August 2019, IonicRE has funded exploration and project development activities which has included nearly 5,000 completed meters of core drilling across three (3) of the five (5) licences, initial metallurgical variability and optimisation testwork, mine planning and process design estimation.

Mineralisation at Makuutu comprises REE bearing IAC, otherwise known as weathered crust elution deposited rare earth ores. These deposit types are prevalent in southern China and represent the world's major source (greater than 95%) of HREO production. Figure 9 provides a comparison of the advantages of IAC deposits compared to hard rock REE mineralisation, which has provided China a strategic basis to dominate CREO and HREO supply.

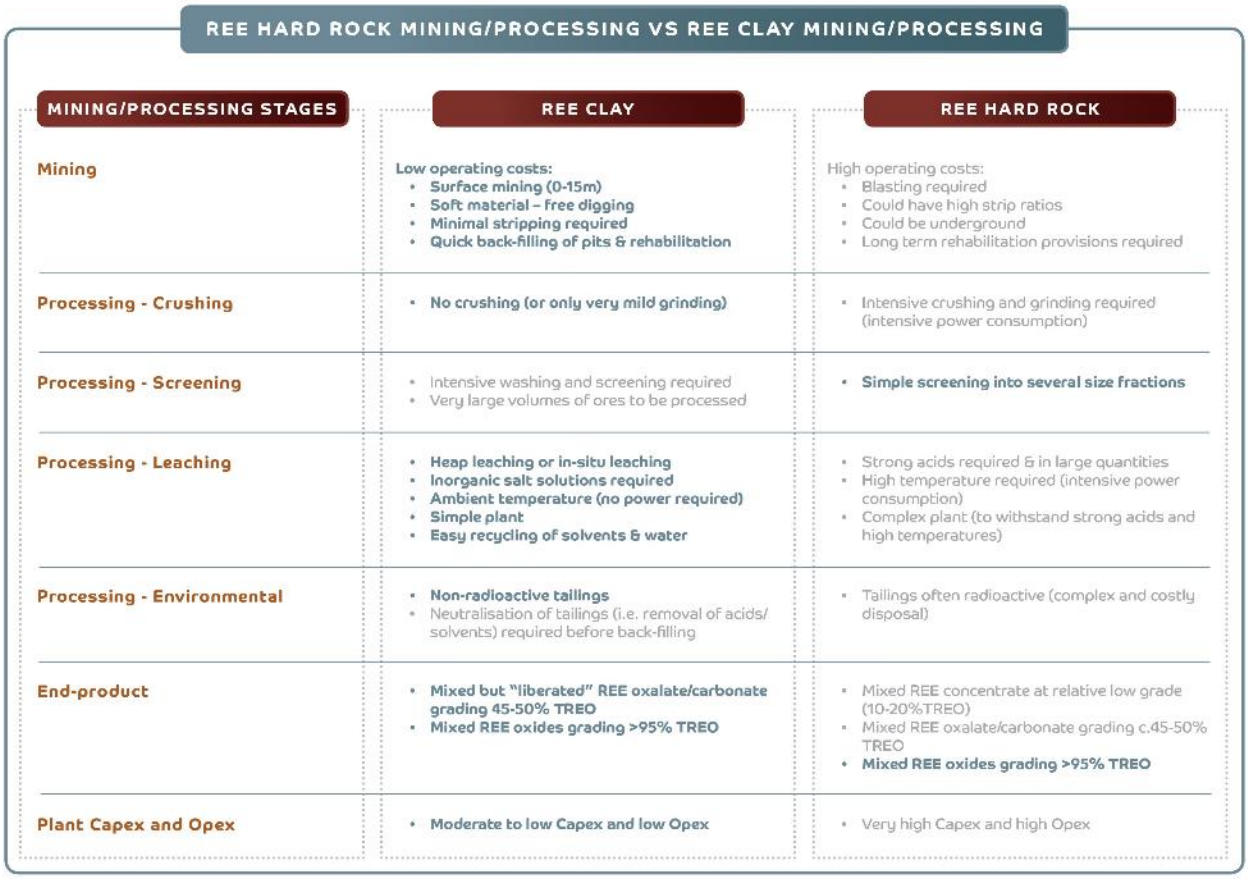

Figure 9: Comparison of IAC to hard rock REE mineralisation types and how the project.

IAC deposits are known for their simple low capital processing arrangements. REE adsorbed onto clays are simply desorbed using an ion-exchange-based elution process with eluants such as sodium chloride or ammonium sulfate. Current practice in China is to use in-situ or heap leaching methods, which produces >95% of the existing global HREO supply.

The concept identified for the Makuutu Rare Earths Project is a low CAPEX simple process arrangement. Figure 10 provides a high-level view of the processing steps required in treating IAC ores relative to the complicated and capital-intensive hard rock mineral REE process flowsheets.

Makuutu will process IAC feed via a modular heap leach arrangement to firstly extract the REE from the clay, then concentrate the REE in solution using membranes prior to a precipitation circuit to make a MREC. The MREC, being an intermediate chemical precipitate, is highly desirable product free of radionuclides, attracts a significant premium over REE mineral concentrates.

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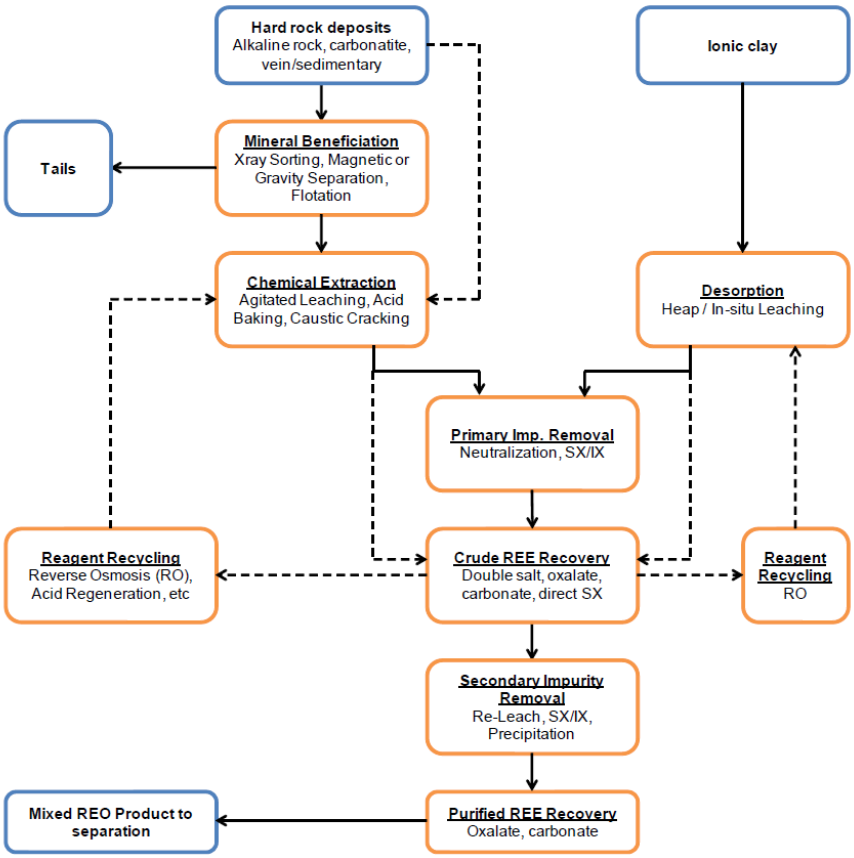

Figure 10: Generic conceptual REE process flowsheet options[7] for major sources of REE mineralisation.

Geology

The local geology interpretation of the Makuutu area has been compiled by RRM from the country wide airborne radiometric and magnetic survey imaging, ground gravity survey data, geological field observations, pitting and drilling. Specific litho-chemical evaluation of the rock types has been limited to REE-enriched regolith areas and the rock type nomenclature surrounding the Project area has been derived from the 1:1,000,000 mapping conducted by the Geological Survey of Finland (GTK).

Figure 11 is a geological interpretation of the Makuutu area showing the interpreted sedimentary basin, potentially of Karoo age, that hosts the Makuutu REE deposit overlying the Neoarchaean basement rocks.

The Makuutu deposit is interpreted to be an IAC-type REE deposit similar to those in southern China, Myanmar, Madagascar, Chile and Brazil. IAC REE mineralisation can be summarised as REEs that are mainly adsorbed onto the surfaces of clay minerals in the form of hydrated ions or hydroxyl-hydrated ions. These REE deposits are hosted within the regolith (laterite profile).

[7] N. Verbaan, et al, A review of hydrometallurgical flowsheets considered in current REE projects, SGS Lakefield, 2014.

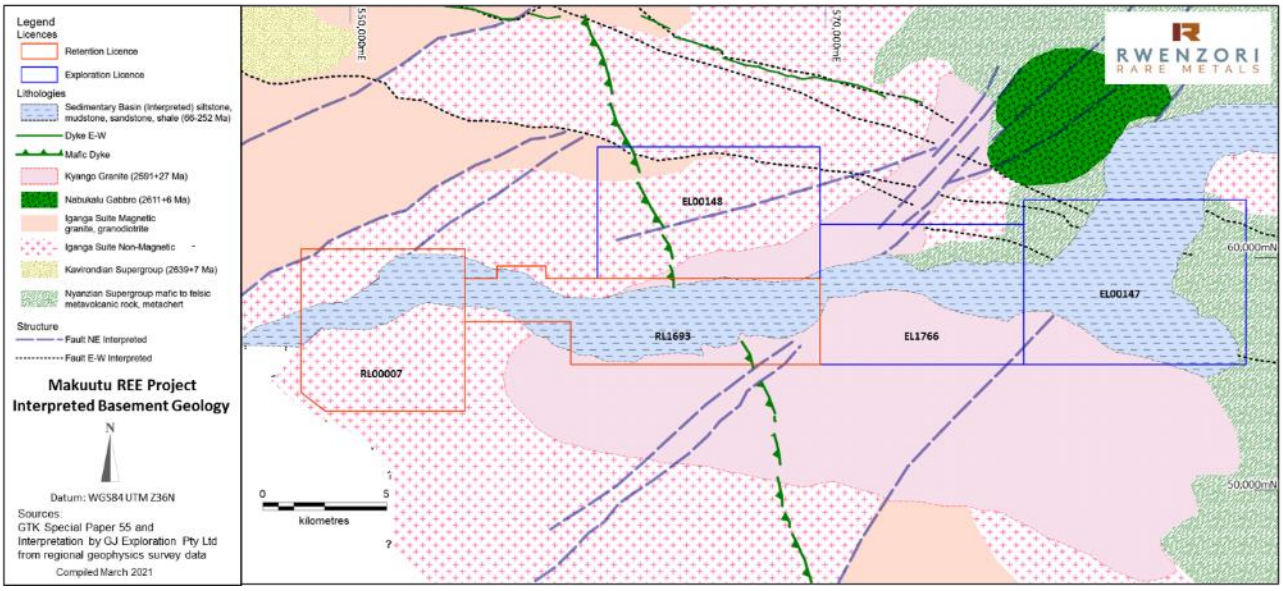

Figure 11: Interpreted Project Geology – Sedimentary Basin on Basement Rocks.

At Makuutu, the mineralisation is contained within the tropical lateritic weathering profile of a basin filled with sedimentary rocks including shales, mudstones and sandstones potentially derived from the surrounding granitic and mafic rocks. These rocks are considered the original source of the REE which were then accumulated in the sediments of the basin as the surrounding rocks have degraded. These sediments then form the protolith that was subjected to prolonged tropical weathering.

The weathering developed a lateritic regolith with a surface indurated hardcap, followed downward by clay rich zones that grade down through saprolite and saprock to unweathered sediments as illustrated in Figure 12. The thickness of the regolith is between 10 and 20 metres from surface.

The REE mineralisation is concentrated in the weathered profile where it has dissolved from its primary mineral form, such as monazite and xenotime, then ionically bonded (adsorbed) or colloidally bonded on to fine particles of aluminosilicate clays (e.g., kaolinite, illite, smectite). The adsorbed and colloidal REE is the target for extraction and production of REO at Makuutu.

At Makuutu the top of the mineralised zone is defined by a thin surficial soil/hardcap zone that averages 3 m in thickness (cover zone). The base of the mineralised zone is defined by the top of the saprock/fresh rock boundary which extends to an average vertical depth of 9.0 m (Clay zone).

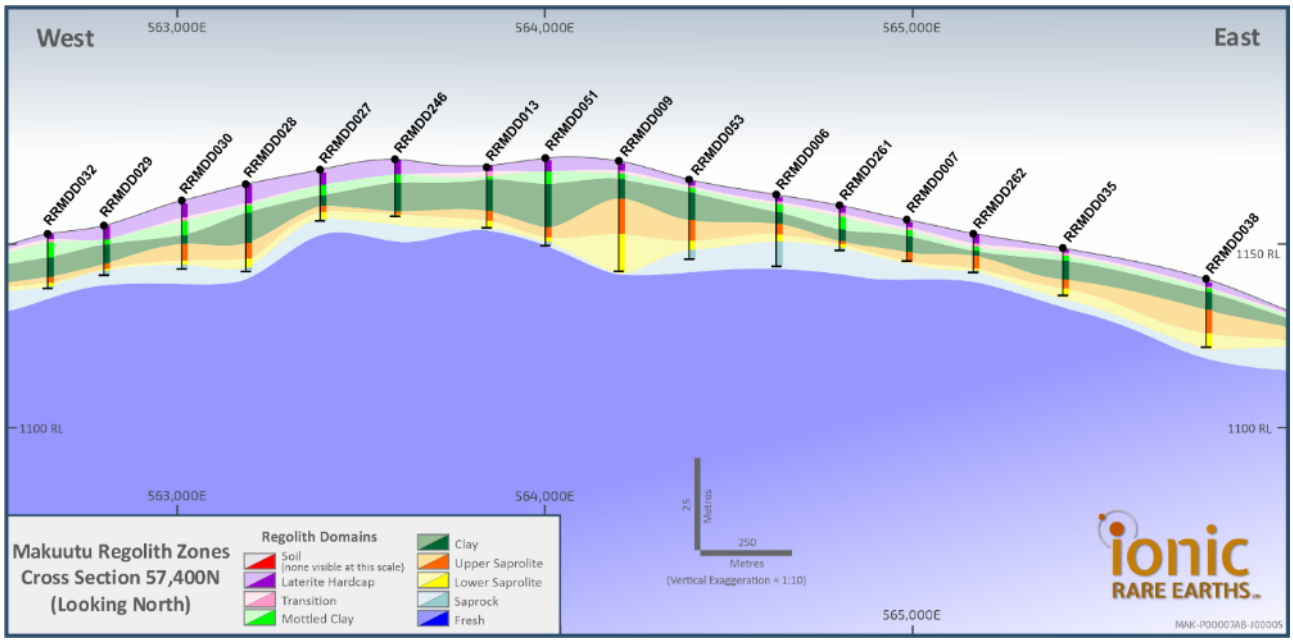

Figure 12: Cross Section 57,400N (Looking North) Regolith Zonation (10x vertical exaggeration).

Drilling

Three types of drilling have been conducted on the project area. Initial drilling focussed on open hole Rotary Air Blast (RAB) drilling with subsequent programs principally using diamond core drilling. Resource definition core drilling commenced in October 2019 initially on a 400-metre x 400-metre pattern over the Makuutu Central Zone (RL 1693) where previously RAB drilling identified the thickest and highest-grade clay hosted REE mineralisation. Since then, drilling has been completed across both the Makuutu Eastern Zone (EL 1766) and Makuutu Western Zone (RL 00007).

Drilling completed by RRM and incorporated in the study has totalled 279 holes for 4,737 metres HQ triple tube (HQ3) sized vertical holes designed to provide high quality samples at an appropriate drill spacing to estimate a JORC compliant Mineral Resource Estimate (MRE) and for detailed metallurgical extraction testwork.

The Phase 2 program drilling was concluded on 18 October 2020 with 3,985 metres from 233 drill holes completed including:

- 65 infill drill holes on 200 metre grid spacing on the Makuutu Central Zone MRE area;
- 11 infill drill holes on 100 metre grid spacing on the Makuutu Central Zone MRE area;
- 64 resource expansion holes on 400 metre grid spacing on RL1693;
- 68 resource expansion holes on 400 metre grid spacing on EL1766; and
- 25 resource expansion holes on 400 metre grid spacing on RL0007.

