ASX ANNOUNCEMENT

21 April 2020

AVZ Delivers Highly Positive Definitive Feasibility Study for Manono Lithium and Tin Project

- US$2,348 M[1] pre-tax NPV_{10} and US$1,028 M[1] post-tax NPV_{10}
- Internal Rate of Return of 53% (pre-tax)[1] and 33% (post-tax)[1]
- Net Profit After Tax - Life of Mine of US$3,779 M[1]
- Payback period of 1.50 years (pre-tax) and 2.25 years (post-tax)
- The Ore Reserves contains 44.6 Mt of Proved Category and 48.5 Mt of Probable category Ore Reserves
- Life of Mine beyond 20 years based on a 4.5 Mt/a operation under pinned by the Ore Reserves
- Conventional open pit mining with low ore waste strip ratio of 1:0.48
- LOM lithia recoveries of 60% using only conventional DMS
- CAPEX of US$545.5 M includes a contingency of US$49.59 M (10%)
- US$380 M average annual EBITDA for LOM
- Two transport routes solution at US$229 per tonne[2] cost to Lobito port and US$275 per tonne[2] cost to Dar es Salaam port
- 20-year mine life producing 700,000 tonnes per annum high grade of SC6 lithium[3] and 45,375 tonnes per annum of Primary Lithium Sulphate
- Pre-production capital expenditure of US$545.5 M includes transport upgrade and rehabilitation of the Mpiana Mwanga Hydroelectric Power Plant
- Initial project development works already advancing including construction of the initial camp Colline

AVZ Minerals Limited (ASX:AVZ, "the Company") announces completion of its Definitive Feasibility Study ("DFS") for the Manono Lithium and Tin Project ("Manono Project") located in the Democratic Republic of Congo.

The DFS results confirm outstanding project metrics and provide a higher level of confidence[4] with respect to engineering design, construction requirements, logistics, project finance and risk assessments.

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Market Cap
$141 M

ASX Code: AVZ

[1] *Based on 100% of project interest. AVZ holds 60% of the project with an option to increase to 65%*

[2] *Based on dry bulk delivery and containerised transport respectively*

[3] *700 kt/a of SC6 produced, with 153 kt/a used as feed stock for lithium sulphate process plant*

[4] *AACE International Recommended Practice No. 47R-11, Class 3, nominally ±15%.*

The DFS indicates the project to be robust and viable with a product mix of Spodumene Concentrate (SC6) for 700,000 t/a and Primary Lithium Sulphate (PLS) for 46,000 t/a. PLS will be produced using 153,000 t/a of the SC6 product as feedstock.

The processing flow sheet also allows for the recovery of tin and tantalum from hard rock ore as well as smaller amounts of alluvial tin and tantalum secured from local artisanal miners.

The most cost-effective transport routes have been defined, thoroughly investigated and priced to meet the export requirements of the project. The thorough investigation has provided two suitable alternatives for transport of the products to port for export.

AVZ Managing Director, Mr Nigel Ferguson, said: "It is a pleasure to have completed the DFS and be able to present the DFS financials to our shareholders."

"The DFS proves the Manono Lithium and Tin Project to be a very robust project with strong financial metrics, demonstrated by the key metrics of the DFS base case scenario on a 100% ownership basis.

"The Manono Project has a substantial ore body capable of extending the Life of Mine well past the current 20 years, as modelled. It also has a robust workable transport solution for securing delivery of products to the export ports and a clear plan to work with the community for social development and environmental compliance."

"We have intentionally been conservative in our interpretations of financial impacts on the project and therefore believe these numbers can be improved in the future, despite having included significant, non-project infrastructure items such as rehabilitation of roads, the Mpiana Mwanga Hydroelectric power plant and taken an adverse opinion on any potential VAT refund, amounting to some US$658M over the Life of Mine, which has been totally excluded from the cash flow."

"The Manono Project economics are enhanced by addition of the high value-added Primary Lithium Sulphate product. The project is also highly sensitive to market pricing of SC6. Roskill has stated its 20-year price forecast sees an increase in unit value as demand increases and as such, the project becomes incrementally more robust and profitable."

"Further upside potential for the Manono Project comes in the nature of significant upside resource potential from Carriere de L'Este, added cash flow from tin and tantalum credits, additional negotiations on a reduction in pricing for transport, the roll out of electric powered mining equipment and the establishment of the Special Economic Zone at Manono, which will potentially provide discounted rates on tax, duties, VAT and further significant benefits for the project."

"All these aspects support a highly positive outlook for the Manono Project and I look forward to updating the market soon with respect to offtake agreements, financing and a decision to mine."

The Manono Project Definitive Feasibility Study

The Manono Project has been evaluated on a discounted cashflow (DCF) basis. The results of the analysis show the Manono Project to be economically robust, increased materially through production of the Primary Lithium Sulphate product.

The feasibility model for the project was developed on an ungeared basis and excludes inflation and escalation. The economic analysis assumes both equity and debt will be secured to provide all development and construction funding.

Key outcomes of the DFS for the Base Case (547,000 t/a of Spodumene Concentrate 6% (SC6) and 45,375 t/a of Primary Lithium Sulphate (PLS)) are presented in Table 1 and are based on the following parameters, as per Table 2 below. Estimates presented in Table 1 are based on a 100% project interest. AVZ holds 60% of the Manono Project with an option to increase to 65%.

The Executive Summary of the DFS is attached as an addendum to this release (see Appendix 1).

Metric	Pre Tax (100% basis)	Pre Tax (60% basis)	Post tax (100% Basis)	Post tax (60% Basis)
Project NPV_{10}	USD 2,348 M	USD 1,409 M	USD 1,028 M	USD 616 M
IRR	53.15%	53.15%	33.15%	33.15%
EBITDA	USD 8,359 M	USD 5,015 M	-	-
Profit After Tax (NPAT)	-	-	USD 3,779 M[1]	USD 2,267 M
LOM (years)	20	20	20	20
Payback (years)	1.5	1.5	2.25	2.25

[1] VAT refund is excluded in the base scenario, with the VAT included, this figure is USD 4,438 M on a 100% ownership basis and USD 2,669 M on a 60% ownership basis

Table 1: Key Financial Metrics on Base Case Scenario (100% and AVZ's 60% Ownership Basis)

Economic Results

The base case economic results for the Manono Project, as summarized below are very favourable and shows the robustness of the project.

Production	Units	Base Case
Material Mined - Ore	Mt	93.0
Total Material Mined	Mt	137.2
Revenue		
Net SC6 Price (Management Assumption Price)	USD/t	673.70
SC6 Production	t	11,354,174
Net Primary Lithium Sulphate Price	USD/t	7,355
Primary Lithium Sulphate Production	t	938,321
Net Tin Price	USD/t	9,955
Tin Production	t	62,699
Net Artisanal Tin Price	USD/t	9,955
Artisanal Tin Production	t	12,659
SC6 Revenue	**USD M**	**7,649**
Primary Lithium Sulphate Revenue	**USD M**	**6,901**
Tin Revenue	**USD M**	**624**
Artisanal Tin Revenue	**USD M**	**126**
Construction Costs		
Mine	USD M	(7.10)
DMS Process plant	USD M	(166.58)
Primary Lithium Sulphate process plant	USD M	(178.62)
Hydroelectric Plant	USD M	(46.54)
Non process Infrastructure	USD M	(30.88)
Roads (MN to KD and MN to HEPP) and product transport mobile equipment	USD M	(41.85)
Port equipment (roto boxes and rotator attachment)	USD M	(2.04)
General and Admin	USD M	(22.27)
Contingency @ 10%	USD M	(49.59)
Operational Period Costs		
Mining Cost	USD M	(761)
Processing Cost	USD M	(1,944)
Transport Cost	USD M	(3,153)
Artisanal Tin	USD M	(76)
G&A Cost	USD M	(361)
Royalties	USD M	(536)
Sustaining Capex	USD M	(92)
Closure Costs	USD M	(19)
Project Net Cash Flow Pre-Tax	**USD M**	**6,942**
Project Net Cash Flow, Post-Tax, All Equity Basis		
VAT Tax Paid	USD M	(897)
VAT Refunded	USD M	-
Income Tax Paid	USD M	(2,344)
Export Tax Paid	USD M	(765)
Import Taxes Paid	USD M	(29)
Project Net Cash Flow Post-Tax	**USD M**	**3,779**
Project NPV 10% - Post Tax	**USD M**	**1,028**
Project IRR Post Tax	**%**	**33.15%**
Payback Period Post Tax	**Years**	**2.25**

Table 2: Summary of the breakdown of Base Case Economic Results based on 100% project interest (AVZ holds 60% of project interest)

Capital and Operating Costs

Capital costs estimates are presented in Figure 1 of this report. Initial construction capital is estimated at USD 545.5 M including 10% contingency, with further sustaining capital of USD 92 M required over the LOM, which is allowed for in the Opex calculations. The initial capital cost estimated includes USD 7.1 M of pre-production mining which includes relevant work required for the construction of the ROM pad. Operating cost expenditure estimates by quarter are presented in Figure 2.