Figure 13 shows the completed hole locations for all core drilling on the Project from 2017 as at commencement of March 2021.

All diamond core drilling has been conducted by ADT Uganda supplying manned drill rigs and support equipment. Geological logging and sampling has been conducted by contract field staff supplied by Benzu Minerals SA including local Ugandan and expat team members, with support also provided from DGSM geologists.

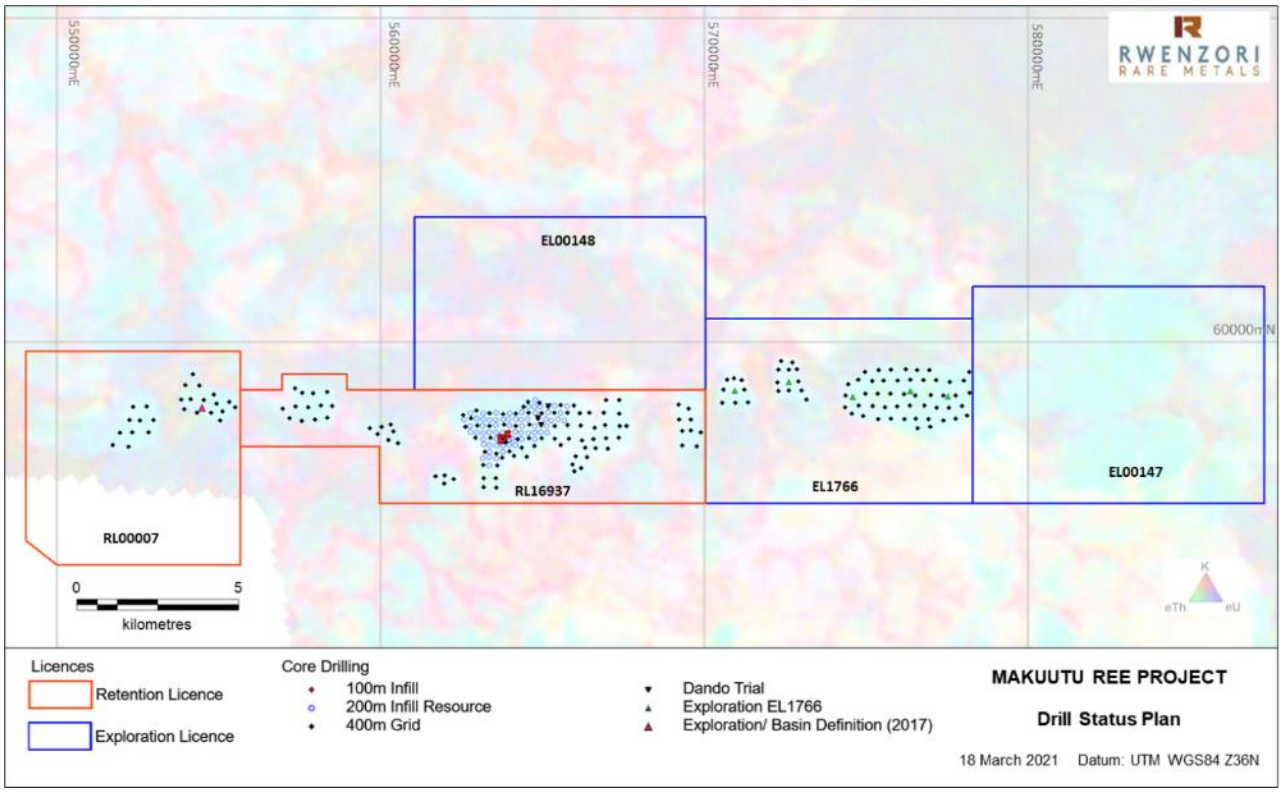

Figure 13: Core Drilling Hole Locations at March 2021.

Mineral Resource Estimation

Cube Consulting Pty Ltd (Cube) were engaged by RRM through IonicRE after the completion and reporting of the Phase 2 drill program in February 2021, to provide a JORC 2012 Mineral Resource Estimate (MRE).

Estimation domains were based on grouping of the regolith domains into five zones as defined by regolith rheology, and by comparison of regolith statistics:

- Domain 1,2,3 – Cover zone (Soil, Hardcap and Transition regolith zones)
- Domain 4 – Mottled zone (Mottled regolith zone)
- Domain 5 – Clay zone (Clay regolith zone)
- Domain 6,7 – Saprolite zone (Upper and Lower Saprolite regolith zones)
- Domain 8,9 – Basement zone (Saprock and Fresh Rock regolith zones)

A total of 15 REE grade attributes (Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu), the associated element Sc, and 2 deleterious elements (U, and Th) were estimated. Final estimated values are converted to stoichiometric oxide values by calculation using published ratios to support reporting of REO. The grade estimation process was completed using Ordinary Kriging (OK) together

with dynamic anisotropy to guide the grade interpolation parallel to the regolith boundaries. For estimation domains with insufficient sample data a variogram model from a comparable domain was assigned.

Classification of the Makuutu MRE was completed with definitions from the Australian JORC Code (2012) with consideration of the following criteria:

- Resource drilling – the confidence in the interpretation boundaries and related mineralisation volumes related to the number, spacing, and orientation of the available drilling.
- Continuity modelling – the spatial continuity of respective domains based on variogram analysis.
- Estimation quality – the assessment of key estimation output statistics including slope of regression and average distance to samples.
- Validation results – the consideration of how well the underlying domain data is reflected in the estimated blocks as assessed by statistics globally and trend plots locally.

Based on this, the reported resource includes both Indicated and Inferred resources provided in Table 6, and the Mineral Resource Estimate is as illustrated in Figure 14. Reported resources are limited to the regolith domains 4 to 7 only. Cover and basement mineralisation is excluded.

Table 6: Makuutu REE Mineral Resource Statement (ASX: 3 March 2021) (above 200 ppm TREO minus CeO_2 cut-off).

Classification	Tonnes (Mt)	TREO (ppm)	TREO minus CeO_2 (ppm)	Sc_2O_3 (ppm)	U_3O_8 (ppm)	ThO_2 (ppm)
Indicated	66	820	570	30	20	30
Inferred	248	610	410	30	10	20
Total	**315**	**650**	**440**	**30**	**10**	**30**

Notes; Tonnes are dry tonnes rounded to the nearest 1Mt.
All ppm rounded from original estimate to the nearest 10 ppm which may lead to differences in averages.
TREO = Total Rare Earth Oxide

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Table 7: Makuutu REE Mineral Resource Statement by Prospect (3 March 2021) (above 200 ppm TREO minus CeO_2 cut-off).

Classification	Indicated Resource			Inferred Resource			Total Resource		
Area	Tonnes (millions)	TREO (ppm)	TREO-CeO_2 (ppm)	Tonnes (millions)	TREO (ppm)	TREO-CeO_2 (ppm)	Tonnes (millions)	TREO (ppm)	TREO-CeO_2 (ppm)
Central Zone	66	820	570	51	730	500	118	780	540
A				12	570	390	12	570	390
B				25	410	280	25	410	280
C				-	-	-	-	-	-
D				6	560	400	6	560	400
E				-	-	-	-	-	-
Central Zone East				37	740	520	37	740	520
F				11	570	390	11	570	390
G				6	660	450	6	660	450
H				4	780	560	4	780	560
I				96	550	350	96	550	350
Total Resource	**66**	**820**	**570**	**248**	**610**	**410**	**315**	**650**	**440**

Notes; Tonnes are dry tonnes rounded to the nearest 1.0Mt.
All ppm rounded from original estimate to the nearest 10 ppm which may lead to differences in averages.
TREO = Total Rare Earth Oxide

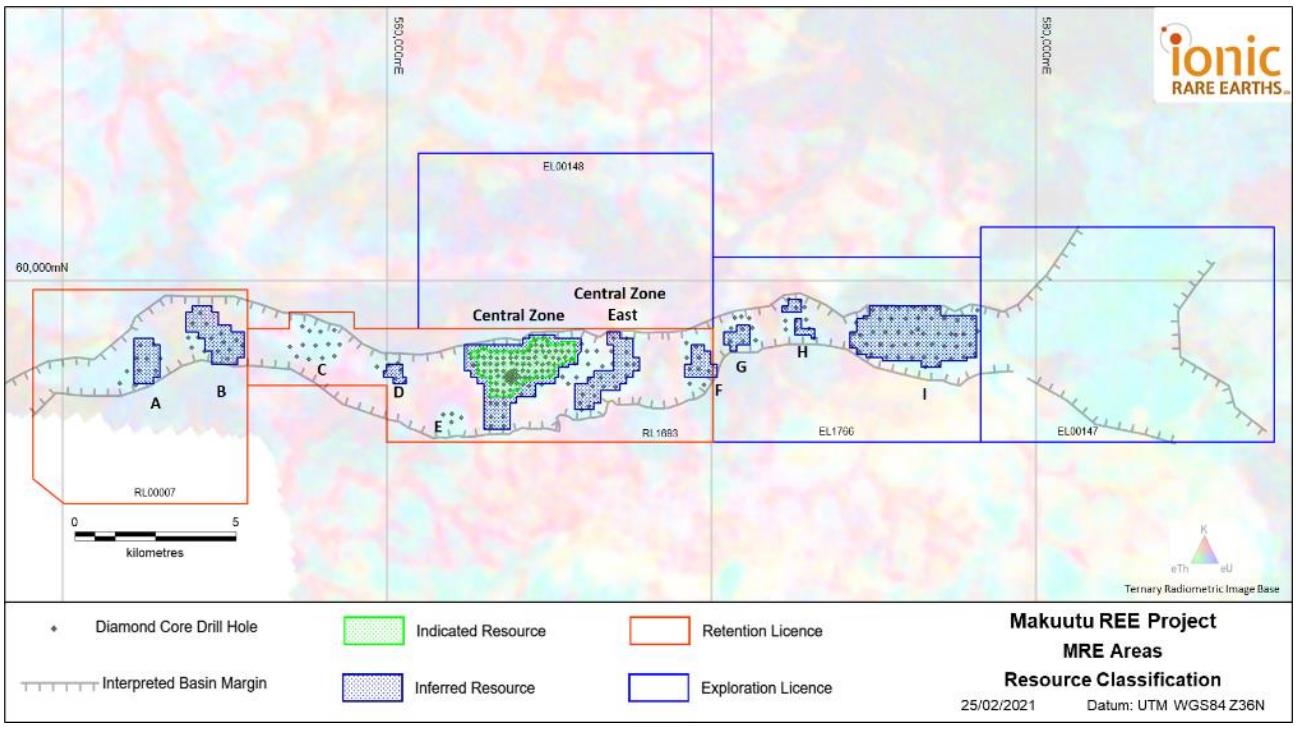

Figure 14: Mineral Resource Estimate (MRE) areas by classification.

Mining

IonicRE, on behalf of RRM, commissioned independent Resource and Mine Planning consultants Libertas Infinity Pty Ltd., to undertake mine planning and evaluation work for strategic mine planning to produce a preliminary Life of Mine (LOM) plan (base case), alternative scenarios, physical inventories of ROM and waste movements, preliminary equipment selection and inputs for mining cost estimation. The Study has identified that the most suitable and economical mining methods at Makuutu comprise low unit cost, open pit extraction methods.

Scenarios modelled including Run of Mine (ROM) options from 2.5 to 12.5 million tonnes per annum (Mtpa), with smoothed total material movements (TMM) up to 25 Mtpa also investigated. As a base case scenario, a 2.5 Mtpa modular approach was evaluated against increased initial TMM rates, with a sequential increase in the plant feed rate staged to permit the additional process modules approximately every second year from the commencement of operations.

The optimal case was selected given the existing MRE, and efforts to minimise initial project capital costs. Processing extraction, revenue and cost inputs to the mining study are detailed in the relevant sections of this report. Wall angles have been assumed at 45 degrees in the absence of further geotechnical information, however mining is generally shallow with no permanent high walls. The physical parameters of the base case are provided in Table 8.

The mining operation and process plant is planned to be to be operated 24 hours per day, 365 days per year basis. The mine is planned to be centrally located within RL 1693 based upon the existing Indicated MRE, with the process plant located adjacent to the Makuutu deposit on EL 00148.

Mining will involve a pre-strip of 1m of topsoil which will be stockpiled adjacent to the pit. ROM mining will be selective with lower recovered rare earth grade open pit material stockpiled adjacent to the pit, whilst waste will be mined and paddock dumped adjacent to the pit. Open pit material will be hauled to the Run-of-Mine (ROM) pad and either stockpiled or direct fed into the process plant. Once areas (slots) are completely mined out, the mined waste and heap leach residue will be reclaimed and the slot will be backfilled (progressive rehabilitation), prior to the topsoil spread back on the area disturbed.

Prior to commencement of processing, it is assumed mining and stockpiling of the waste and opening of the pit will occur. Stockpiling of ROM Feed into various recovered rare earth grades stockpiles shall be under the direction of the site technical leads.

Approximately 84.5Mt of Mineral Resource in the mining plan will be mined at an average grade of 810 ppm TREO and delivering a mine life of 11 years. Mine scheduling demonstrates that minimal mining capital will be required ahead of the development of the open pit. Mineral resource extraction and project economics are optimal with a single open pit. Figure 15 illustrates the Base Case mine plan.

The shallow nature of the deposit results in a low strip ratio, with TMM nominal average annualised material movement initially commencing at 10Mtpa then stepping up to 12.5Mtpa in Year 7, then increasing to 15Mtpa in Year 9 prior to increasing to 25Mtpa in Year 10. The TMM profile is illustrated in Figure 15. The plant feed head grade is illustrated in Figure 16.

Table 8: Mine plan Base Case scenario and mine physicals for Years 0 to 11.

Mineral Resource Mined* (Mt)	Waste (Mt)	Strip Ratio	LOM (years)	Average TREO Head Grade (ppm)
84.5	64.6	0.76	11	810

Notes: Variation from stated Mineral Resource due to application of conservative pit wall angles in mine plan optimisation and rounding differences. Mined Resource contains approximately 69% Indicated and 31% Inferred Resource. No Ore Reserves have been determined at this stage of the Project. 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.

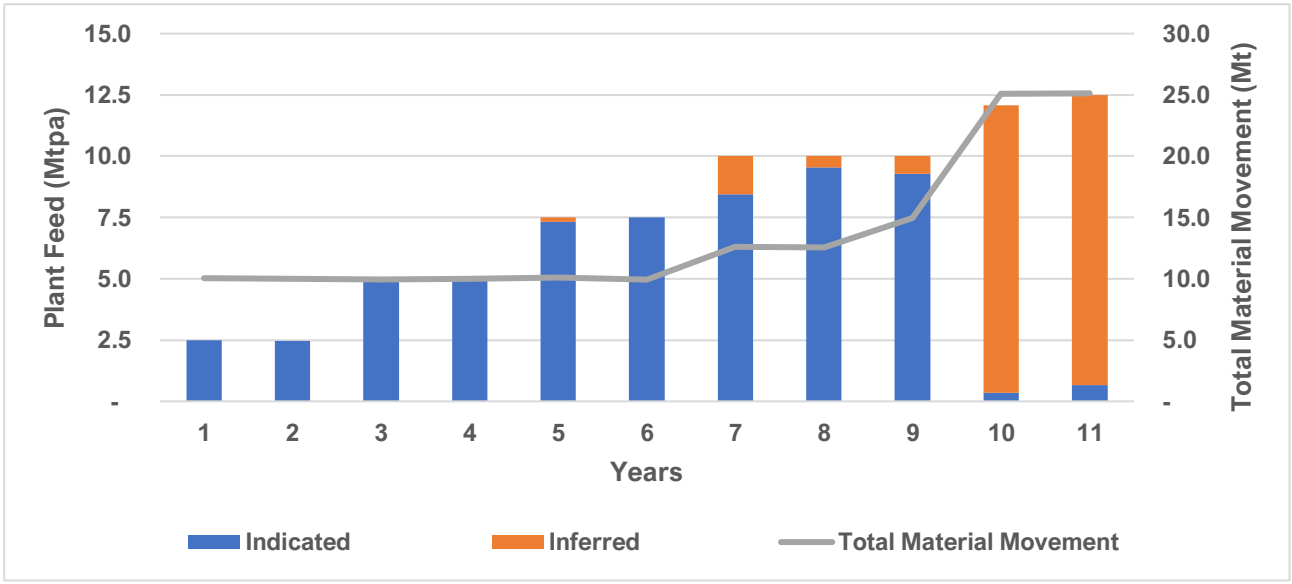

Figure 15: Plant feed distribution and total material movement over Base Case Years 0 to 11.

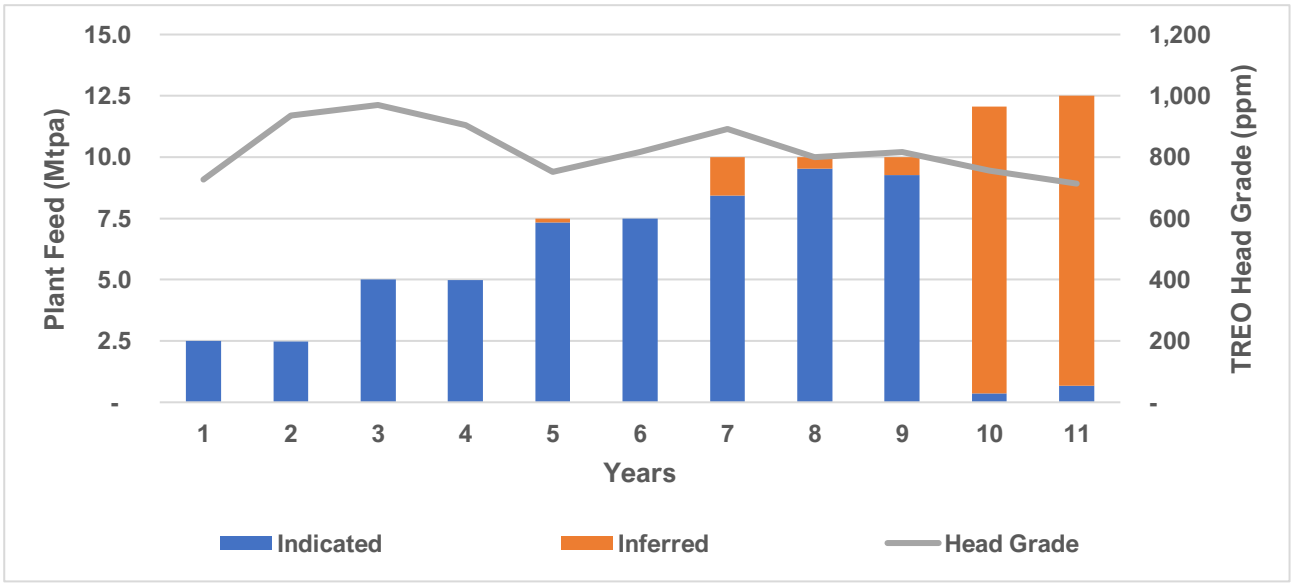

Figure 16: ROM Plant throughput distribution and TREO head grade from Years 0 to 11.

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Open pit mining equipment has been selected based on the relatively large-scale bulk mining, production rates, short open pit haul distances for waste and plant feed, and relatively flat terrain at Makuutu. Chinese supplied equipment, on an owner operated basis and consistent with that used and operated in Uganda at other mining operations, has been nominated, inclusive of the following:

- 70 tonne Excavators (e.g. Liugong CLG970E)
- 40 tonne dump trucks (e.g. SinoTruk HOWO 40 Ton 8X4)
- 8 tonne Front End Loaders (e.g. Liugong CLG890H)
- Bulldozers (e.g. Liugong CLGB320)
- Graders (e.g. Liugong CLG4180)
- Fuel Trucks (e.g. SinoTruk 25m^3 Fuel Tanker Truck 6X4)
- Water trucks (e.g. SinoTruk 20m^3 Sino Water Tank Truck)
- Light utility vehicles
- Lighting towers are required for nightshift open pit and dumping activities.

Significant exploration upside remains present at Makuutu with potential to increase the classifications of resource plus grow the Production Target at Makuutu. It is likely that a new diamond core drill program will be initiated shortly to help increase the Indicated Resource at Makuutu as part of the work program for the BFS.

Metallurgy and Processing

Metallurgical testwork has been completed upon Makuutu samples dating back to 2014. Given the nature of the mineralisation, metallurgical recovery will have a substantive impact on project viability. A complete review of historical testwork results coupled with a baseline variability program for Makuutu was completed in 2019 which demonstrated extractions using salt only of up to 75% TREO-CeO2 (Total Rare Earth Oxides minus Cerium Oxide).

A targeted optimisation testwork program was initiated in 2020 with the objective of determining the optimal eluant and pH conditions specific for Makuutu. Evaluating a range of eluants, ammonium sulfate, (NH4)2SO4, was selected as the optimal eluant for Makuutu.

Optimised conditions, illustrated in Figure 18, have shown a dramatic increase in demonstrated REE extraction potential which has previously been reported to the market. indicating substantial potential for improved metallurgical extraction at Makuutu using a slightly more acidic leach arrangement.

A key attribute of the metallurgical response at Makuutu is the elevated extractions of HREO over LREO, resulting in an increase in the proportion of higher value CREO and HREO in the final product basket.

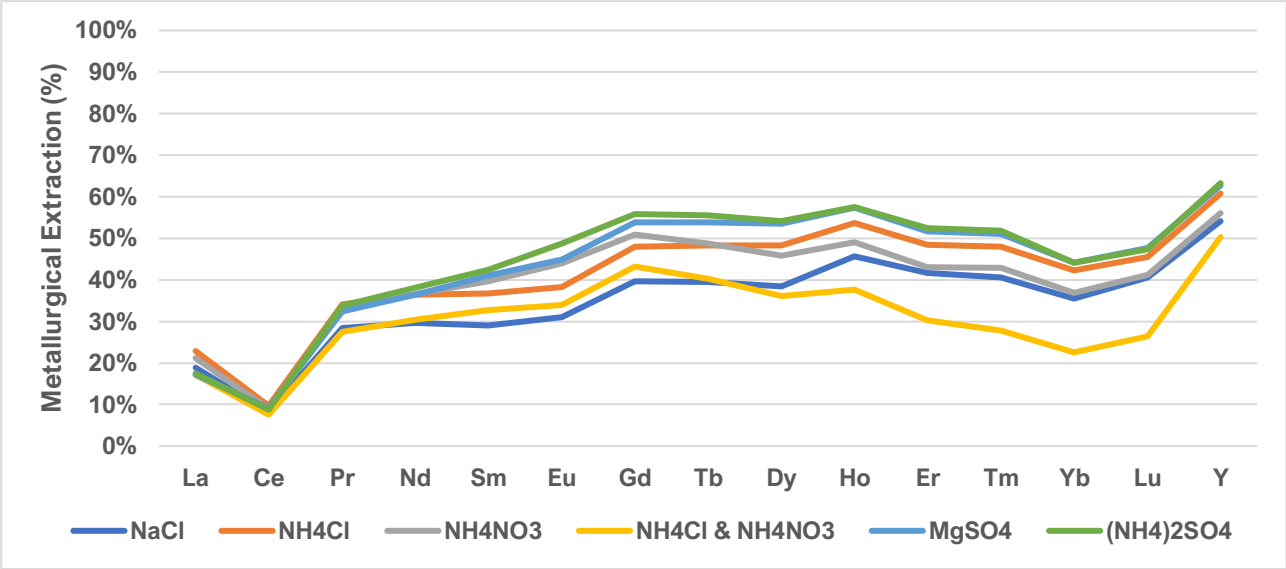

Figure 17: Salt only desorption testwork (natural pH) evaluating alternative eluants on Makuutu IAC clay.

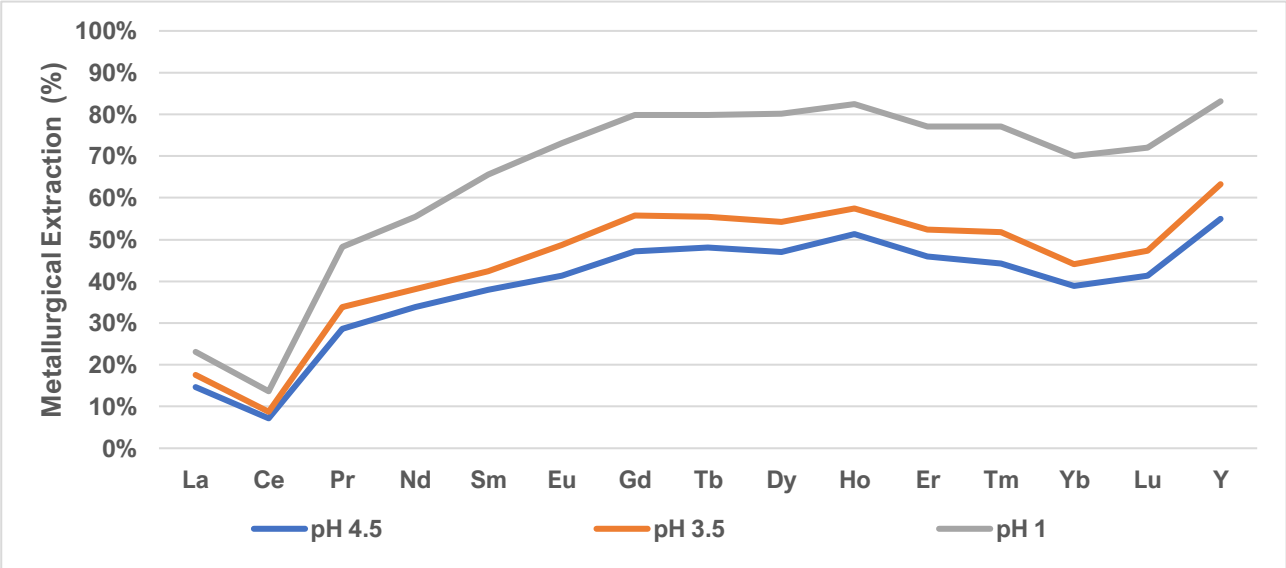

Figure 18: Metallurgical desorption extent on Makuutu IAC composites using Ammonium Sulfate at varied pH, showing net increase observed using more acidic conditions.

Based upon the TREO head grade of the MRE, the resultant overall TREO metallurgical recovery is 44%, or TREO-CeO2 of 54%. A scandium recovery of 30% has been used for the Study.

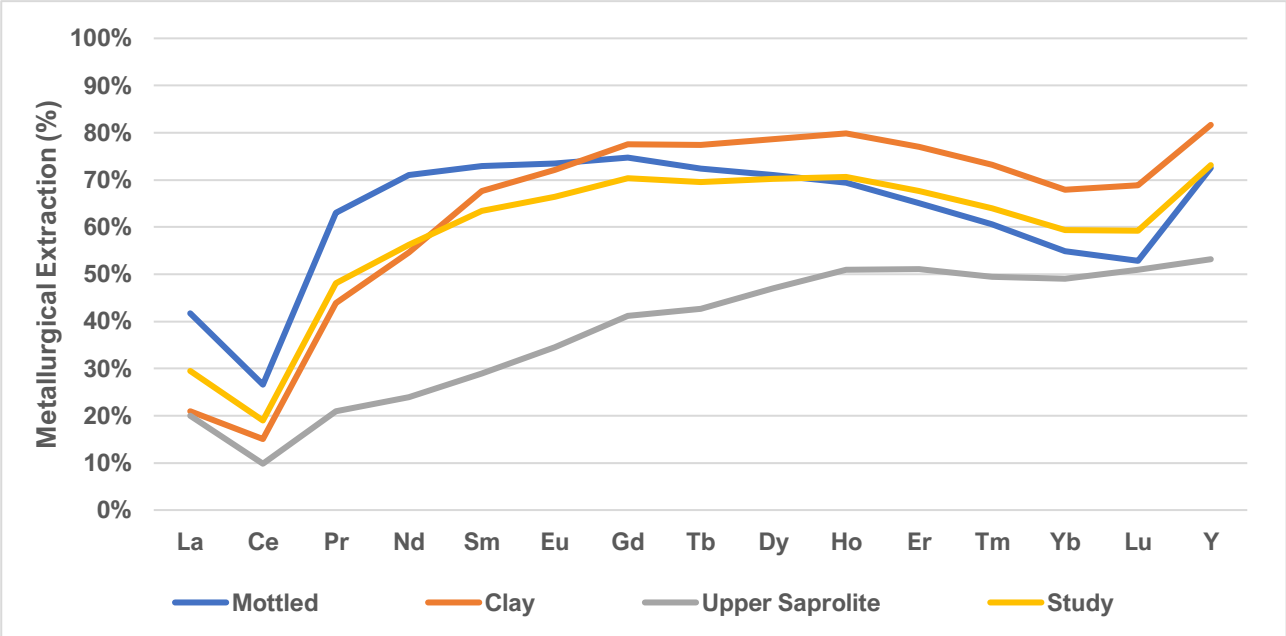

Figure 19: Metallurgical recovery for the various regolith types to be processed at Makuutu.

Heap leaching has been nominated as the preferred technology for Makuutu. As well as being one of the most cost-effective methods for leaching low grade ore deposits, heap leaching provides the benefit of reduced reagent consumption, and has been widely applied to the recovery of copper, gold and uranium from lower grade oxide ore, driven by the lower CAPEX requirements and operating costs for the process.

The process flowsheet is simple and modular in nature, which will enable production capacity expansion via additional modules, with throughput of 2.5 Mtpa each. The heap leach pads are dynamic, meaning an on/off heap leach arrangement. ROM will be agglomerated, stacked approximately three (3) metres high, then irrigated in a counter current fashion using ammonium sulfate and sulfuric acid to desorb and solubilse the REE into solution. The primary and secondary leach pad will target slightly different pH conditions to minimise residual free acidity in the residue plus minimise overall reagent consumption. The secondary leach will generate an intermediate leach solution (ILS), which will then be dosed with minor additional salt addition to target a salt desorption step in the primary stage therefore reducing free acid concentrations and impurity tenors in the in the pregnant leach solution (PLS).

PLS is collected in ponds and concentrated using membrane processes prior to precipitation of the rare earths as a mixed rare earth carbonate product. The final product is then filtered, dried and bagged prior to transport to a specialist REE separation plant.

Reagents are sources from local sources. Sulfuric acid will be supplied from an acid plant located approximately 90 km from site via highway, and other reagents are to be sourced from suppliers located in Uganda and Kenya.

Figure 20: Heap leach columns under desorption (irrigation) at ANSTO Minerals in Sydney.

Heap leach residues once exhausted and washed, rinsed and then returned to the mined-out pits, which are back-filled to enable the land to be rehabilitated. The overall process schematic is illustrated in Figure 21.

Presently the Company has initiated the next round of metallurgical variability testwork at ALS Metallurgy in Perth, WA, to define the overall metallurgical response across the 20 km of demonstrated resource at Makuutu, in addition to a heap leach column program with ANSTO Minerals in Sydney. The Company is also about to commence a test program with Chinese based experts in the processing of IAC mineralisation which is expected to provide validation of the flowsheet for the BFS.

In October 2020, RRM submitted applications to extend the exploration licence area of the Makuutu Rare Earths Project to the north to enable the location of a process plant to support the development of the Project. The nominated plant layout is immediately accessible for infrastructure, is flat with no immediate water courses running adjacent to the site and provides scope for further site optimisation to add additional heap modules. The location of the proposed process plant facility in relation to the initial mining pit is illustrated in Figure 22.