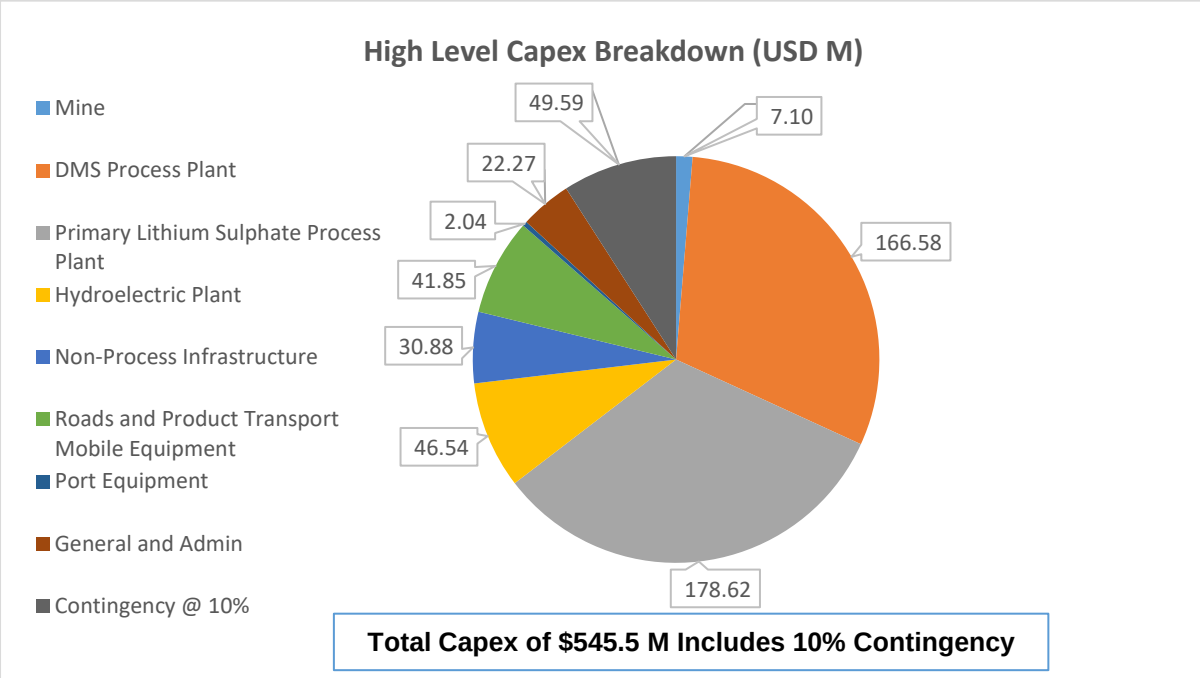

Figure 1: Breakdown of Construction Capex

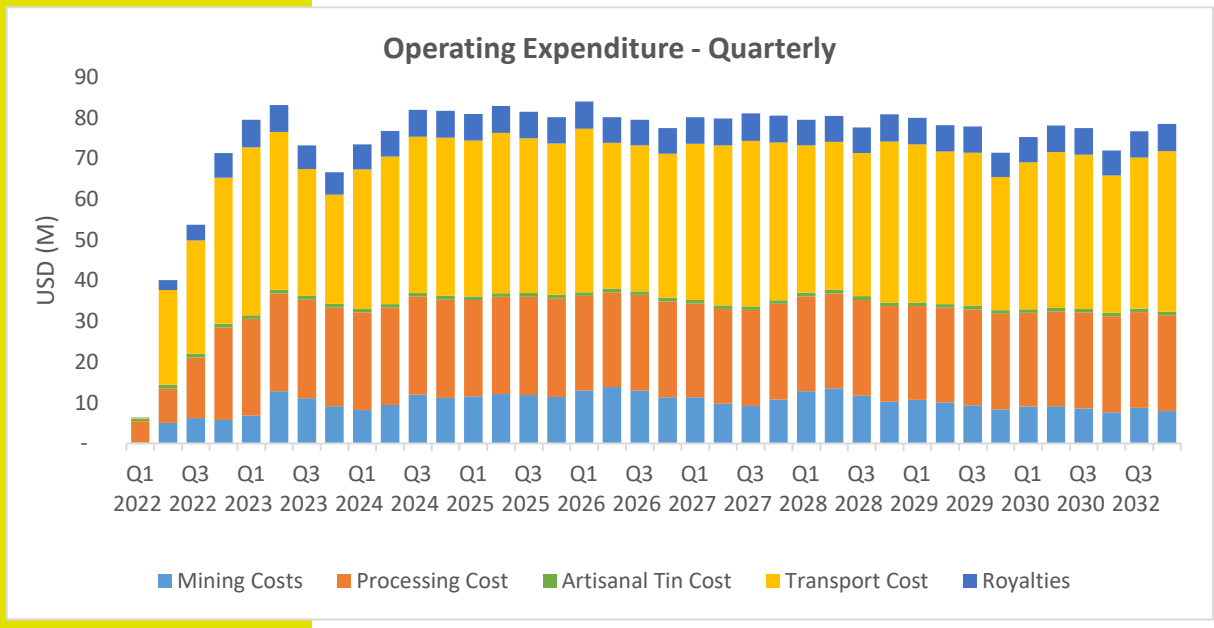

Figure 2: Breakdown of Operating Expenditure by Quarter (2022 – 2032)

Operating cost estimates have been built from first principles based on metallurgical test work and the process plant design engineering work results to optimise and validate the operating cost model. A summary of the operating cost estimate is provided in the Table 3 below.

Description	LOM Cost USD (M)	Cost / Ore Tonne (USD / t ore)	Cost / Tonne Conc. (USD / t SC6)
Mining	$761 M	$8.18	$52.46
Processing (Excl Artisanal Tin)	$1,944 M	$20.90	$134.02
General and Administration	$361 M	$3.88	$24.90
Transport	$3,153 M	$33.89	$217.34
Royalties	$536 M	$5.76	$36.92
Artisanal Tin	$76 M	$0.82	$5.24

Table 3: Breakdown of Operating Cost

A summary of the operating cost estimate based on product and under financial model base case conditions is provided below in Table 4 and 5. Table 4 below highlights the LOM costs apportioned to the SC6 product which excludes those associated with the production of Primary Lithium Sulphate, Tin and Artisanal Tin.

Cost Area	SC6 LOM Cost USD (M)	Cost/SC6 tonne produced USD	Total Cost/t %
Mining	$559 M	$49	13.2%
Processing	$250 M	$22	5.9%
General and Administration	$266 M	$23	6.2%
Transport[1]	$2,865 M	$252	68.0%
Royalty[2]	$268 M	$25	6.7%
Totals	**$4,208 M**	**$371**	**100%**

Table 4: Operating Costs/SC6 t produced over the LOM as per Fin Model Base Case

[1] Based on average rate for Lobito and Dar es Salaam as the split is 50/50 to each
[2] Royalty is calculated as 3.5% of Sell Price on a CIF Basis

The table below shows the costs associated with the Primary Lithium Sulphate Product only. Noted that the Processing costs include the mining costs associated with the SC6 feed product to the Primary Lithium Sulphate. Other costs are notionally apportioned.

Cost Area	Annual Cost USD (M)	Cost/ PLS t produced USD	Total Cost/t %
Processing[1]	$1,891 M	$2,016	75.8%
General and Administration	$96 M	$102	3.8%
Transport	$269 M	$287	10.7%
Royalty	$242 M	$257	9.7%
Totals	**$2,498 M**	**$2,662**	**100%**

[1]*Includes SC6 as a feed product at cost (3.4 t SC6 to 1 t Primary Lithium Sulphate)*

Table 5: Operating Costs of Lithium Sulphate average for LOM per the Fin Model Base Case

Transport

The Company has finalised and priced two preferred routes which service the east and west coast of Africa for ports of export at Lobito in Angola and Dar es Salaam in Tanzania, in that order of preference. The two routes provide flexibility to ship product either way and mitigate situations such as a derailment on one allowing the operation to ship product to the other in the interim. This strategy also optimises marine shipping for Americas and Europe-based clients versus eastern based clients. The western route will also reduce the CIF costs for American and European clients. The study has considered shipment of SC6 in dry loose bulk format and Primary Lithium Sulphate in 20-foot GP marine containers using a combination of truck road freight and rail and then ultimately marine shipping. See Figure 3 below for the various transportation routes investigated by AVZ during completion of the DFS.

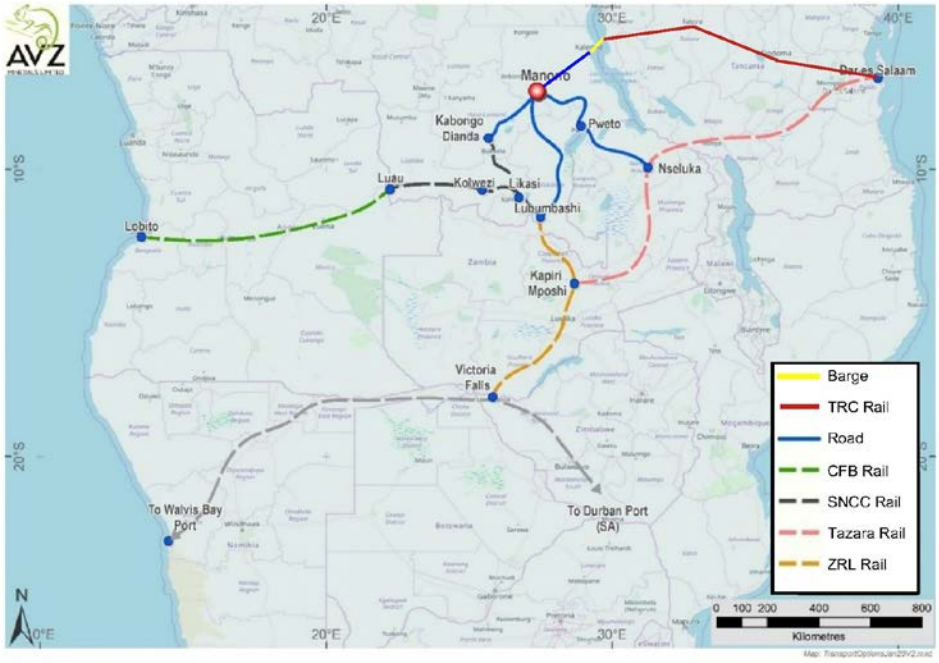

Figure 3: Routes investigated for product transportation during DFS

AVZ has calculated the cost of product transport to a port of export under International Chamber of Commerce (ICC) Incoterms 2010, free on board (FOB) Lobito or Dar es Salaam. The summary provided in Table 6 below provides costs for transportation of SC6 product in loose bulk format using both AVZ approved routes.