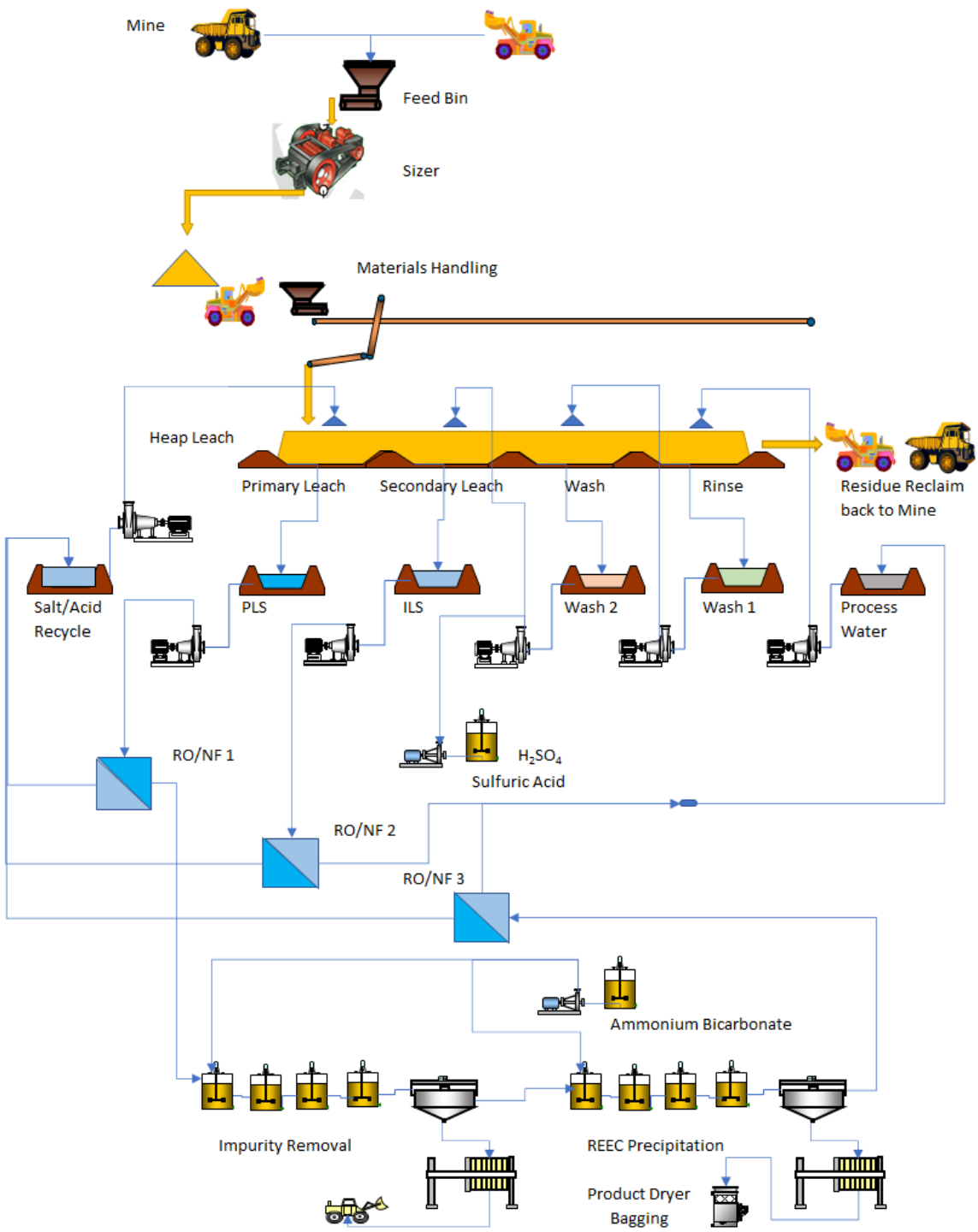

Figure 21: Makuutu Rare Earths Project process flowsheet.

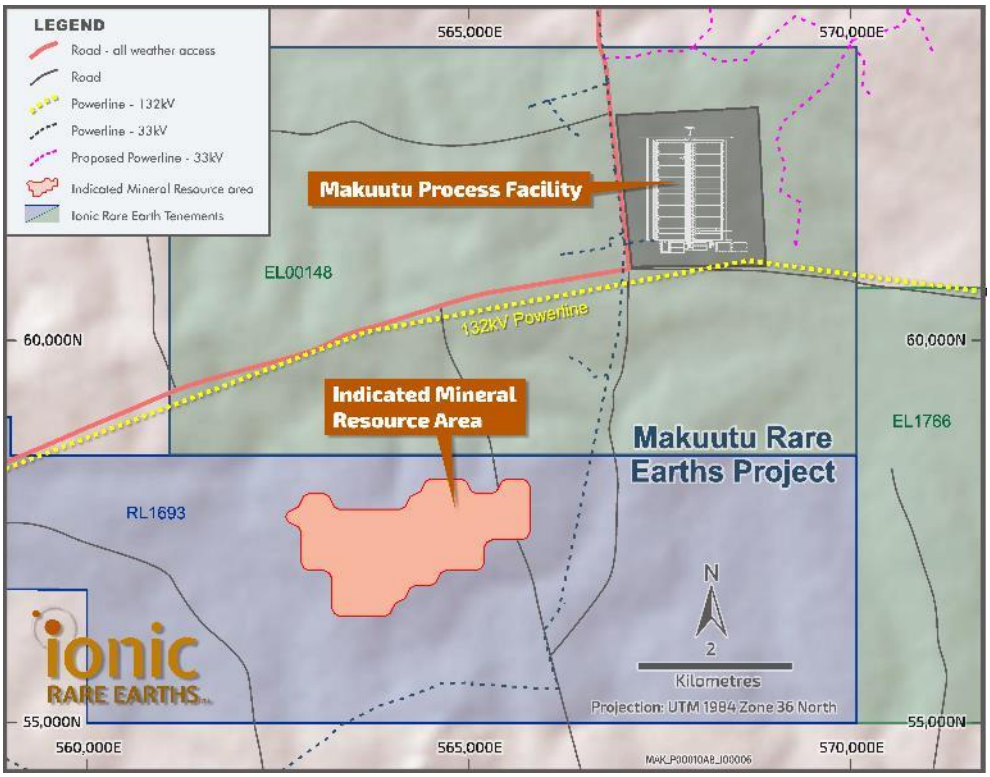

Figure 22: Process plant location relative to the Indicated Resource area where the initial pit for Years 0 to 11 will be located.

Infrastructure

One of the Makuutu's competitive advantages is its proximity to existing infrastructure. The Makuutu site is approximately 10 km from Highway 109 which is a sealed bitumen road connecting to Kampala and to Kenya (Port of Mombasa). All weather access roads connecting the site to the adjacent sealed bitumen highway are already existing. A rail line lies within 10 km north of the Makuutu site near the town of Iganga.

Figure 23: Access roads to Makuutu Project Area.

There are four hydroelectric power plants located within 65 km of the project area, with total installed generating capacity of ~810 MW, providing an abundant supply of cheap power to the Project.

Figure 24: Isimba hydroelectric dam with 183 MW installed capacity.

The site is serviced by existing 132 kV and 33kV transmission infrastructure, with the main power corridor running immediately north of the current MRE and immediately adjacent to the proposed process plant location.

Figure 25: Power transmission network across the Makuutu tenements.

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Water will be sourced at the Project by harvesting water from the Makuutu site. Water will be collected from mining pits and rehabilitated areas via a network of water collection bores across the Project area. As a combination of the of the project location (a net positive rainfall environment) and a net positive process water balance, the Project will require membrane processes to be used to process site discharge water for reagent recovery. Excess water management will be a key focus of the Project to ensure environmental standards are met and reagent consumption is minimised.

A workforce of semi-skilled and artisanal workers is available in nearby towns and population centres. The closest major population centre is Iganga, which has a population of ~50,000. The town of Mayuge is approximately 10 km from the Project site and the intent is to source local operations staff from the immediate districts and train staff accordingly. The operation is to be staffed by a residential workforce. No fly in – fly out is envisaged, and the number of expatriate staff is intended to be low, and to be phased out over the first 5 to 7 years of operations.

Industrial facilities are available in the city of Jinja, approximately 40 km from the Project area. Additional industrial facilities are available on the outskirts of Kampala.

Environmental Studies, Permitting and Community Impact

JBN Consults, a Ugandan based Environmental Consultant company has been engaged to prepare the initial Scoping Report document, to establish the terms of reference for the ESIA on the Makuutu Rare Earths Project. The Scoping report has been approved by the National Environmental Management Authority (NEMA) and the Project has been classified a Category B Project. RRM has commenced the ESIA with a view to complete by Q1 2022.

RRM intends to implement high ESG (Environmental, Social and Corporate Governance) standards within the development and operation of the Makuutu Rare Earths Project, and to establish a long life, sustainable mining operation with a dominant Ugandan workforce composition that can be the template for successful mining projects within Uganda, and Eastern Africa.

Capital Cost Estimate

The CAPEX has been developed to meet the requirements of an AACE[8] Class 5 estimate, targeting an accuracy of ±50%. The capital cost estimate is broken down into the main areas of mining and processing plant. The mining capital cost estimate was developed by IonicRE with input from contract mining service providers in Uganda. The process plant capital cost estimate was developed by NewPro Consulting located in Perth, Western Australia.

The capital development profile for Makuutu reflects the stages modular expansion strategy showing the capital investment that is made across the first 10 years of the Project. Initial capital requirements of US$89 million in pre-production CAPEX including contingency fund development of Module 1. The addition of further process modules is expected to be financed from operating cash flows,

[8] Association for the Advancement of Cost Engineering

alleviating the need to seek debt or equity financing above that required for pre-production capital. The capital spend profile is clearly illustrated in Figure 26, which shows the staged capital investment at Makuutu with a further US$212 million (expansion capital funded by operating cash flow) spent over Years 2 to 9 to ramp up the mining rate to 25Mtpa and the process plant throughput up to 12.5Mtpa. A breakdown is provided in Table 9.

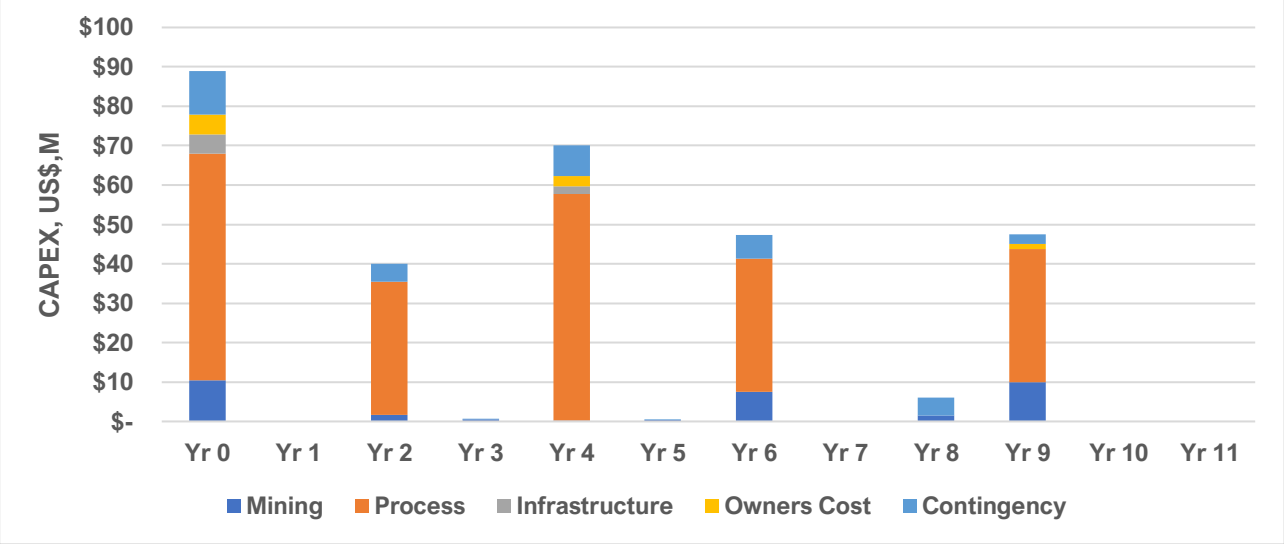

Figure 26: Makuutu CAPEX development profile from Years 0 to 11.

Table 9: Makuutu CAPEX breakdown (in US$M) over Years 0 to 11.

Breakdown	Total	Yr 0	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 8	Yr 9
Mining	$32.2	$10.4	$1.7	$0.5	$0.3	$0.3	$7.5	$1.5	$9.9
Process	$216.3	$57.5	$33.8	-	$57.5	-	$33.8	-	$33.8
Infrastructure	$7.0	$5.0	-	-	$2.0	-	-	-	-
Owners Cost	$8.8	$5.0	-	-	$2.5	-	-	-	$1.3
Contingency	$36.7	$11.1	$4.6	$0.1	$7.8	$0.1	$6.0	$4.5	$2.5
Total, US$M	**$301**	**$89.0**	**$40.0**	**$0.7**	**$ 70.1**	**$0.4**	**$47.3**	**$6.1**	**$ 47.5**

A more comprehensive breakdown of the modular capital development requirements for Makuutu is provides in Table 10. The increased provision for the Module 3 CAPEX provides flexibility to optimise the potential site should the mine plan be optimised in the future. Should Module 3, 4 and 5 be developed immediately adjacent to the Module 1 and 2 sites, this is expected to be optimised though future studies.

To maintain high environmental standards at Makuutu, the process plant CAPEX includes a series (3) of membrane circuits within each module, each with a separate duty, and required to concentrate the REE and salt solutions enabling the recycling of water and ultimately the discharge of high-quality water from the site. As the facility is increased, the additional modules will provide incremental capacity to each of the circuits, enabling the asset to be optimised based upon refined know-how from preceding modules.

Table 10: Makuutu Modular Process CAPEX breakdown.

Description	Module 1 US$M	Module 2 US$M	Module 3 US$M	Module 4 US$M	Module 5 US$M
Fixed Plant	$16.37	$8.76	$16.37	$8.76	$8.76
Heap Leach	$8.29	$6.88	$8.29	$6.88	$6.88
Mobile Plant	$1.90	$1.06	$1.90	$1.06	$1.06
Infrastructure	$0.72	$0.72	$0.72	$0.72	$0.72
Transportation	$1.45	$0.83	$1.45	$0.83	$0.83
Mechanical Installation	$2.20	$0.60	$2.20	$0.60	$0.60
Electrical (Installation & Bulks)	$4.89	$2.64	$4.89	$2.64	$2.64
Instrumentation	$1.45	$0.78	$1.45	$0.78	$0.78
Piping	$1.81	$0.98	$1.81	$0.98	$0.98
Concrete	$0.54	$0.29	$0.54	$0.29	$0.29
Structural Steel	$0.36	$0.20	$0.36	$0.20	$0.20
Earthworks	$0.36	$0.20	$0.36	$0.20	$0.20
Construction Indirects	$1.81	$0.98	$1.81	$0.98	$0.98
First Fills	$0.74	$0.40	$0.74	$0.40	$0.40
Spares	$1.36	$0.74	$1.36	$0.74	$0.74
Commissioning	$0.94	$0.55	$0.94	$0.55	$0.55
Subtotal Directs	$45.19	$26.60	$45.19	$26.60	$26.60
EPCM	$7.97	$4.67	$7.97	$4.67	$4.67
Owners Costs	$3.75	$2.20	$3.75	$2.20	$2.20
Flights, Travel, Accom, Visas, Insurance	$0.56	$0.33	$0.56	$0.33	$0.33
Subtotal Indirects	$12.28	$7.20	$12.28	$7.20	$7.20
Subtotal Technical Cost	$57.47	$33.80	$57.47	$33.80	$33.80
Contingency	$7.23	$4.16	$7.23	$4.16	$4.16
Total Capital Cost Estimate (US$M)	$63.70	$38.00	$63.70	$38.00	$38.00

The inclusion of membrane technology is seen as a significant step change from historical IAC processing flowsheets operating in southern China, where illegal and unregulated mining of such deposits has resulted in considerable environmental damage.

The CAPEX includes a provision for Owner's Costs, which includes more specific project related in country costs including an allocation for land acquisition and community programs.

Plant construction is expected to be 12 months.

For the consideration of the Upside Case, a provision for a sustaining CAPEX amount would be required to permit for the additional and replacement mining fleet. This would also be funded by operating cashflows.

Operating Cost Estimate (OPEX)

The mining operating costs estimate was developed by IonicRE in consultation with the Company's mining consultant and a Ugandan based mining contractor and utilises their in-country knowledge on operational costs and servicing requirements for similar equipment to that nominated by IonicRE.

Process operating cost have been estimated with inputs provided by NewPro Consulting in collaboration with IonicRE. The estimated process operating costs were derived based upon a mass balance used for the study to estimate reagent consumption and consumables. The general and administration (G&A) costs were determined by IonicRE.

The initial Project head count for the development of Module 1 is 546 personnel, with the split as follows:

- General and Administration: 66 staff
- Mining: 304
- Processing: 176 staff

The initial head count will provide for additional workforce to train operators for the development of the 2nd module in Year 2. The estimated work force head count increases in Year 3 to approximately 600 staff for the commencement of the 2nd Module, with subsequent increases as follows:

- 3 Modules ~700 staff
- 4 modules ~900 staff
- 5 modules ~1200 staff, also reflecting a 25Mtpa Total Material Movement operation processing 12.5Mtpa of plant feed

Table 11 is a summary of the annual operating costs for the project including mining, processing, and G&A costs. A more detailed breakdown is provided in Table 12. A more detailed breakdown of the OPEX is provided in Table 12 and illustrated in Figure 27.

Table 11: OPEX cost breakdown into the major operational areas for Years 0 to 11.

OPEX Breakdown	Years 0 to 11 OPEX US$M	Years 0 to 11 Average Annual OPEX, US$	Years 0 to 11 Average OPEX, US$/kg REO	Years 0 to 11 Average OPEX, US$/tonne ROM
Mining	$422	$38.4	$14.36	$4.99
Process	$567	$51.6	$19.30	$6.71
G&A	$77	$7.0	$2.61	$0.91
Total, US$	**$1,066**	**$97.0**	**$36.27**	**$12.62**

Note that the above table includes rounding.

It is proposed that a corporate office be located at Jinja, approximately 50 km from the Makuutu operation, where some non-site personnel will be located. The intent is to move to a 100% Ugandan staffed operation after the first 7 years of operation; hence the operational labour cost reflects this composition.

Table 12: Makuutu OPEX breakdown for Years 0 to 11.

OPEX Breakdown	Total OPEX Years 0 to 11 US$M	Average OPEX US$M	Average OPEX US$/kg REO	Average OPEX, US$/t ROM	Split %
Contracts & Consumables	$25	$2.2	$0.84	$0.29	2.3%
Environmental	$15	$1.4	$0.51	$0.18	1.4%
G&A	$55	$5.0	$1.85	$0.64	5.1%
Maintenance	$116	$10.6	$3.95	$1.37	10.9%
Membrane Consumables	$89	$8.1	$3.02	$1.05	8.3%
Mining	$422	$38.4	$14.36	$4.99	39.6%
Power	$36	$3.3	$1.22	$0.42	3.4%
Process Labour	$17	$1.6	$0.59	$0.20	1.6%
Product Costs	$7	$0.7	$0.25	$0.09	0.7%
Reagents	$225	$20.5	$7.66	$2.66	21.1%
Residue Management	$60	$5.5	$2.03	$0.71	5.6%
Total	$1,066	$97.0	$36.27	$12.62	100%

Note that the above table includes rounding.

When incorporating a by-product credit for the Sc_2O_3 produced by the product, the average unit operating cost decreases to US$23.70 per kg REO equivalent produced.

The operating cost estimate is shown in United States Dollars.

All operating costs are current as of Q4, 2020 and no escalation has been allowed for. The accuracy of the operating cost is assumed to be +/-50%.

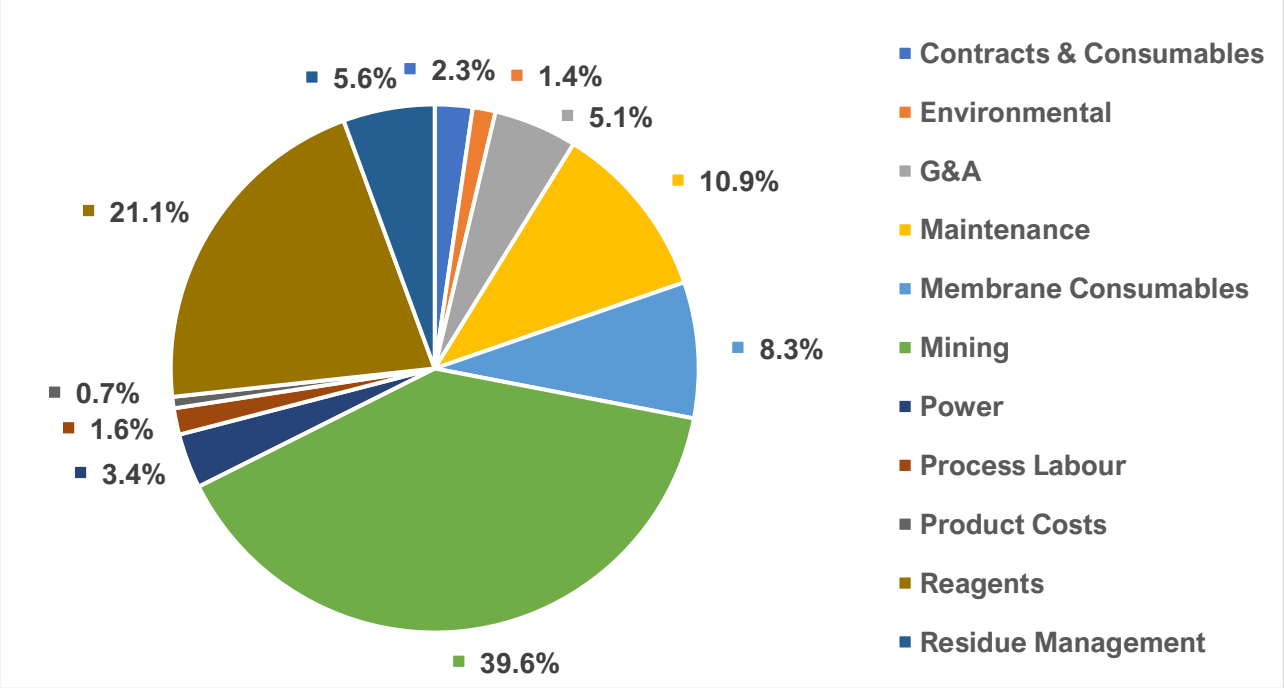

Figure 27: Makuutu OPEX distribution overs years 0 to 11.

Rare Earth Product and Marketing

The global demand for REE is increasing based upon a shift in macro events relating to the deployment of renewable energy, electric vehicles and communications. The existing REE supply chain is dominated by China, with world governments now become increasingly concerned with future supply and access to their own REE supply security.

In the next decade, rapid demand growth will challenge the ability of the supply-side to keep up, particularly for the magnet metals, Nd, Pr, Dy and Tb, with global annual demand for these elements expected to increasingly exceed global annual production. The implemented Export Control Ban in China will see Chinese production be prioritised for Chinese consumption and stockpiling, which will further stress the alternative supply sources.

Furthermore, existing supply of HREO from Chinese and Myanmar IAC deposits has been significantly affected by world events over the past 12 months highlighting the scarcity of supply of these 'industrial vitamins'. Such events will lead to a faster than expected depletion of historically accumulated inventories and, ultimately, shortages if the market continues on a path of business as usual.

The REE product proposed to be generated by the Makuutu Rare Earth Project, as a mixed rare earth carbonate product, typically achieving a payability of 70% of REO content. The Makuutu product is a strategically important one; balanced in REE constituents, with a net content of up to 73% critical plus heavy content (CREE + HREE). As ionic clays are the source of > 95% of the world's HREE, Makuutu strategically can help world governments insulate their supply requirements of the magnet metals plus other CREO used in technology applications, such as Er, Eu, Gd, Ho and Y.

The resultant Base Case product basket is illustrated in Figure 29. When looking at the distribution of REO equivalent production over Years 0 to 11, the major revenue generating REO components are yttrium (Y, 25.4%) and neodymium (Nd, 23.2%), with other major revenue contributors being praseodymium (Pr, 5.5%), dysprosium (Dy, 3.7%) and terbium (Tb, 0.6%). The magnet metal content of the product basket (Nd, Pr, Dy, Tb) represents 33.2% of product basket.

The forecast REO production over the Base Case period on the current mineral resource estimate is 29,400 tonnes of Rare Earth Oxide (REO) equivalent product. The REO production profile, split based upon the various individual REO, is illustrated in Figure 28 and Figure 29.

In addition, the Makuutu Rare Earths Project has potential to also produce appreciable quantities (740 tonnes over years 0 to 11) of Sc2O3, which is also a strategically important metal in critical supply. After initial production in Years 1 and 2 (~ 22 tpa), Sc2O3 production will ramp up to approximately 100 tpa in Year 10.

Opportunities exist in future studies to determine potential to produce a separate standalone product which could be marketed independently.

MREC product will be transported in 1 tonne bulk bags packed within locked shipping containers via truck initially to the Port of Mombasa for transit to downstream refiners.

A breakdown of the individual REO production profile is provided on a year-on-year basis within Table 13. Table 14 provides an approximation of the total production of individual REOs from the Base Case.

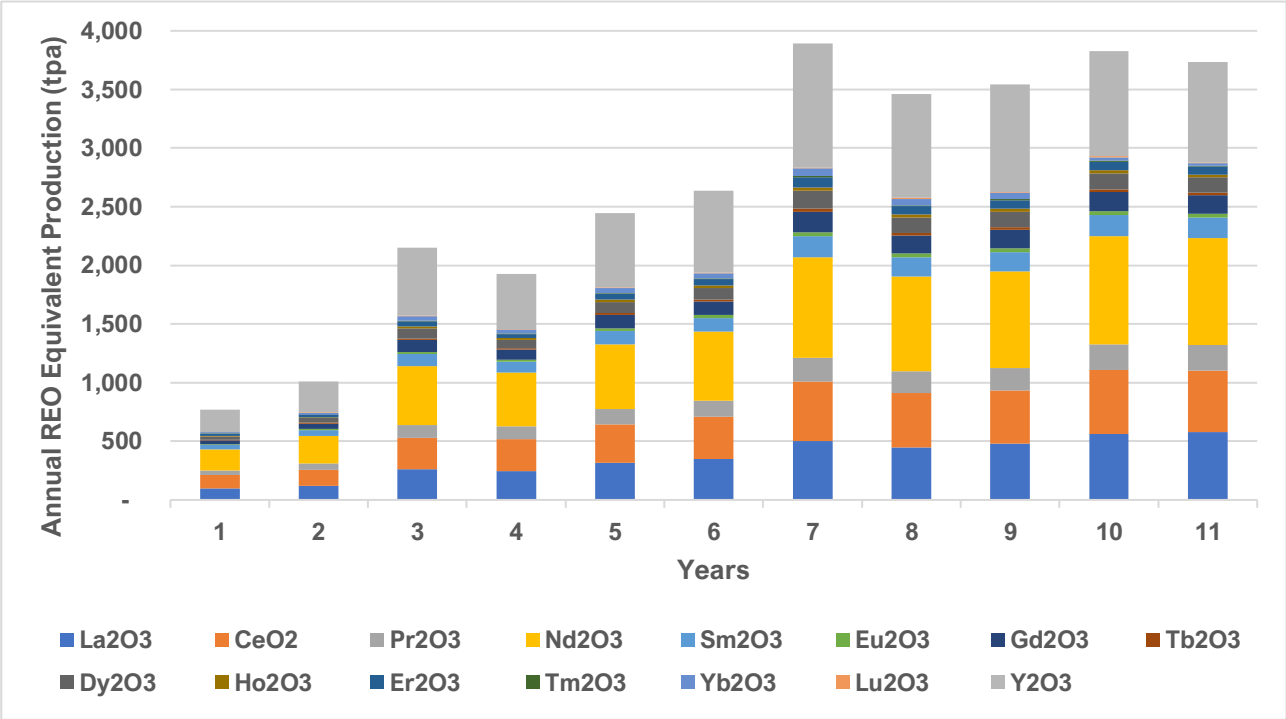

Figure 28: Annual REO production profile from Makuutu across Years 0 to 11.

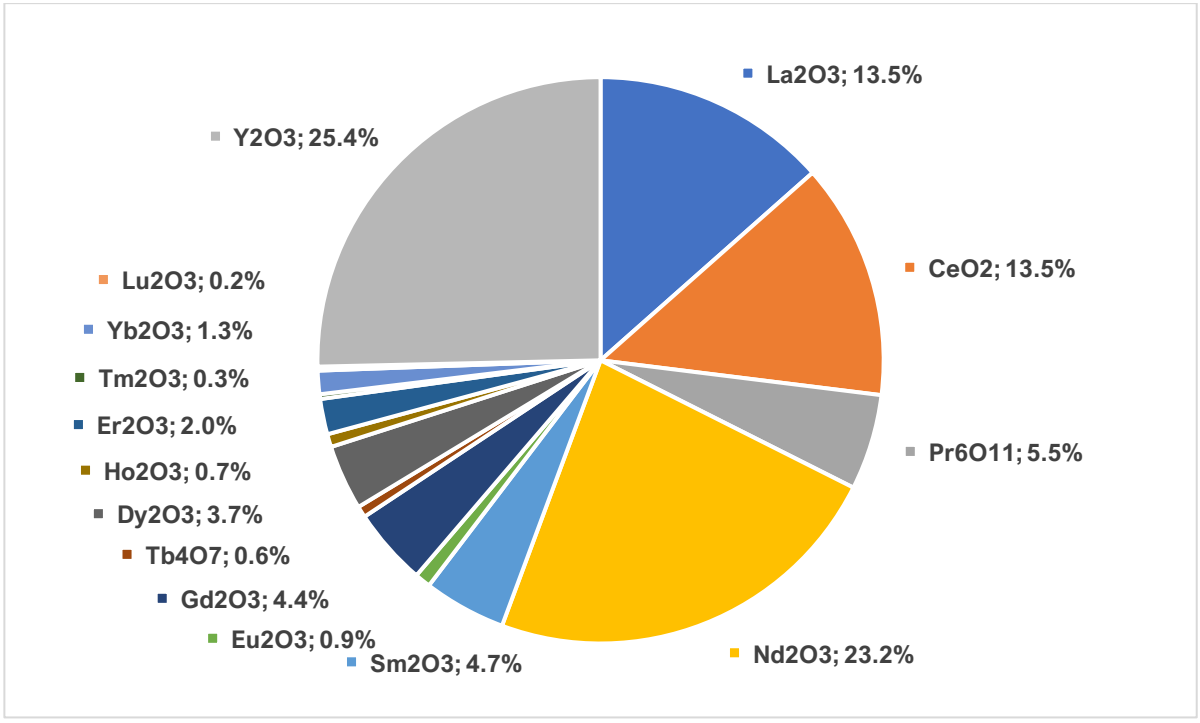

Figure 29: Makuutu Base Case Years 0 to 11 REO basket composition.

Table 13: Base Case annual REO approximate production breakdown overs Years 0 to 11.

Production REO		Years										
		1	2	3	4	5	6	7	8	9	10	11
La2O3	t	100	120	260	250	310	350	500	450	480	560	580
CeO2	t	110	130	270	270	330	360	510	460	450	550	520
Pr6O11	t	42	55	110	110	130	140	200	190	190	220	220
Nd2O3	t	180	240	500	460	550	590	860	810	820	920	910
Sm2O3	t	38	50	100	100	120	120	180	160	160	180	170
Eu2O3	t	7	9	20	18	23	23	34	32	32	34	33
Gd2O3	t	34	46	100	85	110	120	170	150	160	160	160
Tb4O7	t	5	7	15	12	17	17	26	23	23	24	23
Dy2O3	t	28	38	84	70	95	100	150	130	130	140	130
Ho2O3	t	6	8	17	14	19	20	30	26	27	27	25
Er2O3	t	15	21	46	37	52	55	84	70	72	73	68
Tm2O3	t	2	3	6	5	7	7	11	9	9	10	9
Yb2O3	t	12	16	34	29	41	43	64	54	54	29	17
Lu2O3	t	2	2	5	4	6	6	9	8	8	8	7
Y2O3	t	190	270	580	470	630	700	1060	890	920	900	860
REO	**t**	**770**	**1010**	**2150**	**1,930**	**2,450**	**2,640**	**3,890**	**3,460**	**3,550**	**3,830**	**3,730**
Sc2O3	t	23	22	45	47	72	67	93	91	83	105	96

Table 14: Total REO approximate production quantities for the Base Case.