Route	Product format	Road cost[1] USD/t	Rail cost USD/t[2]	Port handling costs USD/t	Customs and duties cost USD/t FOB	Total cost USD/t FOB
Manono to KD to Lobito (2,486 km)	Dry Bulk	$29.70	$152.58	$17.96	$29.15	**$229.39**
Manono to KD to Dar es Salaam (3,137 km)	Dry Bulk	$29.70	$199.01	$17.50	$29.15	**$275.36**
Manono to KD to Lobito (2,486 km)	Container	$36.34	$169.98	$17.96	$31.01	**$255.29**
Manono to KD to Dar es Salaam (3,137 km)	Container	$36.34	$234.07	$17.50	$31.01	**$318.92**

[1] Includes Ferry crossing costs at the Lualaba River
[2] Includes a correction factor for moisture content at 4% and intermodal station rehandling

Table 6: Transport cost summary based on the Financial Model Base Case Scenario

Refer to Section 1.24 of the Executive Summary (Appendix 1) for more details on the Supply Chain Logistics.

Pricing Assumptions

The Base Case pricing is based on both Management assumptions and independent market reports including the Roskill Report released on 24 December 2019. Pricing fluctuations are addressed as part of the project sensitivity analysis.

The economical evaluation is conducted on an FOB basis. Therefore, where relevant, pricing has been discounted from the CIF rate to FOB rate to provide like-for-like comparative analysis. The pricing and discount rates are show in Table 7 below:

Lithium Pricing Assumptions (USD/Tonne)	
SC6 - Management Assumption Pricing	
Management Assumption and Roskill Price	$699.00
Less Discount [5] *(based on dry loose bulk)*	$(25.30)
Net Selling Price	**$673.70**
Lithium Sulphate	
Lithium Sulphate Selling Price	$ 7,400
Less Discount[6] *(based on 20 foot shipping container)*	$ (45)
Net Selling Price	$ 7,355
Tin Pricing	
Tin	
Tin Selling Price	$10,000
Less Discount[7]	$ (45)
Net Selling Price	**$ 9,955**
Artisanal Tin	
Artisanal Tin Selling Price	$10,000
Less Discount[8]	$ (45)
Net Selling Price	**$ 9,955**

[5] Discount is to align the SC6 FOB pricing with CIF pricing
[6] Discount is to align the PLS FOB pricing with CIF pricing
[7] Discount is to align the Tin FOB pricing with CIF pricing
[8] Discount is to align the Artisanal Tin FOB pricing with CIF pricing

Table 7: Pricing Assumptions

Taxes and Duties

Taxes and royalties are included in the economic evaluation of the project as described below.

Description	Rate(s)
Income Tax	30%
VAT	16%
Import	• 2% applied on Imports between Year 1 – 3 • 5% applied on Imports purchased post year 3 • 5% applied to imports of Fuels, Lubricants, Reagents and Consumer Goods • 10% applied to imports of Other Intermediary Goods and Other Consumables.
Transport customs and duties	Applied rates for bulk and containerised transportation
Export Tax	5% applied to all revenues

Table 8: Applied taxes, customs and duties

As announced on 18 February 2020, AVZ has executed a binding Memorandum of Understanding ("MOU") with the Ministry of Industry for the development of a Special Economic Zone ("SEZ") in Manono.

The purpose of the MOU is to set up the terms for collaboration and negotiation between the Ministry of Industry and AVZ with a view to establishing the "Manono Special Economic Zone" in the Tanganyika Province and the development of basic infrastructure within the same. Development of the Manono Lithium and Tin Project and associated infrastructure for mining operations, including the export of product, would be at the core of these developments.

In essence, a Special Economic Zone provides for an "investor to enjoy exemptions or reductions, either permanently or temporarily, in a degressive or non-degressive manner, with or without the possibility of renewal or extension, on direct or indirect taxes, domestic duties and taxes, national, provincial and municipal royalties, import or export duties payable in Democratic Republic of Congo."

As the developer of the SEZ, AVZ would be eligible to additional benefits from the Congolese Government as opposed to being purely an investor in the SEZ. AVZ intends to secure the services of a suitably qualified manager to run the SEZ under contract which will be a joint venture between the Government, a financier, and AVZ.

The Company expects some of the applied taxes, customs and duties in the modelling to be waived or significantly reduced under the AVZ and DRC Government's Special Economic Zone agreement which is being negotiated now.

Mineral Resource

The Roche Dure Mineral Resource was reported in accordance with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code). The Mineral Resource is stated at 400 Mt with an average grade of 1.65% Li_2O (spodumene) and was further categorised into Measured, Indicated and Inferred Mineral Resources as shown in the table below.

Category	Tonnes (Millions)	Li_2O %	Sn ppm	Ta ppm	Fe_2O_3 %	P_2O_5 %
Measured	107	1.68	836	36	0.93	0.31
Indicated	162	1.63	803	36	0.96	0.29
Inferred	131	1.66	509	30	1.00	0.28
Total	**400**	**1.65**	**715**	**34**	**0.96**	**0.29**

Table 9: Roche Dure Pegmatite Lithium Mineral Resource at a 0.5% Li_2O cut-off grade

All tabulated data have been rounded and as a result minor computational errors may occur.
Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.
Fe_2O_3 and P_2O_5 are potentially deleterious elements.

Category	Tonnes (Millions)	Li_2O %	Sn ppm	Ta ppm	Fe_2O_3 %	P_2O_5 %
Low Grade Tin Domain						
Measured	14	1.70	191	28	0.95	0.30
Indicated	34	1.73	177	27	1.01	0.29
Inferred	77	1.65	171	24	1.03	0.28
Total	**125**	**1.68**	**175**	**26**	**1.01**	**0.28**
High Grade Tin Domain						
Measured	93	1.68	932	37	0.92	0.31
Indicated	128	1.60	967	38	0.94	0.29
Inferred	54	1.67	996	37	0.96	0.28
Total	**275**	**1.64**	**962**	**38**	**0.94**	**0.29**

Table 10: Roche Dure Pegmatite Tin and Tantalum Mineral Resource

Note: all above Roche Dure Pegmatite Tin and tantalum Mineral Resources are at a 0.5% Li_2O cut-off grade reported based on tin domains

All tabulated data have been rounded and as a result minor computational errors may occur.
Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.
Fe_2O_3 and P_2O_5 are potentially deleterious elements.

Ore Reserves

The Ore Reserve estimate is based on the May 2019 Mineral Resource estimate generated for AVZ by the MSA Group. This Mineral Resource estimate was previously released by the Company in May 2019 as shown in Table 9 and 10 above. Measured and Indicated Mineral Resources were converted to Proved and Probable Ore Reserves respectively, subject to mine designs, modifying factors and economic evaluation. The 20 year mine life is based on the Roskill marketing report commissioned by AVZ that projects lithium concentrate prices only for this period. It does not reflect the potential conversion and mining of the remaining combined Mineral Resources at Roche Dure.

Ore Reserve of 93.0 Mt has been estimated as 44.6 Mt Proved and 48.5 Mt Probable Ore Reserves, reported in accordance with the JORC (2012 Edition) and as shown in Table 11. The Ore Reserve estimate was prepared by CSA Global, an experienced and prominent mining engineering consultancy.

Reserve category	Tonnes (Mt)	Grade Li_2O (%)	Contained Li_2O (Mt)	Grade Sn (g/t)	Contained Sn (kt)
Proved	44.6	1.62	0.72	958	42.7
Probable	48.5	1.54	0.75	1016	49.3
Total	**93.0**	**1.58**	**1.47**	**988**	**92.0**

Table 11: Ore Reserve Estimate

Notes: Figures above may not sum due to rounding applied.

Mining dilution by elevation has been applied to represent the changing quantities of waste dilution existing on each bench of the pit:

- *Surface to the 565RL has 5% mining dilution applied*
- *565RL to the 505RL has 2% mining dilution applied*
- *505RL to the 435RL has 1% mining dilution applied*
- *Below the 435 RL has 0% mining dilution applied, as the whole bench is ROM.*

A variable mining recovery has also been applied:

- *Surface to 565RL has 98% mining recovery applied*
- *Below the 565RL has 99% mining recovery applied*

The Ore Reserve estimate has been based on a cut-off of > US$0.00 block value comprising an economic block by block calculation.

Refer to Appendix 2 on the Ore Reserve estimation process and the breakdown of Mine Production per year.

Sensitivity

The forecast low-cost structure enables the project to withstand significant commodity price fluctuations. Table 12 provides a sensitivity analysis demonstrating the robust economics under a range of scenarios. Additional sensitivity optionality has been assessed as represented in the NPV scenario analysis in Figure 4 below.