REO		Base Case Years 0-11 Product, t	Product, %
La2O3	t	3,960	13.5%
CeO2	t	3,970	13.5%
Pr6O11	t	1,600	5.5%
Nd2O3	t	6,830	23.2%
Sm2O3	t	1,380	4.7%
Eu2O3	t	270	0.9%
Gd2O3	t	1,300	4.4%
Tb4O7	t	190	0.6%
Dy2O3	t	1,090	3.7%
Ho2O3	t	220	0.7%
Er2O3	t	590	2.0%
Tm2O3	t	80	0.3%
Yb2O3	t	390	1.3%
Lu2O3	t	70	0.2%
Y2O3	t	7,450	25.4%
TREO	t	29,400	100.0%
Sc2O3	t	740	

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Rare Earth Pricing

IonicRE has collated forecast pricing from a handful of providers and reviewed recently published spot pricing trends which clearly demonstrate a dramatic increase in the pricing of CREO and HREO since the implementation of the Export Control Ban by China on 1 December 2020.

The dramatic increase in magnet REOs, specifically Tb, Dy and Nd has been profound, along with strong increases observed in Gd, Ho and Y. Forecasts releases in 2020 are now out dates with only the recent revision from Argus Metals now published to factor in the new age of REO supply control.

Recent spot pricing has also been considered, and in light of 1) the recent covid-19 pandemic affecting global REO production in early 2020, 2) a number of IAC assets in southern China remain at reduced capacity, and 3) the political situation in Myanmar also affecting the HREO supply chains, Makuutu's product basket is becoming ever more important.

IonicRE has nominated the adoption of the Argus Analytics forecast pricing published on March 26, 2021 as the basis for the Study. The Argus forecast REO prices has been applied to the Makuutu basket to generate a pricing basis which can be illustrated in Figure 30.

The REO price forecast also considers 1) an elevated supply / weaker demand and 2) low supply / elevated demand conditions. This provides a range of conditions to evaluate and examine the range of economic outputs that could be derived.

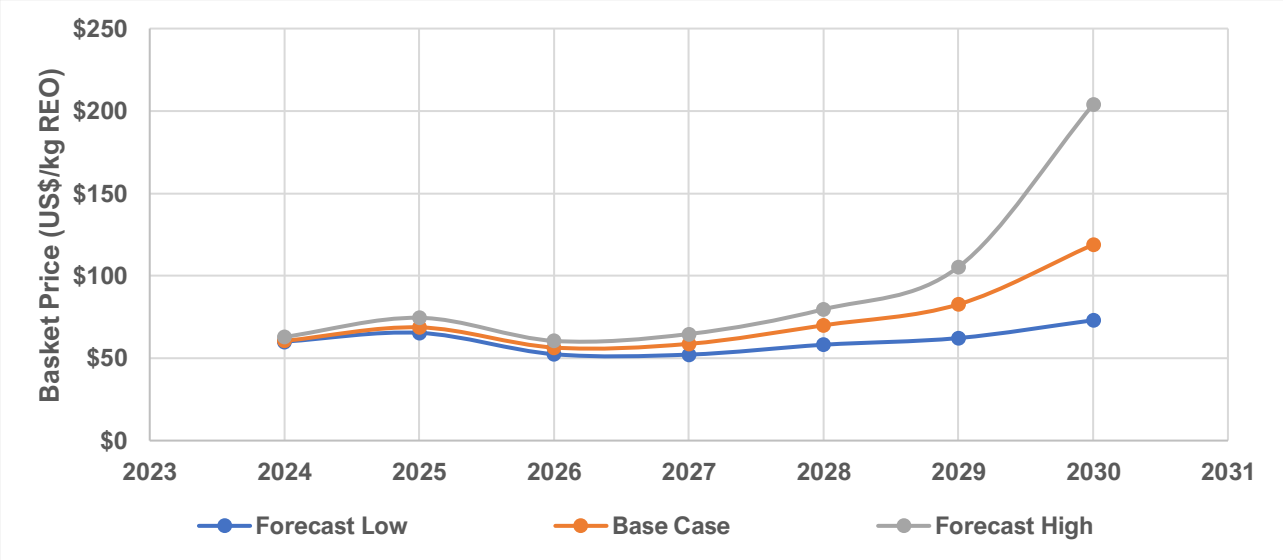

Figure 30: Makuutu REO basket pricing.

Table 15: Rare Earth Oxide pricing forecast applied (Argus Analytics 26 March 2021).

REO		2024	2025	2026	2027	2028	2029	2030
Forecast Low	US$/kg	$60.05	$65.35	$52.41	$52.16	$58.15	$62.20	$73.01
Base Case	US$/kg	$60.50	$68.69	$56.45	$58.68	$69.96	$82.64	$118.88
Forecast High	US$/kg	$62.91	$74.50	$60.48	$64.65	$79.66	$105.30	$203.90

Note that pricing has been calculated based upon the data reported by Argus Analytics on 26 March 2021. The individual REO pricing has been applied to the Makuutu basket composition to determine the annual basket pricing above.

The emergence of potential increased supply coupled with diversity of supply are catalysts to support the growth of the Sc market. Key applications have been identified in the aerospace industry and a readily accelerating adoption in the automotive industry to assist with both reducing fuel emissions, and automotive light-weighting to increase EV range.

As such, for the purpose of the study, a Sc2O3 price of US$800/kg for production of less than 25 tpa reducing to a longer-term high production scale US$700/kg.

Payability applied to the Study for Makuutu's MREC product is nominated at 70% for REO content including Sc2O3.

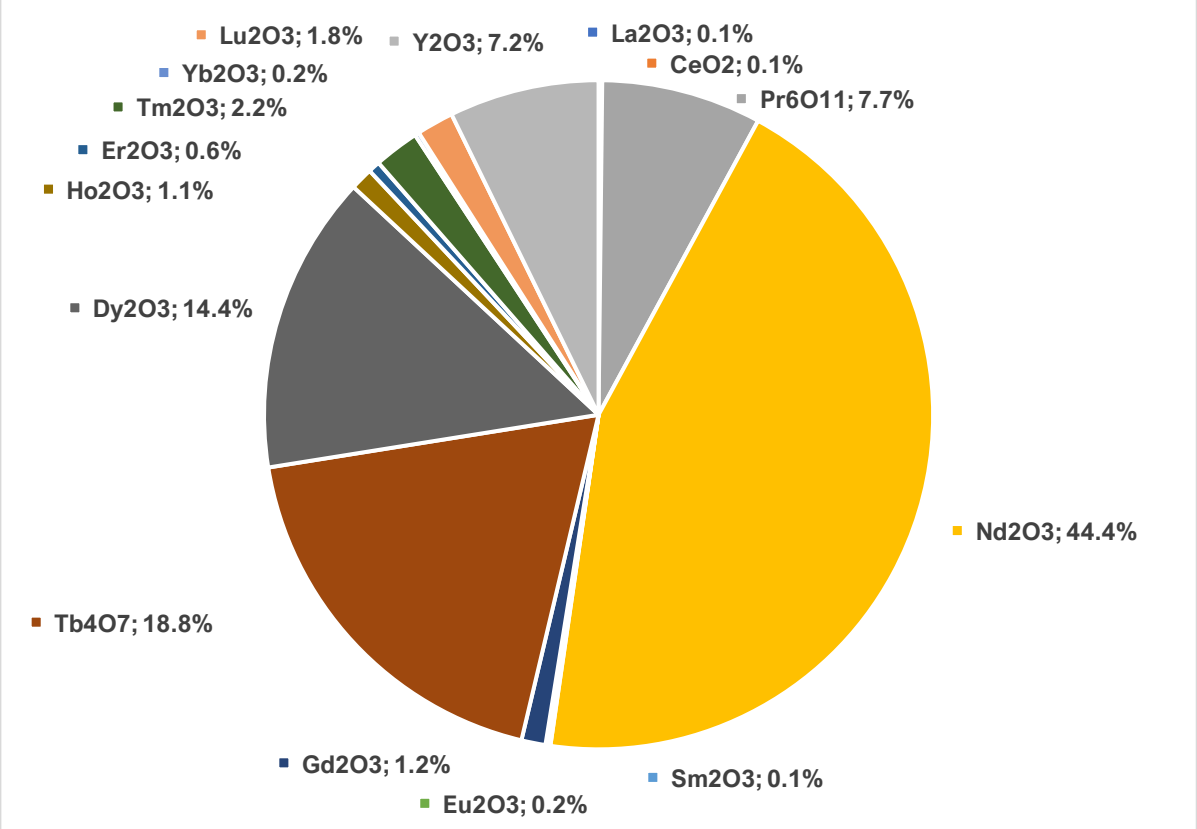

Figure 31: Makuutu Base Case Years 0 to 11 REO basket revenue distribution.

Financial Evaluation

A comprehensive financial model for Makuutu has been developed for the Scoping Study to provide an evaluation of the Base Case. The financial model incorporates physical, timing, cost and financial assumptions. All currency amounts in this Study are US$ otherwise stated.

The timing and financial assumptions include physical and cost assumptions detailed in the preceding sections of this announcement.

Corporate tax rate within Uganda is 30%. The government royalty rate for rare earths not quoted specifically within the Ugandan Mining Regulation 2019 however a royalty rate consistent with base metals at 5% has been applied. No additional royalties are applied to the Project.

Given Makuutu is located more than 50 kms from the boundary of Kampala, the depreciation schedule on plant and equipment allowed is 50% initial depreciation in Year 1, followed by 30% in Year 2 and 20% in Year 3.

The foreign exchange assumptions used in the Study are provided in Table 16.

Table 16: Foreign exchange assumptions used for the Study.

Currency	Code	Value
United States Dollar	USD	1.000
Australian Dollar	AUD	1.333
Ugandan Shilling	UGX	3600.000
Chinese Yuan Renminbi	CNY	6.840
Euro	EUR	0.8864
South African Rand	ZAR	14.093

The key revenue assumption is previously discussed and provided in Table 15. Cashflows are discounted using a rate of 8% real with NPV_8 presented from Final Investment Decision.

Table 17 summarises the key financial modelling assumptions of the Base Case based on the assumptions detailed in this section and throughout this announcement.

Table 17: Base Case Financial Model Assumptions

Parameter	Unit	Value
REO Payability	%	70%
Sc_2O_3 Payability	%	70%
Mixed Rare Earth Carbonate (MREC) grade	% REO	> 90% REO
REO Pricing		
Year 1 – 2024	US$/kg	$60.50
Year 2 – 2025	US$/kg	$68.69
Year 3 – 2026	US$/kg	$56.45
Year 4 – 2027	US$/kg	$58.68
Year 5 – 2028	US$/kg	$69.96
Year 6 – 2029	US$/kg	$82.64
Year 7 – 2030 and onwards	US$/kg	$118.88
Sc_2O_3 Pricing		
< 25 tpa	US$/kg	$800/kg
> 30 tpa	US$/kg	$700/kg
Debt Allocation	%	60%
Debt Interest Rate	%	8%
Uganda Corporate Taxation Rate	%	30%
Royalties	%	5%
Discount Rate - Real	%	8%
Depreciation		
Year 1	%	50%
Year 2	%	30%
Year 3	%	20%

Based upon the financial modelling of the Study, the financial evaluation of the Study is reported in Table 18, with and without potential revenue from Sc2O3.

Table 18: Makuutu Rare Earths Project Base Case economics, Years 0 to 11.

Parameter	Unit	Value
YEARS 0 - 11	Years	11
YEARS 0 - 11 Feed	tonnes, dry	84,500,000
YEARS 0 - 11 Waste	tonnes, dry	64,600,000
YEARS 0 - 11 Strip Ratio		0.76
YEARS 0 - 11 TREO Head Grade	ppm	810
Total REO Feed	tonnes	68,400
Total REO Production	tonnes	29,400
Average REO Production	tonnes / annum	2,680
YEARS 0 - 11 Sc_2O_3 Head Grade	ppm	30
Total Sc_2O_3 Feed	tonnes	2,480
Total Sc_2O_3 Production	tonnes	740
Average Sc_2O_3 Production	tonnes / annum	70
Total YEARS 0 - 11 Revenue	US$M	$2,522
REO Revenue, YEARS 0 - 11	US$M	$2,151
Sc_2O_3 Revenue, YEARS 0 - 11	US$M	$371
REO Revenue (excl Sc_2O_3)	US$ / tonne Plant Feed	$25.40
REO Revenue (excl Sc_2O_3)	US$ / kg REO	$73.20
Total YEARS 0 - 11 OPEX	US$M	$1,070
OPEX, average	US$ M/ annum	$97
OPEX, average	US$ / tonne Plant Feed	$12.60
OPEX, average	US$ / kg REO	$36.30
OPEX, average less Sc_2O_3 credit	US$ / kg REO	$23.70
CAPEX, pre-production	US$M	$89
CAPEX, expansion (from cash flow)	US$M	$212
EBITDA	US$M	$1,281
Free Cash Flow (Post Tax)	US$M	$766
Net Present Value (Post Tax)		
NPV_8	US$M	$321
IRR	%	37.6%
Payback	Years	5

Sensitivity analysis has been completed for NPV_8 by assuming a +/-25% and +/-10% movement above and below the value of specified base case assumptions, notably CAPEX, OPEX, metallurgical recovery and REO pricing. The variables chosen for analysis and the outcome on project economics are shown in Figure 32.

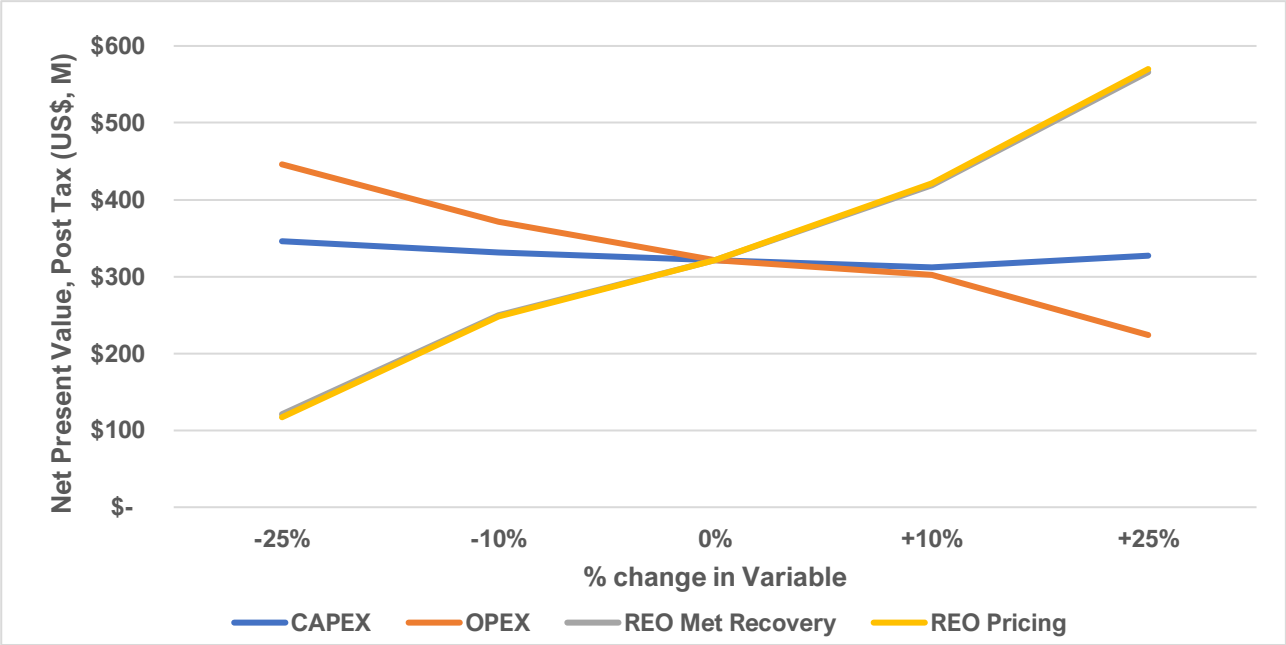

Figure 32: Post-tax NPV_8 sensitivity to +/-25% change in key inputs used for the Study for the Base Case over Years 0 to 11.

A comparison of the REO pricing compared to Makuutu basket March 2021 REO spot pricing (~ US$62.13/kg REO) has also been competed to provide context on sensitivity of the Project. This is provided in Table 19 against other pricing assumptions evaluated in the Study.