Description	Base Case SC6 @$699/t PLS -1 train VAT Refund Off Tin Recovery On	No Primary Lithium Sulphate SC6 @$699/t	Base Case with SC6 @ $495/t
Pre-tax Project NPV[10%]	US$2,348 M	US$1,323 M	US$1,585 M
Post-tax Project NPV[10%]	US$1,027 M	US$466 M	US$532 M
Project IRR (pre-tax)	53.15%	49.08%	40.57%
Project IRR (post-tax)	33.15%	27.19%	23.10%
Project Payback Period (Pre-tax)	1.50 years	2.00 years	2.08 years
Project Payback Period (Post tax)	2.25 years	3.00 years	3.25 years

Table 12: Sensitivity Analysis Summary in USD and based on 100% project interest (AVZ holds 60% of project interest)

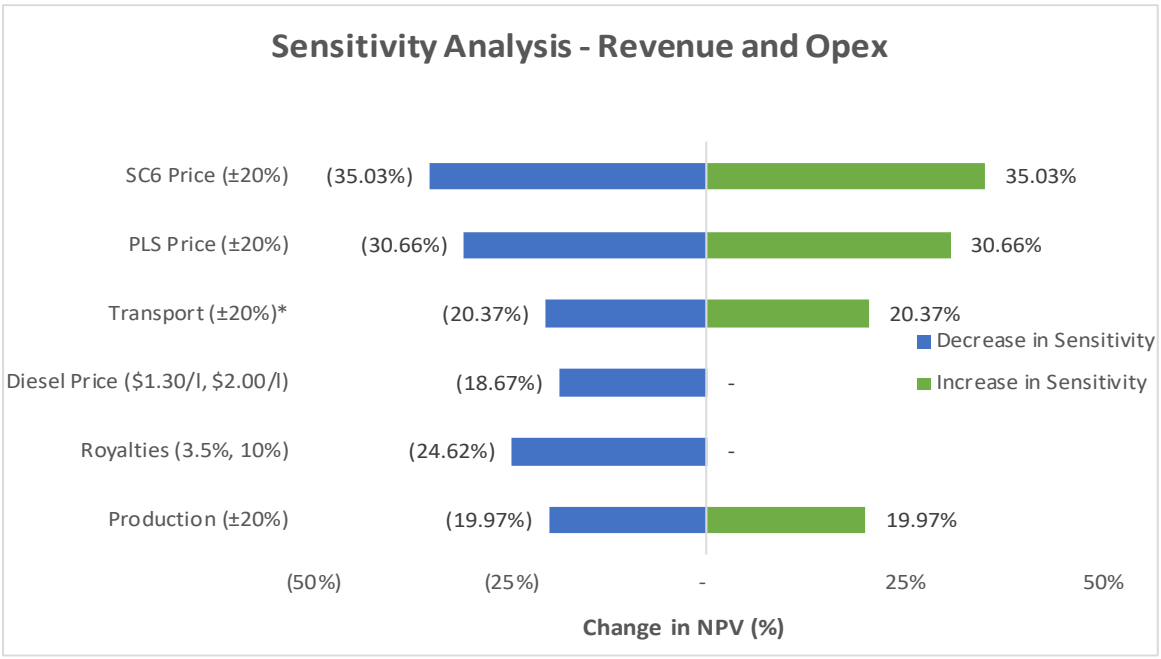

Figure 4: Sensitivity Analysis to Base Case NPV based on 100% of project interest (AVZ holds 60% of project interest)

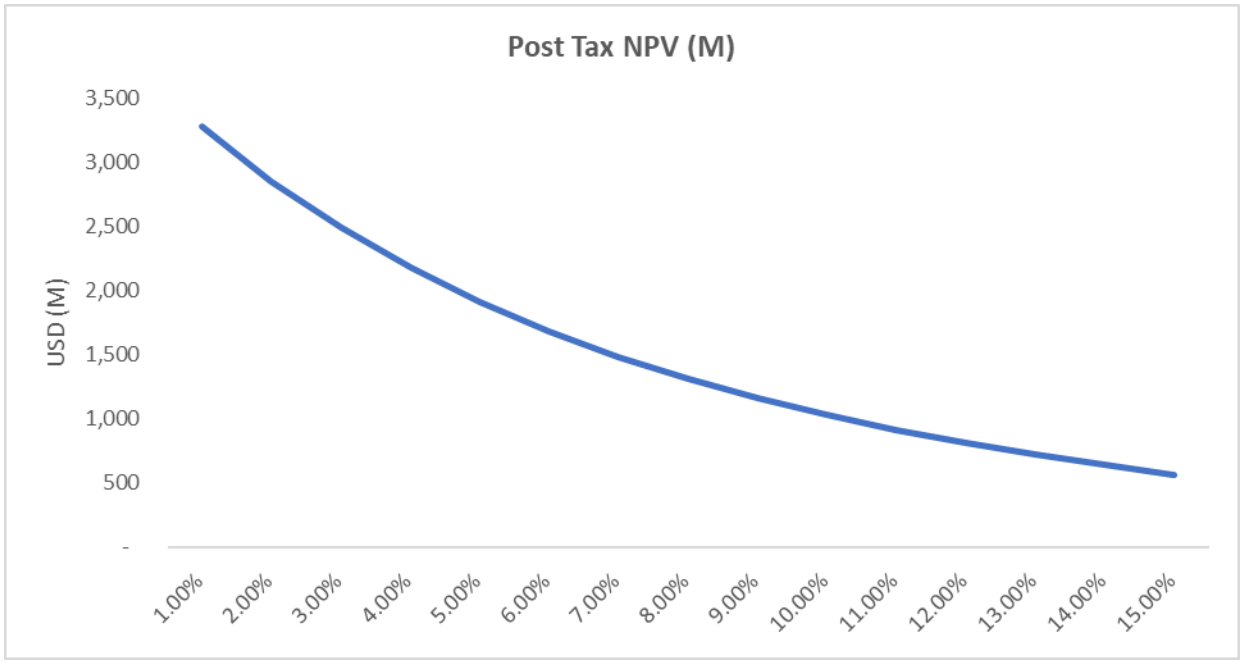

Figure 5: Sensitivity of Discount Rate to Base Case Post Tax NPV based on 100% of project interest (AVZ holds 60% of project interest)

The feasibility model for the project was developed on an ungeared basis and excludes inflation and escalation.

The Project payback period is expected to be 2 years and 3 months (post-tax) on an all equity basis. The Payback period is defined as the time after the process plant start-up that is required to recover the initial expenditures incurred developing the Project.

As is the case in many lithium mine developments, the NPV and IRR are most sensitive to changes in revenue parameters such as the Lithium Sulphate Price. Due to the location of the mine in the DRC, the cashflows are also sensitive to the transport costs which accounts for 46% of the total operating costs of the Project. The cashflow analysis has been prepared without inflation or escalation of revenue or costs.

Funding and Strategic Alternatives

AVZ's Board has approved this Definitive Feasibility Study and recommends progressing the Manono Project to construction, given due reference to current market uncertainty and pending the successful completion of financing activities.

The Company has been actively working with several debt and corporate advisors, including Prime Business Capital Pty Ltd of South Africa, Stanton-Reed Iberia sl of Spain and JNS Capital Corp of Canada to name three, to secure project debt and equity finance on competitive terms and continues to assess various funding options as presented. The majority of groups are awaiting release of the DFS to enable more detailed discussions to ensue.

In late 2019, the Company commenced Project finance discussions with several Australian and International financing groups, from which the Company received a number of preliminary indications of possible financing structures including bonds, equity and loan instruments. Discussions with these, and other interested parties have progressed where a data room has been opened to allow financial and technical due diligence. It is expected several technical site visits will be conducted on the back of positive feedback from this process.

In addition, AVZ has been progressing offtake discussions with Yibin Tianyi Lithium Industry Co., Ltd and other potential buyers of product from the Manono Project. The details within the DFS will assist in securing these agreements and may provide some advance funding under the offtake arrangements.

Review of financing options for the Manono Project will be completed in due course following this Definitive Feasibility Study. In addition to traditional financing solutions, the Company is concurrently evaluating strategic alternatives to enable the project to be brought into production, with a view to maximising economic outcomes for shareholders.

The Company is yet to receive any written or binding financing options from interested financing parties approached to date.

A final investment and financing decision will be made at a time assessed as most appropriate and beneficial to the Company. In the meantime, the Company remains in a solid financial position with cash reserves of approximately A$4 million and further funding expected shortly.

Consultants & Contributions

The Manono Lithium and Tin Project Definitive Feasibility Study was managed by AVZ's Project Director, Mr. Michael Hughes in collaboration with highly recognised independent engineers, consultants and specialists as listed below. The AVZ Board has approved this Definitive Feasibility Study for general publication and use.

Consultancy/Company	Work conducted for the DFS	Company Logo
GR Engineering Services Process Plant (Australia)	Full DFS package for the SC6 process plant and the Non Process Infrastructure	
PAIE (and Scott Barry) Metallurgical test work consultants (Australia)	Metallurgical test work campaign design and management	
Nagrom Metallurgical test work Laboratories (Australia)	Metallurgical laboratory test work to PAIE specification and supervision	
ALS Metallurgical test work Laboratories (Australia)	Metallurgical laboratory test work to PAIE specification and supervision	
Coppern HPGR OEM (Australia)	Metallurgical laboratory test work to PAIE specification and supervision	
Steinhart Ore sorting OEM (Australia)	Ore sorting test work to PAIE specification and supervision	
Middindi Consultants Geotechnical Study (South Africa)	Pit rock wall geotechnical study to AVZ specification	

Consultancy/Company	Work conducted for the DFS	Company Logo
RD Consultants Hydrogeology and Hydrology (Canada)	Hydrogeology and Hydrology Study to AVZ specification	
CSA Global Resource to Reserves Study and mine plan development (Australia)	Resource to reserve, Mine Whittle pit shell design and mine plan and drill plan	
ERM Mine Closure Plan (Australia)	Develop and draft Mine Closure Plan and review certain ESIA documentation	
CONSI Operational Readiness (Australia)	Developed a Commissioning plan and researched software to manage as well as updated the RACI matrix	
L&MGSPL Tailings Storage Facility (Australia)	Conducted a site visit, reviewed geotechnical report by others and conducted the conceptual design of the TSF	
Dynamic IT IT systems (Australia)	Specified the requirements of the Project and obtained budget pricing for ERP, Communications and connection systems	
Infraology Technical rail due diligence (Australia)	Conducted technical due diligence on all railways and ports and developed a transport model and conceptual designs for staging stations	
Roskill Marketing survey (United Kingdom)	Marketing survey, with demand and pricing forecasts for Lithium to 2040	
Graeme Campbell and Associates Geoscience (Australia)	Geochemical analysis of the tailings material	
EmiAfrica ESIA (DRC)	Full ESIA study and preparation of the PE application	
FTI Consulting Financial Modelling (Australia)	Development of a Financial Model in Corality software	
KCS Mining Mine Contractor costing (DRC)	Prepared tender ricing for Contract Mining	
Increva Project Management Consultants (Australia)	Assisted with various aspects of the DFS compilation	
Nexus Bonum PTY Ltd Ore Sorting Consultants (Australia)	Conducted a Scoping Study to determine if ore sorting was worthwhile to study in depth for the project	
iSpatial GIS system mapping (Australia)	Drilling database and spatial data management, analysis and the majority of maps, figures and cross sections.	

Consultancy/Company	Work conducted for the DFS	Company Logo
Wisedesign Africa/IBC/EPS Mpiana Mwanga DFS (South Africa)	Conducted a full site visit and then presented a DFS for the HEPP package of work	
TAZARA Railway (Tanzania)	Allowed technical due diligence on facilities, held several meetings and provided a rates quotation	
Porto do Lobito (Angola)	Allowed technical due diligence on facilities, held a meeting and provided a rates table	
Caminho de Ferro de Benguela (Angola)	Allowed technical due diligence on facilities, held a meeting and provided a rates table	
Rosa da Silva Portuguese translator (Australia)	Portuguese to English translation services	No Logo available
Ernst and Young Tax consulting (Australia and DRC)	Tax consultation services regarding the DRC tax regime	
Sichuan Calciner Technology (China)	Full technical DFS package for the Primary lithium Sulphate Process Plant and conducted some calcining test work.	
Alan Dickson and Associates PTY Ltd (Australia)	Financial Model peer Reviewer	
MSI Global Business Solution (Australia)	Specified the sow for Roskill and managed their output as well as researched Primary Lithium Sulphate demand and pricing	

This release was authorised by Nigel Ferguson, Managing Director of AVZ Minerals Limited.

For further information, visit www.avzminerals.com.au or contact:

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Competent Persons Statement

The information that relates to Ore Reserves is based on information compiled by Mr Daniel Grosso and reviewed by Mr Karl van Olden, both employees of CSA Global Pty Ltd. Mr van Olden takes overall responsibility for the Report as Competent Person. Mr van Olden is a Fellow of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition). The Competent Person, Karl van Olden has reviewed the Ore Reserve statement and given permission for the publication of this information in the form and context within which it appears. The estimated ore reserves underpinning the production target have been prepared by a competent person, Karl van Olden from CSA Global, in accordance with the requirements in Appendix 5A of the (JORC Code) 2012.

The Mineral Resource estimate has been completed by Mrs Ipelo Gasela (BSc Hons, MSc (Eng.)) who is a geologist with 14 years' experience in mining geology, Mineral Resource evaluation and reporting. She is a Senior Mineral Resource Consultant for The MSA Group (an independent consulting company), is registered with the South African Council for Natural Scientific Professions (SACNASP) and is a Member of the Geological Society of South Africa (GSSA). Mrs Gasela has the appropriate relevant qualifications and experience to be considered a Competent Person for the activity being undertaken as defined in the 2012 edition of the JORC Code. Mrs Gasela consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to metallurgical test work results is based on, and fairly represents information compiled and reviewed by Mr Nigel Ferguson, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy and Member of the Australian Institute of Geoscientists. Mr Ferguson is a Director of AVZ Minerals Limited. Mr Ferguson has sufficient experience that is 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 in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resource and Ore Reserves". Mr Ferguson consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

Definitive Feasibility Study Parameters – Cautionary Statement

The DFS referred to in this document is based on a Proved and Probable Ore Reserves derived from Measured and Indicated Mineral Resources. No Inferred Mineral Resource is included in the estimation of Ore Reserves. The Company advises that the Proved and Probable Reserve provides 100% of the total tonnage and 100% of the total lithium underpinning the forecast production target and financial projections. No Inferred Mineral Resource is included in the Life of Mine plan.

The DFS is based on the material assumptions outlined in this document. These include assumptions about the availability of funding. While the Company 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 DFS will be achieved.

To achieve the range of outcomes indicated in the DFS, funding in the order of US$545.5 M will likely be required. Investors should note that there is no certainty that the Company will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

It is also possible that the Company 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 the Company's proportionate ownership of the project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the DFS.

Project approval and development remains subject to market conditions, project financing and Board and regulatory approvals. There is no certainty the DFS or the Ore Reserve from which it was derived will result in commercial production or the assumptions used in the DFS and resulting economic outcomes that are included in this document will be realised.

Unless otherwise stated, all cash flows are in US dollars and are not subject to inflation/escalation factors and all years are calendar years. The estimate accuracy has been developed to comply with AACE International Recommended Practice No. 47R-11, Class 3, nominally ±15%.

This document has been prepared in accordance with the JORC Code (2012) and the current ASX Listing Rules. The Company has concluded that it has a reasonable basis for providing forward-looking statements included in this document. The detailed reasons for this conclusion are outlined throughout this document. Your attention is drawn to the preceding Cautionary Statement, the following Disclaimer and the following Forward-looking Statements.

No New Information or Data

AVZ Minerals Limited ("AVZ" or "the Company") confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources and Ore Reserves, all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not materially changed from the original market announcement.

Disclaimer

This DFS document has been prepared by AVZ Minerals Limited ("AVZ" or "the Company") (ABN: 81 125 176). Neither the ASX, nor their regulation service providers accept responsibility for the adequacy or accuracy of this document. This document contains summary information about AVZ, its subsidiaries and their activities, which is current as at the date of this document. The information in this document is of a general nature and does not purport to be complete, nor does it contain all the information which a prospective investor may require in evaluating a possible investment in AVZ.

By its very nature, exploration for minerals is a high-risk business and is not suitable for certain investors. AVZ's securities are speculative. Potential investors should consult their stockbroker or financial advisor. There are a number of risks, both specific to AVZ and of a general nature which may affect the future operating and financial performance of AVZ and the value of an investment in AVZ, including but not limited to economic conditions, stock market fluctuations, lithium price movements, regional infrastructure constraints, timing of approvals from relevant authorities, regulatory risks, operational risks and reliance on key personnel and foreign currency fluctuations.

Except as required by applicable law, the Company is under no obligation to update any person regarding any inaccuracy, omission or change in information in this document or any other information made available to a person nor any obligation to furnish the person with any further information.
Recipients of this document should make their own independent assessment and determination as to the Company's prospects, its business, assets and liabilities as well as the matters covered in this press release.

Forward-looking Statements

Certain statements contained in this document, including information as to the future financial or operating performance of AVZ and its projects may also include statements which are 'forward-looking statements' that may include, amongst other things, statements regarding targets, estimates and assumptions in respect of mineral resources and anticipated grades and recovery rates, production and prices, recovery costs and results, capital expenditures and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions. These forward-looking statements are necessarily based upon a number of estimates and assumptions that, while considered reasonable by AVZ, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies and involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward- looking statements.

Forward-looking statements can generally be identified by the use of forward looking words such as "likely", "believe", "future", "project", "should", "could", "target", "propose", "to be", "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", and "guidance", and other similar words and expressions, which may include, without limitation, statements regarding plans, strategies and objectives of management, expected exploration costs for the Company and indications of, and guidance on future earnings or financial position or performance. Any such forward-looking statement also inherently involves known and unknown risks (including risks generally associated with the mining industry), uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated.

Any forward-looking statements are also based on assumptions and contingencies which are subject to change without notice and which may ultimately prove to be materially incorrect. Investors should consider the forward-looking statements contained in this document, in light of those disclosures and not place undue reliance on such statements.

The forward-looking statements in this document are not guarantees or predictions of future performance and may involve significant elements of subjective judgment, assumptions as to future events that may not be correct, known and unknown risks, uncertainties and other factors, many of which are outside the control of the Company. The forward-looking statements are based on information available to the Company as at the date of this document. Except as required by law or regulation, the Company undertakes no obligation to provide any additional or updated information or update any forward-looking statements, whether as a result of new information, future events or results or otherwise. To the maximum extent permitted by law, each member of the Company and its respective directors, officers, employees, advisers, agents and intermediaries disclaim any obligation or undertaking to release any updates or revisions to the information to reflect any change in expectations or assumptions. No member of the Company makes any representation or warranty (express or implied) as to the fairness, accuracy, reliability, currency or completeness of any forward-looking statements contained in this document.

AVZ Minerals Limited

Appendix 1: Executive Summary

DEFINITIVE FEASIBILITY STUDY
MANONO LITHIUM AND TIN PROJECT

April 2020

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1. EXECUTIVE SUMMARY

AVZ Mineral Limited (AVZ), through its 60% controlled subsidiary company, Dathcom Mining SA (Dathcom) will develop the Manono Lithium and Tin Operations (MLTO) facility in Manono, DRC. The Definitive Feasibility Study (DFS) has been concluded and indicates that the project is robust and viable from commencement, with a product mix of Spodumene Concentrate containing 6% Lithium (SC6) for 700 kt/a[1] and a Primary Lithium Sulphate of 46 kt/a. Primary Lithium Sulphate will be produced from 153 kt/a of the SC6 product, as a feedstock. The process system will also allow for the recovery of tin and tantalum from the ore, as well as from alluvial tin and tantalum procured by MLTO from a proposed local artisanal mining co-operative.

The most cost effective transport routes have been defined and priced to meet the export requirements of the project. Although the transportation of the product to a port is the single most costly area of our transport operations, the project remains viable due to the product mix of SC6 and Primary Lithium Sulphate, combined with the forecast market demand and pricing received from Roskill. These costs will be further reviewed.

AVZ and Dathcom are committed to developing a world class mining operation at Manono, which will dovetail well with the local community and be a real catalyst for uplifting the economy of the region as it impacts Manono, Mpiana Mwanga and Kabondo Dianda. Jobs will be created and the focus for recruitment will be on the fair treatment of all Congolese with non-discriminatory employment opportunities, being offered to all whom qualify for employment. MLTO will employ young and old, male and female and disabled people wherever possible to represent a true demographic of the region, impacted and affected by the MLTO.