Table 19: Makuutu Basket value under March 2021 spot REO and Argus forecast pricing.

	Basket Value US$/kg	Base Case Years 0-11	
		NPV (post tax) US$, M	IRR %
Spot March 2021	$62.13	$109	24.8%
Argus Low	$73.01	$114	22.5%
Argus Base	$118.51	$321	37.6%
Argus High	$203.23	$726	53.7%

Carbon Footprint

Initial evaluation of the carbon footprint of the Project suggest that the operation has the potential to produce approximately 600,000 tonnes of CO2 over the proposed Base Case (11 years of operation). The low CO2 footprint is facilitated by the use of low-cost hydroelectric power within Uganda, with major sources of CO2 production at Makuutu coming the diesel consumption in mining and transport logistics of reagents into site.

The long-term advantage of Makuutu however is the potential to produce the full magnet REE suite, Nd, Pr, Dy and Tb, and roughly in the required ratio required to the facilitate the development of the

high intensity permanent magnets required to enable the gearless drive offshore wind turbine ambitions to meet the forecast global demand.

The production of heavy magnet REEs Dy and Tb is required to enable this to be achieved. Currently, in excess of 95% of the global heavy REEs are presently produced from the IAC deposits of southern China and Myanmar, with minor quantities produced in Australia and Vietnam. Without new HREO production to come online in the near term, there will be insufficient Dy and Tb available for individual countries to meet renewable objective by 2030, with supply beyond 2030 a fraction of demand.

With offshore wind power generation expected to grow at 20% compounded per annum to 2030, offshore wind installations are predicted to increase by a further 200 GW of installed capacity by 2030. Adding to this is a recently announced plan from the US Department of Energy to develop 30 GW of offshore energy by 2030, and a potential as much as 110 GW by 2050.

Makuutu, which is expected to commence operations in 2024, will produce approximately 4,800 tonnes of Nd2O3, Pr6O11, Dy2O3 and Tb4O7, which should enable the production of 17 GW of gearless direct drive offshore wind turbines by 2030. This equates to 10% of the increased to forecast demand. Further exploring the Base Case potential of Makuutu, the Project has the potential to produce enough REO to produce approximately 35 GW of gearless direct drive offshore wind turbines by 2034. When considering longer term potential at Makuutu with both Indicated and Inferred resources, over a 27-year period of operation, Makuutu could produce enough magnet REOs to enable in excess of 90 GW of offshore wind turbine capacity.

Makuutu has the potential to enable development and deployment of renewable offshore wind energy that will displace current coal fired power (which emits approximately 1 tonne CO2 per MWh), which equates to approximately 300 million tonnes of CO2 per year[9]. This annual CO2, now displaced each year by wind turbines, is two orders of magnitude more than the CO2 estimated to be generated over the life of the Makuutu Rare Earths Project.

A number of opportunities have been identified with potential to reduce the carbon footprint at Makuutu. These will be explored in the next phase of studies on the Makuutu, and include but are not limited to the following:

- Installation of conveying systems to transport ROM Feed from the mining pits to the process plant, utilising hydroelectric power to offset diesel consumed by trucking; and
- Options to produce reagents on site or in close proximity of the project area thereby reducing carbon footprint due to transport, thereby developing more extensive industry for Uganda.

Project Development Schedule

The proposed Project implementation strategy describes the sequence of events relating to the execution of project engineering and construction at Makuutu. The execution of the Project will be

[9] Assumes Offshore wind turbine utilisation factor of 45%

done in two phases. The first phase will be the completion of the resource drilling, process test work, ESIA and BFS. The completion of a demonstration plant in 2022 is seen as critical to validating and locking down the process design and equipment requirements for the commercial plant.

The second phase will be plant construction phase which is presently being discussed with potential engineering providers. A Lump Sum Turn Key (LSTK) is likely to be the selected option utilising Chinese based engineering providers familiar with IAC processing.

The Project will comprise of the following principal activities:

- Completion of remaining resource drilling and metallurgical test work;
- Completion of ESIA and BFS;
- Development, operation and optimisation of demonstration plant at Makuutu.
- Development of LSTK package;
- Appointment of construction in Uganda;
- Issue contracts for upfront site works;
- Plant construction and preliminary mining;
- Commissioning based on a sequentially planned exercise consistent with bringing the project to a satisfactory completion ready to commence delivery of REE at the correct product quality;
- Operations, at which time Makuutu becomes an integrated production operation.

The preliminary schedule includes a period of six months for the process test work to feed the BFS. The BFS to commence preliminary works with FS level design and cost estimate of a demonstration pilot plant to confirm the process selection and feed detailed design and engineering.

Long lead items (Membrane circuits) extend up to 52 weeks delivered to site and as such it is expected that these items will be ordered on award of the Mining Licence (ML) which is expected in late Q4, 2022. Options to reduce this lead duration are presently being explored with Chinese supply.

A preliminary high-level project schedule below shows the overall duration for the Project. The schedule is based on the current knowledge of project activity and approximate lead times for long delivery items. It is further assumed that the securing of contracts to commence fabrication of long lead items will take place within two weeks of FID, and that preliminary negotiations will be complete to support the early award of contracts.

The overall schedule is driven by the ESIA and BFS which feed directly to the application for the ML which is expected to be made in Q4 2022 followed by long lead procurement items. These deliveries are presently being reviewed with a view to utilise Chinese engineering and equipment supply to incorporate IAC know how into plant design.

The schedule assumes traditional delivery and on-site erection of plant and equipment apart from the RO/NF plant which are containerised (40’ containers). The use of methods such as pre-assembly off site and modular construction to minimise site resources have not been assessed at this stage. These will be further reviewed during the feasibility study stage.

Environmental permitting and development approvals are the main time determining factors to first production, scheduled for Q1 of 2024. The key document for the environmental approval process is the ESIA and this is due to be lodged in Q1 2022. Delays in the environmental approval process or any other development approval could result in a delay to the commencement of construction (planned for early 2023). This could lead to a delay to first production. The Company's stakeholder management and community engagement programs are also intended to increase awareness and communication across the local districts within Uganda to assist with facilitating approvals.

The schedule is as follows:

- Commencement of BFS – commenced in March 2021;
- ESIA – commenced March 2021 and due for completion by Q1 2022;
- Land access agreements in place by October 2021;
- BFS completed by end of Q3 2022, supports the ML application in October 2022, and this is granted late Q4 2022;
- Demonstration plant & BFS results will be available and support FID by late Q4, 2022 and Funding for award of the LSTK is in place;
- Site infrastructure works commence in January 2023;
- Ex-works lead times for material are subject to change, taking account that the durations quoted by vendors are based on the current economic situation;
- First production expected H1 2024

During the BFS the schedule will be detailed based on confirmed quotations for the supply of equipment and an agreed project delivery methodology. These will be aligned with the construction and installation contract works.

The schedule is based on achieving the shortest realistic overall time frame to completion with a logical sequencing of activities.

Project Funding

There will be the need for the Company to seek funding for pre-production capital estimated at US$89 million. Funding requirements for the modular expansion of the Project from years 2 onwards are expected to be met from operating cash flow.

The Board of IonicRE believes there is a reasonable basis to assume the necessary funding for the pre-production CAPEX (Module 1, US$89 million) for the Makuutu Rare Earths Project will be obtained for the following reasons:

- The low CAPEX requirement and highly valuable and geopolitically sensitive nature of the product to be generated at Makuutu results in an increasing need to develop new CREO and HREO supply sources.
- Pre-production CAPEX is relatively low, from a project funding perspective, portion of the Company's current market capitalisation of ~ A$180 million (15 April 2021)

- IonicRE has completed preliminary discussions with debt and equity providers, and potential concentrate offtake partners. Numerous expressions of interest with regards to providing Project financing have been received. Feedback from these discussions indicate the funding model will most likely be a mix of debt and equity. Further feedback indicates that the Project should be able to be financed with 60% to 70% debt with the balance to be provided by equity markets.
- The Board and Management have a strong track record in raising exploration, development and mining project finance for numerous ASX-listed companies in addition to IonicRE over the last 20 years.
- IonicRE currently has sufficient funds to complete the next stage of studies.

Conclusions and Recommendations

The Study indicates that a modular open pit and heap leach operation, starting with 1 module at 2.5Mtpa and progressively increasing over 10 years to treat 12.5Mtpa (5 modules) provides an optimal economic outcome for shareholders. The Project would also suggest that as the Mineral Resource Estimate confidence increases, along with potential for further total resource increase at Makuutu, the Makuutu Rare Earths Project is likely to be able to support a larger throughput and longer life mining and process throughput rate.

The completed resource extension drilling and radiometric anomaly confirms a large continuous deposit that extends approximately 26 km with potential for extension further to the east. The long narrow and shallow nature of the mineralisation, and low-cost simple processing could support one or more satellite processing arrangements. The Company will continue with an aggressive drilling plan focusing on resource development (infill) drilling as well as resource extension drilling at the Project. There is significant potential to expand Resources at Makuutu which may warrant further increases in throughput.

The ESIA, including environmental baseline monitoring, will be completed along with residue characterisation to facilitate progressive rehabilitation and other environmental initiatives at Makuutu.

Metallurgical testwork to date has provided encouraging results with a step change identified to dramatically increase the extraction of REE and enable the recovery of appreciable amounts of scandium as a co-product. Scope remains for further optimisation of the process metallurgy, and given large annual processing rates, potential for economic extraction of other payable metals.

Metallurgical variability testwork to increase the confidence in the metallurgical modifying factors, along with process development testwork focusing on process flow sheet optimisation will be ongoing, designed to optimise recovery, minimise reagent consumption and achieve a high-quality MREC. Membrane testwork will be initiated to optimise overall operational conditions and minimise operational costs. Additional scandium extraction testwork will be undertaken which may increase the potential for revenue generation at the project as a standalone product, and hence, enable direct marketing to Al-Sc alloy manufactures and further integration in the value chain.

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These studies will be part of the BFS which will assist in determining the Project's optimal throughput size and economics.

Authorised for release by the Board.

For enquiries, contact: Tim Harrison

Managing Director

+61 8 9481 2555

ADDENDUM

APPENDIX 1: Process Plant Layout

APPENDIX 2: JORC Code, 2012 Edition – Consideration of Modifying Factors (in the form of Section 4 of the JORC Code (2012) Table 1)

Competent Persons' Statements

Information in this announcement that relates to previously reported Exploration Targets and Exploration Results has been crossed-referenced in this report to the date that it was originally reported to ASX. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcements.

The information in this report that relates to Mineral Resources for the Makuutu Rare Earths deposit was first released to the ASX on 3 March 2021 and is available to view on www.asx.com.au (ASX:IXR). The Mineral Resource Estimate is as at 3 March 2021 and was reported in accordance with JORC Code 2012 guidelines. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcement, and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

The information in this announcement and that relates to mine design, planning and optimisation is based on information reviewed by Mr Lee White who is Principal Engineer of Ionic Rare Earths Limited and engaged through a service contract with Libertas Infinity Pty Ltd. Mr White is a Member of the AusIMM. Mr White has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr White consents to the inclusion in this announcement of the matters based on their information in the form and context in which it appears.

The information in this announcement and that relates to metallurgy testwork is based on information reviewed by Mr Tim Harrison who is Managing Director of Ionic Rare Earths Limited and engaged through a service contract with Horizon Metallurgy Pty Ltd. Mr Harrison is a Fellow of the AusIMM. Mr Harrison has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr Harrison consents to the inclusion in this announcement of the matters based on their information in the form and context in which it appears.

APPENDIX 1: Process Plant Layout

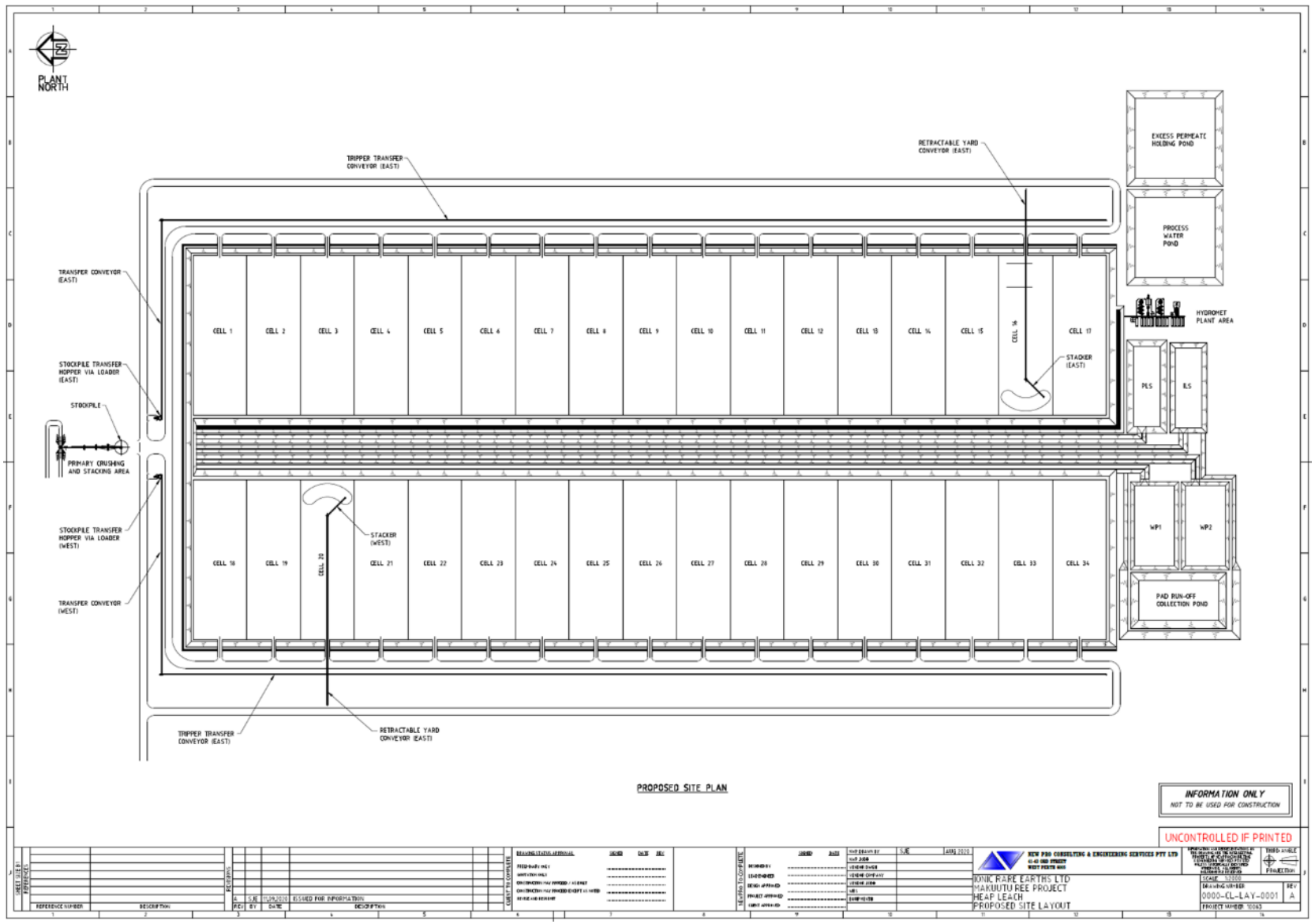

Figure 33: Conceptual Makuutu 5Mtpa (2 Modules) process plant layout.