AVZ and Dathcom are also committed to full and transparent compliance measures. Those key performance areas being implemented and frequently reported on will be reported in full transparency. An additional initiative of which AVZ is especially proud, is that to the maximum extent possible, all power requirements for the MLTO will be sourced from renewable clean energy, generated at the Mpiana Mwanga Hydro Electric Power Plant. As soon as suitable mining electric diggers/shovels and trucks become commercially available, these units will be used by MLTO. Light vehicles, such as buses, utility vehicles and eventually the product transport fleet, will all be electric driven. The excess power generated, will also be sold to Société Nationale d'Electricité (SNEL) for their electrification of Mpiana Mwanga and Manono townships.

[1] Please note that of the 700 kt/a of SC6 produced, 153 kt/a will be used as feed stock to the Primary Lithium Sulphate process plant leaving 547 kt/a of SC6 for sale on the market and to offtake agreements.

Through the advent of the AVZ Foundation (AVZF), a not for profit company, incorporated by AVZ under the laws of the DRC, AVZF will appoint a management committee from a cross section of stakeholders to manage this organisation. The sole purpose of the AVZ Foundation will be upliftment of the community by addressing the most impactful and far reaching projects to benefit as many people in the region as possible.

AVZ will have oversight of this company and direct involvement, in order to ensure that funds procured and allocated to projects, are used for those allocated purposes and that the projects are implemented in an orderly and transparent manner. It is envisaged that Dathcom will impose a royalty mechanism on all investors in the Special Economic Zone (SEZ) to allow for funding into the Foundation, as well as soliciting funding from developed countries and non-governmental organisations (NGOs).

This DFS is based on a 20 year projection for the expected price of lithium spodumene and confirms the mining of 93 Mt of ore in this period. It should be noted that this equates to less than 25% of the currently known mineral resources at Roche Dure. This is only a fraction of the exploration potential on Dathcom's exploration concession.

These miners will be registered and approved by MLTO to operate in designated areas within the mining lease. MLTO will formalise this form of mining in order to regulate it to internationally accepted practices and to meet all non-conflict mineral and metals mining requirements, as currently imposed by such guidelines and acts as the Organisation for Economic Co-operation and Development (OECD) Due Diligence Guidance (2016v3); the European Union (EU) Minerals Due Diligence Regulation 2017 Regulation (EU) 2017/821 and the Dodd-Frank Wall Street Reform and Consumer Protection Act (1502)

Dathcom will sign up to the International Tin Association Limited (ITA) for their International Tin Supply Chain Initiative (iTSCi) (https://www.itsci.org) as a full member to demonstrate transparency and to invite regular third party audits of the artisanal tin mining activities under the control of the MTLO.

1.1 Ore Reserve Report

CSA Global has concluded its review of the project and has issued a report titled "Manono Lithium and Tin Project Ore Reserve Report" which includes the Competent Person (CP), Mr Karl van Olden's sign off of the Ore Reserve Report.

1.2 Competent Person Statement

The information that relates to Ore Reserves is based on information compiled by Mr Daniel Grosso and reviewed by Mr Karl van Olden, both employees of CSA Global Pty Ltd. Mr van Olden takes overall responsibility for the Report as Competent Person. Mr van Olden is a Fellow of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition). The Competent Person, Karl van Olden has reviewed the Ore Reserve statement and given permission for the publication of this information in the form and context within which it appears. The estimated ore reserves underpinning the production target have been prepared by a competent person, Karl van Olden from CSA Global, in accordance with the requirements in Appendix 5A of the (JORC Code) 2012.

1.3 Project Robustness

The DFS has proven that the Manono Lithium and Tin Project is a robust project with strong financial metrics as is demonstrated by the key metrics of the DFS base case[2] scenario (100% ownership basis). The project has a solid ore body capable of extending the LOM past 20 years. It also has a solid workable transport solution for getting the products to the export ports and a clear plan to work with the community for social development and environmental compliance. Please see the project's key investment decision metrics below:

Metric	Pre-Tax (100% basis)	Post-tax (100% Basis)
Project NPV_{10}	USD 2,348 M	USD 1,028 M
IRR	53.15%	33.15%
EBITDA	USD 8,359 M	N/A
TAX	USD 4,034 M	N/A
Profit After Tax (NPAT)	N/A	USD 3,779 M[3]
LOM (years)	20	20
Payback (years)	1.50	2.25

Table 1.1 Key Financial Metrics on Base Case Scenario (100% project interest) AVZ holds 60% of project interest)

[2] The Base Case in the Financial Model is as per the description of scenario and switch setting described below.
[3] VAT refund is turned off in the base scenario, with the VAT refund turned on, this figure is USD 4,438 M on a 100% ownership basis over the LOM, i.e., VAT refund is equivalent of USD 658 M over the LOM.

The base case financial model assumes the following sensitivity and scenario switches are in place:

- SC6 selling price is set to USD 699/t (CIF basis)
- Primary Lithium Sulphate price is set to USD 7,400/t (CIF basis)
- 20% Direct tipping in the ROM bin is applied
- Tin revenue is included
- HEPP Capex is included
- Royalty is set to 3.5% for all products
- VAT refund is assumed to be excluded
- All sensitivities are set to 100% - these include:
    - Primary Lithium Sulphate price
    - Tin price
    - Diesel price
    - Reagent prices
    - Hydro Power cost
    - Production scaling
    - Transport costs

The Project economics are enhanced by the production of the high value-added Primary Lithium Sulphate product. The project is also highly sensitive to the market pricing of SC6 and once this pricing increases as per Roskill's 20-year price forecast demand increases, the project becomes incrementally more robust and profitable, accordingly. The MLTO will produce two main lithium products:

- 547 kt/a SC6 Lithium Concentrate or 45,583 t/month
- 46 kt/a Primary Lithium Sulphate or 3,833 t/month (~20 kt/a LCE)

Secondary products include tin, tantalum and niobium, albeit in comparatively smaller quantities, these will be extracted and sold as by-products. Roskill stated that "*Manono's key difference to other lithium hard rock deposits is its grade and size. With over 400 Mt at 1.65% Li_2O (16.3 Mt LCE) it is almost double that of the industry leader and accounts for over one fifth of spodumene resources globally, from a single deposit, still with a significant upside*". Roskill furthermore also stated that "*It is fair to then say that Manono's favourable deposit characteristics aid in maintaining low on-site costs with a key cost competitive advantage being its comparatively low operating cost, which is lower than the Australian industry average*".

Metric	Units
Capex	USD 545.5 M[4]
Opex SC6 FOB[5]	USD 371/t
Opex Primary Lithium Sulphate FOB[6]	USD 2,662/t
SC6 Price CIF	USD 699/t
Primary Lithium Sulphate Price CIF	USD 7,400/t
Strip Ratio	0.48 : 1
Royalty of Revenue	3.5%

Table 1.2 Other Key Project Metrics on Base Case Scenario (100% Ownership Basis)

The Carriere de L'Este prospect presents itself in two ways. Firstly, as a separate potential resource of equivalent or larger size and at least equivalent grade, as at Roche Dure and secondly, as a potentially higher grade feed stock, for additional processing plants that may be established onsite in the future or for blending with Roche Dure ore.

Product transportation has been refined and the pricing may still be reduced through final contract negotiations. In particular, railway operators may present an upside opportunity that will improve margins.

Offtake agreements are presently being negotiated with several companies. Yibin Tianyi, is showing interest in securing approximately 150 kt/a - 200 kt/a of SC6 and many other lithium convertors are either approaching AVZ or vice versa, regarding securing offtake agreements not only for lithium products, but also for tin and tantalum. AVZ believe that the 46 kt/a of Primary Lithium Sulphate produced will be suitable for off-takers who are looking to reduce their own supply chain cost through buying already processed lithium products to reduce their own operational working capital risk.

AVZ has a great opportunity to develop a mining operation that will run off hydro power and be able to provide some of that power, back to the socially disadvantaged community of Manono, as well as assisting that community through a well-planned Social Development Plan to ensure that the community are uplifted through this very impactful project. Further

[4] Includes: SC6 and Primary Lithium Sulphate processing plants, Non Process Infrastructure, HEPP, Intermodal staging stations, road upgrades and 10 % Contingency.
[5] This is an averaged cost/t over the LOM Includes transport, customs and excise and Royalties (see tables 1.16 and 1.17 for full Opex cost breakdown and table 1.19 for the breakdown of transport costs)
[6] Based on shipping out of Lobito

expansion of the use of hydro generated electricity could extend to mining equipment and truck fleet at MLTO, when this equipment becomes available.

Dathcom has completed a full ESIA, which is a prerequisite to applying for the conversion of the exploration permit, PR13359, to a working mining licence equivalent, Permis d'Exploitation (PE). The application submission for this PE will be made during April or May 2020 and it is anticipated that the PE will be granted within 6 months of the submission. Dathcom has already commenced discussions with the necessary authorities on this matter and does not foresee an issue with the award of a PE through this application to the Mining Registry of DRC.

Post publication of this DFS, AVZ will now focus on setting up early works plans and negotiate project funding, with intention to reaching a Financial Investment Decision (FID) date as soon as is practically possible given market conditions.

AVZ's executive management team is amply qualified and ready to take on the challenge of executing this project.

1.4 Approvals Progress

AVZ has completed an ESIA which will be submitted to the DRC Environment Minister for the issue of an Environmental Exploitation licence under article 37 of the Environment Protection Law, for approval by the end of April 2020. The application is to be submitted with the DFS and this is why the application has not been done yet, as AVZ work toward publishing the full DFS in April 2020. The approval is anticipated to take 6 weeks from submission.

The application to convert the PR into a PE can only be applied for once the ESIA is approved and an Environmental Exploitation Licence has been issued, as this is a pre requisite to making an application for the PR conversion to PE. AVZ has completed the DFS contents to populate the PE application form and will translate this and all appendices into French for submission together with the proof of the ESIA approval, in the form of an Environment Exploitation Licence, as soon as this is available. It is expected that the PE conversion could take up to 6 months before the PE is issued.

Following on from obtaining the PE being granted, an Explosive Licence may be applied for. Apart from disclosed requirements discussed, above and elsewhere within this document, there are no other relevant social, environmental and government approvals required.

1.5 Funding and Strategic Alternatives

AVZ's Board has approved this Definitive Feasibility Study and recommends progressing the Manono Project to construction, given due reference to the current market uncertainty and pending the successful completion of financing activities.

The Company has been actively working with several debt and corporate advisors, including Prime Business Capital Pty Ltd of South Africa, Stanton-Reed Iberia sl of Spain and JNS Capital Corp of Canada to name three, to secure project debt and equity finance on competitive terms and continues to assess various funding options as presented. The majority of groups are awaiting release of the DFS to enable more detailed discussions to ensue.

In late 2019, the Company commenced Project finance discussions with several Australian and International financing groups, from which the Company received a number of preliminary indications of possible financing structures including bonds, equity and loan instruments. Discussions with these, and other interested parties have progressed where a data room has been opened to allow financial and technical due diligence. It is expected several technical site visits will be conducted on the back of positive feedback from this process.

In addition, AVZ has been progressing offtake discussions with Yibin Tianyi Lithium Industry Co., Ltd and other potential buyers of product from the Manono Project. The details within the DFS will assist in securing these agreements and may provide some advance funding under the offtake arrangements.

Review of financing options for the Manono Project will be completed in due course following this Definitive Feasibility Study. In addition to traditional financing solutions, the Company is concurrently evaluating strategic alternatives to enable the project to be brought into production, with a view to maximising economic outcomes for shareholders.

The Company is yet to receive any written nor binding financing options from interested financing parties approached to date.

A final investment and financing decision will be made at a time assessed as most appropriate and beneficial to the Company. In the meantime, the Company remains in a solid financial position with cash reserves of approximately A$4 million and further funding expected shortly.

1.6 Project Background

AVZ has been involved with the Manono Lithium and Tin project since its acquisition in early 2017. After securing the two licences (PR4029 and 4030) surrounding the historical Manono mining centre, AVZ secured a majority interest right in the DRC registered company, Dathcom, a joint venture operating company. AVZ, through AVZ International Pty Ltd (100% wholly owned subsidiary of AVZ Minerals Limited) holds a 60% direct equity interest in Dathcom and thus the Manono Exploration Licence PR13359.

La Congolaise d'Exploitation Minière (Cominière – owning 25%) and Dathomir Mining Resources SARL (Dathomir - owning 15%) are the two remaining shareholders.

AVZ has an option to increase its direct equity interest in Dathcom to 65% following the execution of a Share Sale Agreement with Dathomir in 2019 and holds rights of first refusal over additional equity in the project from other Dathcom shareholders.

AVZ, has the controlling interest in Dathcom and has been the sole funder and driving force in completing all work to date and this DFS report. AVZ also owns 100% of the regional licences under AVZ Congo, including licences PE4029 and PE4030.

The project is situated near the town of Manono, approximately 500 km directly north of Lubumbashi, the capital of the Haut Katanga Province in the DRC. The area is centred on 7°19' south latitude, 27°25' east longitude. The project site covers approximately 188 km^2.

It is possible to reach the project area by road from Lubumbashi, although sections of the road are in poor condition. Using a suitable four-wheel drive vehicle in the dry months, the trip can be completed in a day. The final sections of this road are currently being refurbished and it is anticipated that they will be completed well in advance of the start of plant construction. A local airline conducts regular charter air flights between Manono and Lubumbashi with a flying time of approximately 1.5 hours.

Cassiterite was first discovered in Manono in 1910, following which systematic prospecting programmes were conducted between 1910 and 1920. The Manono mining area was defined and Géomines, the original developer, was granted a mining licence and production commenced in 1919. The weathered pegmatite was discovered in 1925 during an exploration programme concentrating on the eluvial deposits.

Exploration continued periodically until 1960 with both the deepening of existing excavations and new drilling activity at Roche Dure. Between 1948 and 1949 a study of the hard-rock pegmatite was initiated. Forty-two drill holes, totalling 2,202 m were completed at Roche Dure. Based on the results of this drilling, a hard-rock open pit mine operated between 1951 to 1956.

Except for some exploration work carried out on the old mine dumps, aimed at determining cassiterite and spodumene grades, little prospecting took place after 1960 and since then no exploration has taken place since 1980.

All official production stopped in 1982. There have reportedly been several plans to restart the mining operations, but these were unsuccessful until AVZ commenced exploration in early 2017. AVZ's field investigation of the mineral potential was carried out using an extensive drilling campaign at Manono with the view to potentially exploiting the lithium resources present.

Dathcom has a small office in Lubumbashi and a well-established team on site in Manono, where all site based activities have been managed, including the extensive resources drilling program.

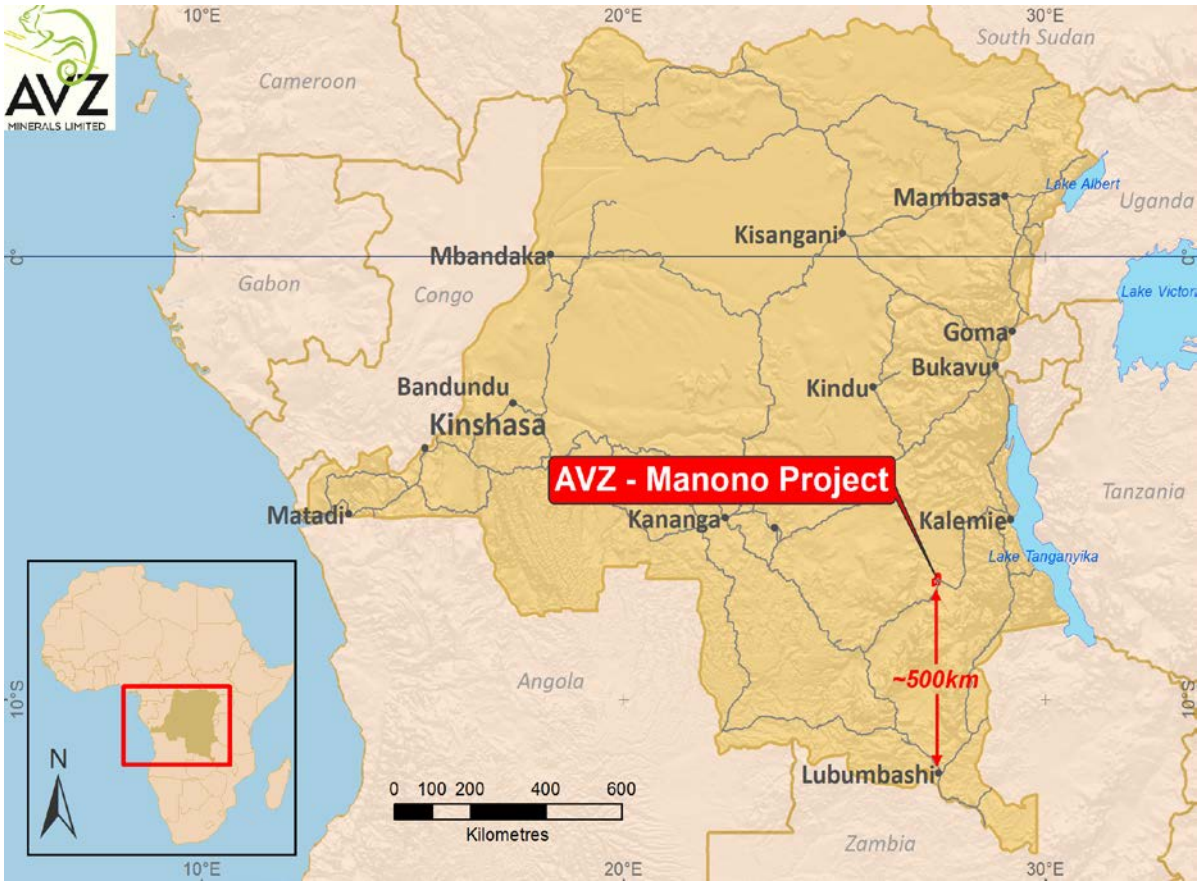


Figure 1.1 Location of the Manono site in the eastern DRC

1.7 Project Economics and Financial Analysis

AVZ Minerals Limited (AVZ) engaged FTI Consulting to assist with the development of the Definitive Feasibility Study (DFS) economic model. The finalised model has been reviewed by AVZ's board and management team and AVZ's third party peer reviewer, Mr Alan Dickson.

The economic model draws together the key outputs from the technical workstreams including capital, mining, development, revenue, operating cost and taxation / royalty estimates. It thereby incorporates the advice of technical consultants including CSA Global and Ernst & Young (EY) to derive a comprehensive overview of the economics of the projected future operations and financing implications.

1.7.1 Capital and Operating Costs

Operating cost estimates have been built-up from component production activities, applying geological and mine planning models and metallurgical test work results to optimise and validate the operating cost model. A summary of the operating cost estimate is provided in the Table 1.3 below:

Operating Cost Estimate Summary (USD)			
Description	Total Cost (USD M) during Life-of-Mine	Cost/ Ore t (USD/t ore) [7]	Cost/t Conc. (USD/t SC6)
Mining	$761 M	$8.18	$52.46
Processing (Excl Artisanal Tin)	$1,944 M	$20.90	$134.02
General and Administration	$361 M	$3.88	$24.90
Transport	$3,153 M	$33.89	$217.34
Royalties	$536 M	$5.76	$36.92
Artisanal Tin	$76 M	$0.82	$5.24

Table 1.3 Breakdown of Operating Costs

[7] Costs per mined tonne of ore and averaged across the LOM

The estimated project capital cost of $ 545.5 M comprises of the major elements shown in Figure 1.2. The singular project construction period allows for concurrent capital build in order to bring forward production where possible and thus generate operating cashflow as early as possible. The project capital costs include all pre-production mining and development costs, contingencies and duties and taxes as applicable. A 10% contingency is applied to all capital items and results in an include cost of $ 49.59 M.