APPENDIX 2:

Consideration of Modifying Factors (in the form of Section 4 of the JORC Code (2012) Table 1)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	No Ore Reserve has been declared. Refer to JORC Table 1 in previously released Mineral Resource information. The 3rd March 2021 Mineral Resource Estimate reported REO and Sc2O3 grades.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* *If no site visits have been undertaken indicate why this is the case.*	Site visits of the Makuutu Project property have been completed by Competent Persons Tim Harrison and Geoff Chapman in 2019 and 2020. Other visits to be undertaken by other Competent Persons when the travel restrictions and time permit. The site is generally flat and immediately accessible to high quality existing infrastructure. Setting up a mining and processing facility with residue back filling to the mined-out pits and progressive rehabilitation is seen as feasible.
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	No Ore Reserve has been declared. This is a scoping study and work has been carried out to an appropriate standard for this level of study. 69% Indicated material and 31% Inferred material has been used in the Base Case mine plan. Inferred material is scheduled to make up bulk plant feed in Years 10 and 11.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	Ionic Rare Earths Ltd have completed numerous metallurgical studies on composite samples of mineralisation at Makuutu as previously announced to the ASX on 18 February 2020, 26 May 2020, and most recently 4 August 2020. These results together with indicative mining and processing costs and other cost inputs supports application of a marginal cut-off grade of 200 ppm TREO (excluding CeO2). This cut-off is comparable to peer projects with similar mineralisation types and processing assumptions. Cut-off grade determination used REO pricing and equated to US$60.20 per kg REO equivalent. No value for Sc2O3 was included. An initial cut-off grade criterion of TREO (excluding CeO2) of 500 ppm have been applied during pit optimisation and mine scheduling to enable higher REO grade during the first 10 years of production.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	No Ore Reserve has been declared. Mineralisation is near surface, broadly flat lying, and of grades amenable to conventional open pit mining methods. The assumed mining method would be 'free dig' using truck and shovel using a selective mining approach to target higher grade ore feed in the early years of mine life.

Criteria	JORC Code explanation	Commentary
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* *The mining dilution factors used.* *The mining recovery factors used.* *Any minimum mining widths used.* *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* *The infrastructure requirements of the selected mining methods.*	Mining is planned to be undertaken on 2m benches The Mineral Resource model used for pit optimisation was reported in March 2021. The Mineral Resource model has been optimised and scheduled on an annualised basis using Datamine NPVS Optimisation using appropriate factors as part of the Scoping Study. The resultant optimal shell along with the preliminary LOM mine plan was used to estimate mine operational fleet and personnel requirements. No detailed pit designs taking account of pit wall angles and access ramps have been undertaken at this stage of the study. No additional dilution and mining factors have been applied to the mineral resources used in the preliminary mine plans other than the inherent dilution built within the geological modelling as precursor to the Resource Modelling and Estimation. Payables and REO pricing applied to the optimisation were consistent with spot REO pricing and equated to US$60.20 per kg REO equivalent. No value for Sc2O3 was included in mine optimisation. Royalty rates were sourced from the Ugandan Mining Regulations 2019. Geotechnical parameters were assumed based upon experience in Uganda and shallow nature of open pit mining. Wall angles have been assumed at 45 degrees in the absence of detailed geotechnical information however mining is anticipated to be generally shallow with no permanent high walls. Mining costs were built up based on experience of mining contractors operating within Uganda and include productivity factors were based on industry standards for open pit, productivity in Africa and weather. Mining supervision costs were developed by IonicRE. Process costs were developed by IonicRE. G&A costs were built up from by IonicRE.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* *Whether the metallurgical process is well-tested technology or novel in nature.* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* *Any assumptions or allowances made for deleterious elements.* *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*	The process selected has been used for over 40 years in southern China on similar mineralisation deposits. Heap leaching is extensively used in the processing of low-grade weathered ores for the recovery of copper, gold and uranium. The technology has been refined for use on lateritic ores to recovery nickel. Recoveries are estimated using a range of metallurgical test composites which have been evaluated using the optimised (salt plus acid) processing conditions identified for Makuutu. The REE extraction profile adopted to the Study (based upon the TREO head grade of the MRE), the resultant overall TREO metallurgical recovery is 44%, or 54% TREO-CeO_2. A scandium recovery of 30% has been used for the Study as demonstrated from testwork completed to date using salt plus acid optimised conditions. Deleterious elements are precipitated as an impurity precipitate prior to precipitation of mixed rare earth carbonate (MREC, product). Target MREC grade is > 90%.

Criteria	JORC Code explanation	Commentary
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	In excess of 150 metallurgical variability samples have been tested for salt only desorption demonstrating extractions up to 75% TREO-CeO_2. The bulk of these samples have originated in the Indicated Resource area at Makuutu. Composite testwork has been initiated on a selection of lithotype composites consisting of samples from across the Indicated Resource area. This testwork supports a step change for salt plus acid desorption over salt only desorption of an additional 20% TREO-CeO_2 recovery units when applying the optimised conditions. At the time of writing, Phase 2 metallurgical variability program testwork has been initiated at ALS Metallurgy Perth to increase the confidence in the metallurgical modifying factors to applied to the 315 Million tonnes of MRE defined to date stretching across 26 km of mineralisation corridor at Makuutu. At the time of writing Heap Leach Column testwork has been initiated with ANSTO Minerals in Sydney to validate optimal conditions and extraction potential using the optimised conditions on Makuutu samples. Heap leach recoveries have been based on both bottle roll and agitated leach testwork. Validation testwork underway at ANSTO correlating bottle rolls to Columns results shows consistent trends. Revenues derived in the model are based on industry standard saleable products. The composition of each product stream can be seen in the body of the Executive Summary Scoping Study report. The project cashflow includes the sale of scandium which makes up ~15% of the revenue stream over the Base Case (11 years).
Environmental	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Residues (the processed clay) are expected to be returned to the mined open pits and areas progressively rehabilitated. No waste rock characterisation has been completed to date. The waste rock is not acid generating. The waste rock is weathered lateritic mineralisation. Environmental base-line data collection has commenced in Uganda. National Environmental Management Authority (NEMA) has approved the Terms of Reference for the Makuutu environmental and Social Impact Assessment (ESIA).
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The Makuutu site is approximately 10km from Highway 109 which is a sealed bitumen road connecting to Kampala and to Kenya (Port of Mombasa). All weather access roads connecting the site to the adjacent sealed bitumen highway are already existing. A rail line lies within 10 km north of the Makuutu site near the town of Iganga. There are four hydroelectric power plants located within 65 km of the project area, with total installed generating capacity of ~810 MW, providing an abundant supply of cheap power to the project. The site is serviced by existing 132 kV and 33kV transmission infrastructure, with the main power corridor running immediately north of the current MRE and immediately adjacent to the proposed process plant location.

Criteria	JORC Code explanation	Commentary
		Water will be sourced at the project by harvesting water from the Makuutu site. Water will be collected from mining pits and rehabilitated areas via a network of water collection bores across the Project area. The nominated plant layout is immediately accessible for infrastructure, is flat with no immediate water courses running adjacent to the site and provides scope for further site optimisation to add additional heap modules. The location of the proposed process plant facility in relation to the initial mining pit. A workforce of semi-skilled and artisanal workers is available in nearby towns and population centres. The closest major population centre is Iganga, which has a population of 50,000. The town of Mayuge is approximately 10 km from the project site and the intent is to source local operations staff from the immediate districts and train staff accordingly. The operation is to be staffed by a residential workforce. No fly in – fly out is envisaged.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.* *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The source of exchange rates used in the study.* *Derivation of transportation charges.* *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* *The allowances made for royalties payable, both Government and private.*	Project capital and operating costs were developed by IonicRE with input from various consultants used on the Study and are based on vendor quotes for major items and consumables and factors for all other items. MREC is a >90% TREO target quality. Deleterious elements are removed prior to MREC precipitation. Exchange rates are based on a projected 0.75 AUD:USD rate, 3600 UGX:USD, 6.84 CNY:USD. Transport charges are based on budget quotes from a Ugandan freight provider. Royalties are based on Ugandan Mining Regulations 2019 royalty charges (5%). No other royalties over the Project exist.
Revenue factors	*The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	IonicRE has nominated the adoption of the Argus Analytics forecast pricing published on March 26, 2021 as the basis for the Study. The Argus forecast REO prices has been applied to the Makuutu basket to generate a pricing basis which as follows; 2024 = US$60.50/kg REO, 2025 = US$68.69/kg REO, 2026 = US$56.45/kg REO, 2027 = US$58.68/kg REO, 2028 = US$69.96/kg REO, 2029 = US$82.64/kg REO and 2030 and beyond = US$118.88/kg REO. Sc2O3 pricing basis is based upon a sliding scale of US$800/kg for < 25tpa production and US$700/kg for > 25 tpa production. Payability factors for MREC generated from IAC mineralisation attracts 70% payability. 70% payability has also been applied to Sc2O3.
Market assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* *A customer and competitor analysis along with the identification of likely market windows for the product.* *Price and volume forecasts and the basis for these forecasts.*	REOs are expected to exhibit long term trend demand growth, with substantial growth forecast for CREO and HREO based upon a shift in macro events relating to the deployment of renewable energy, electric vehicles, and communications. Current global supply is dominated by Chinese producers and world governments are looking to develop alternative REO supply sources. Makuutu is one of a handful of Ionic Adsorption Clay deposits outside of south China and as such has long term strategic importance as a low-cost source of HREO.

Criteria	JORC Code explanation	Commentary
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	New CREO and HREO product is expected to fail to meet growing demand into the global REO projected demand growth. IonicRE has applied REO forecast data provided by Argus analytics (26 March 2021) to determine estimated Makuutu basket pricing for the Study. It is forecast that REO pricing will increase dramatically over the next 5, and rapidly climb by 2029 as global renewable energy commitments and EV rollout exceeds capacity to produce enough CREO to meet requirements. Forecast beyond 2030 is particularly difficult. Supply of HREO is likely to see pricing increase multiples on current pricing to meet forecast demand to facilitate long term trends regarding global offshore wind demand, communications and defence applications. The EV trend is expected to remain extremely robust for the long-term providing growing annual demand for the CREO dominant Nd and Pr. Supply, demand, and price in key metal markets have been analysed as part of the Scoping Study and incorporated into the selected metal price assumptions utilised. The REO and Sc2O3 products incorporated in the economic analysis of the Makuutu Rare Earths Project in this Scoping Study are expected to be readily saleable in global metal markets, as the product will be in short supply. IonicRE's marketing strategy with respect to REO and Sc2O3 products from the Makuutu Rare Earths Project is planned to be a price maximising one that also takes detailed account of any potential counterparty risk. The Company plans to seek to market its product to a existing downstream users initially. This marketing strategy is expected to be further developed as part of the BFS process.
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	No inflation is included, i.e. real basis analysis. A real discount rate of 8% was adopted based on a review of discount rates used to evaluate peer projects by listed companies. Sensitivities were carried out on major inputs. These sensitivity ranges (for NPV and IRR) are presented within the body of this ASX release. To achieve the range of outcomes indicated in the Scoping Study, pre-production funding of approximately US$89M will likely be required. There is no certainty that IonicRE will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of IonicRE's shares. It is also possible that IonicRE could pursue other value realisation strategies such as a purchase or arrangement to acquire the remaining 40% or a portion thereof the Makuutu Rare Earths Project. Alternatively, IonicRE could

Criteria	JORC Code explanation	Commentary
		examine a sale, partial sale or joint venture of the Makuutu Rare Earths Project. This could materially increase or reduce IonicRE's proportionate ownership of the Makuutu Rare Earths Project. An assessment of various funding alternatives for the Makuutu Rare Earths Project has been made based on precedent funding transactions in the technology metals mining industry. IonicRE has formed the view that there is a reasonable basis to believe that requisite future funding for development of the Makuutu Rare Earths Project will be available when required. Global debt and equity finance availability for high-quality alternative sources of CREO and HREO projects remains robust. IonicRE has held preliminary, confidential discussions with respect to Makuutu Rare Earths Project and corporate funding/ownership with a number of potential strategic partners and financiers. These include international mining companies, trading houses, senior lenders and other parties capable of providing up to 100% of the financing required to develop the Project. These discussions have indicated that the Project possesses physical and financial attributes that deliver IonicRE a reasonable likelihood of securing the requisite funding for its development as it is required. The technical and financial parameters detailed in the Makuutu Rare Earths Project Scoping Study are robust and economically attractive. The Project is one of less than a handful of IAC deposits outside of SE Asia and as such has immense strategic value. Release of these Scoping Study fundamentals also now provides a platform for IonicRE to advance discussions with potential strategic partners, off-takers, debt providers and equity investors. IonicRE owns 51% of the Makuutu Rare Earths Project with an agreement in place to earn to 60% on the completion of the BFS. Additionally, IonicRE has the first option over the remaining 40% interest in the Project. Finally, 100% of the forecast REO and Sc2O3 production from the Project remains uncommitted. These are all factors expected to be highly attractive to potential strategic investors, offtake partners and conventional equity investors. These factors also deliver considerable flexibility in engagement with potential debt or quasi-debt providers. The IonicRE Board and management team has extensive experience in the broader resources industry. They have played leading roles previously in the exploration and development, including project financing of several large and diverse mining projects in Australia and Africa. In this regard, key IonicRE personnel have a demonstrated track record of success in identifying, acquiring, defining, funding, developing and operating quality mineral assets of significant scale. IonicRE has a current market capitalisation of approximately A$180 million (15 April 2021). The Company has nil only debt. IonicRE also has an uncomplicated, clean corporate and capital structure. These are all factors expected to be attractive to potential project financiers, strategic investors, offtake partners and conventional equity investors. These factors also deliver considerable flexibility in engagement with potential debt or quasi-debt providers.

Criteria	JORC Code explanation	Commentary
		The Company has a strong track record of raising equity funds as and when required to further the exploration and evaluation of the Makuutu Rare Earths Project. IonicRE's prior equity raising was a A$12M placement that was successfully undertaken in February 2021. Funding for Makuutu Rare Earths Project preproduction and initial working capital is not expected to be required until close to or post completion of a Bankable Feasibility Study (BFS) on the Project. Finalisation of a BFS on the Project is not expected before Q3 2022. The majority of market analysts/commentators globally forecast demand, and market prices, for high quality CREO and HREO products to increase from their current levels over the intervening period. IonicRE is targeting total pre-production and working capital funding being comprised of one, some or all of: senior project debt, mezzanine debt, offtake prepayment, sale of a strategic asset interest, equity issuance and/or royalty/stream funding. As noted earlier, total pre-production funding (or equivalent) of approximately US$89M will likely be required. The final mix will depend on general market and mineral industry conditions, specific counterparty appetite and terms, and the IonicRE Board's prevailing views on optimal funding mix and balance sheet configuration. It should be noted that this funding strategy is subject to change at the IonicRE Board's discretion at any point. It should also be noted that, while the IonicRE Board holds a reasonable basis to believe that funding will be available as required, there is no assurance that the requisite funding for the Project will be secured.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	At present there are no agreements in place with the community stakeholders who will be immediately affected by the Makuutu Rare Earths Project. IonicRE has implemented a revised Stakeholder Engagement Plan and is in the process of developing baseline socio-economic data that will assist the Project in determining the optimal strategy for developing Landowner Agreements with affected stakeholders.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* *Any identified material naturally occurring risks.* *The status of material legal agreements and marketing arrangements.* *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss*	No Ore Reserve has been declared. There are no marketing agreements in place at this early stage of the Project. The Project is situated within granted RLs 1693, 00007 and ELs 1766, 00147 and 00148. All retention licences and exploration licences are in good standing and there are no mining leases. There is no ESIA Certificate at this early stage of the project, however there are reasonable grounds to believe that an ESIA Certificate would be granted in a timeframe consistent with the proposed project development timeline given preliminary feedback from NEMA approving the Terms of Reference for the ESIA. There are reasonable grounds to believe that a Mining Licence/Lease would be granted in a timeframe consistent with the proposed project development timeline. There is no royalty agreement in place at this early stage of the project.

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	the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	
Classification	*The basis for the classification of the Ore Reserves into varying confidence categories.* *Whether the result appropriately reflects the Competent Person's view of the deposit.* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	No Ore Reserve has been declared. Classification of the mineral resource considered the interpretation confidence, drilling density, demonstrated continuity, estimation statistics (conditional bias, kriging efficiency) and block model validation results. The Makuutu Mineral Resource has been classified into Indicated (22%) and Inferred (78%) categories. The assigned Mineral Resource classification reflects the Competent Person's view of the deposit. Refer to the Mineral Resource Estimate JORC Table 1 released 3 March 2021 for additional details.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	No Ore Reserve has been declared. No audits or review have been completed for the Mineral Resource estimate.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	No Ore Reserve has been declared. The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The statement relates to the global estimates of tonnes and grades. Refer to the Mineral Resource Estimate JORC Table 1 released 3 March 2021 for additional details. No production data is available. This Scoping Study was completed to an accuracy of +/- 50%.