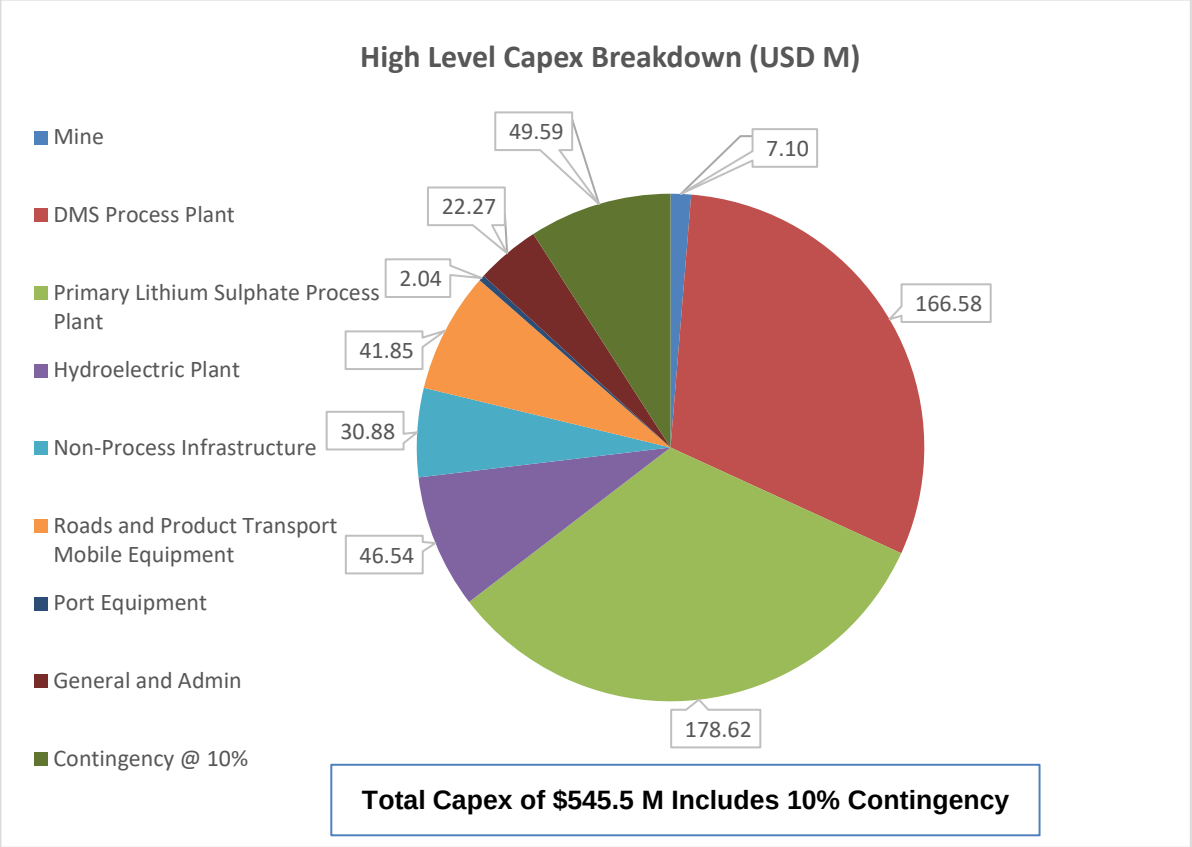


Figure 1.2 Breakdown of Capital Costs in USD

A phased approach to capital outlay was also assessed, but economic analysis highlighted the economic imperative for Primary Lithium Sulphate production to be available in the earlier years of the Life of Mine (LOM) which is sold at a higher price of $ 7,400/t.

Both the operating and capital cost estimates have been prepared at a Definitive Feasibility Study level and presented in USD to an accuracy level of ± 15% (to an AACEI Class 3 level). All numbers have been reviewed and agreed by the executive management team at AVZ.

1.7.2 Economic Analysis

A selection of the key inputs for the DFS are presented below in Table 1.4. All inputs have been signed-off by the executive management team and where possible were sourced from professional advisors as detailed below and elsewhere in this report.

Economic Inputs	
Key Inputs	**Rate *(Source)***
SC6 Revenue	$699/t CIF (*Roskill)*
Lithium Sulphate Revenue	$7,400/t CIF (*Management calculation as leveraged of Lithium Carbonate pricing*)
DMS Tin Revenue	$10,000/t CIF (*Market pricing*)
Artisanal Tin Revenue	$10,000/t CIF (*Market pricing*)
Mining Costs	$52.49/SC6 t produced *(CSA Global)*
Processing Costs	$133.36/SC6 t produced *(Management Calculation)*
General and Administration Costs	$24.90/SC6 t produced *(Management Calculation)*
Transport Costs (FOB)	Lobito Bulk: $229.38/t Lobito in Container: $255.29/t Dar es Salaam Bulk: $275.36/t Dar es Salaam in Container: $318.92/t *(SNCC, CFB and TAZARA quotes)*
Artisanal Tin Costs	$5.24/ SC6 t produced *(Management Calculation)*

Table 1.4 Selection of Key Inputs Used in the DFS Base Case

Under the Base Case, which as noted above and below is materially reliant on SC6 production achieving a sales price of $ 699/t CIF and Primary Lithium Sulphate production. The project generates a pre-tax Project NPV10% of $ 2,348 M, an IRR of 53.15% and a payback period 1.5 years and a post-tax, Project NPV10% of $ 1,028 M, an IRR of 33.15% and a payback period of 2.25 years. The forecast cost structure positions the project to withstand significant commodity price fluctuations. Table 1.5 provides a sensitivity analysis demonstrating project economics under a range of scenarios.

Sensitivity Analysis Summary (USD)			
Description	Base Case SC6 @$699/t PLS -1 train Tin Recovery On	No Primary Lithium Sulphate SC6 @699/t	Base Case with SC6 @ $495/t
Pre-tax Project NPV[10%]	$2,348 M	$1,323 M	$1,585 M
Post-tax Project NPV[10%]	$1,028 M	$466 M	$532 M
Project IRR (pre-tax)	53.15%	49.08%	40.57%
Project IRR (post-tax)	33.15%	27.19%	23.10%
Project Payback Period (Pre-tax)	1.50 years	2.00 years	2.08 years
Project Payback Period (Post tax)	2.25 years	3.00 years	3.25 years

Table 1.5 Sensitivity Analysis Summary

Other Project economics sensitivities have been assessed against key revenue and Opex inputs as summarised in Figure 1.3 below.

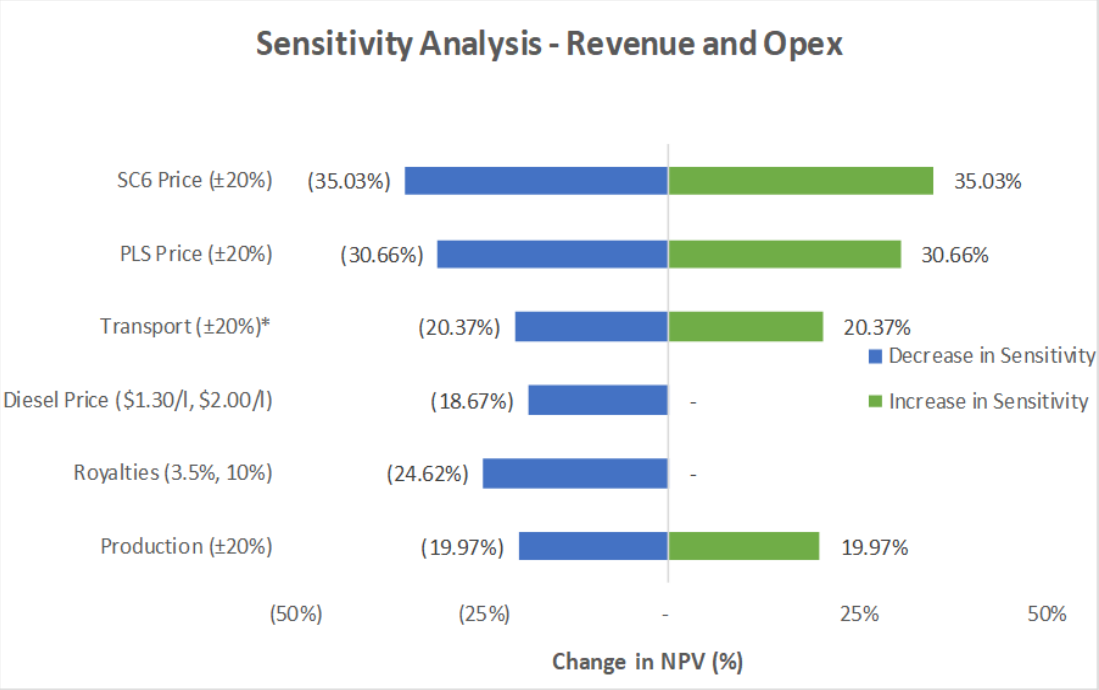


Figure 1.3 Sensitivity Analysis to Base Case NPV

1.7.3 Revenue Streams

MLTO will be producing several products, some as mainstream production and others as by-product processing. The main lithium product streams will be SC6 concentrate and Primary Lithium Sulphate. Supplementing this are the by-products of tin, tantalum and niobium, which will be sourced from the main-stream products' reject streams, as well as from formalised artisanal mining production, where this will be procured off registered and approved artisanal miners by MLTO.

Indicative product mix is tabulated below:

Product	QTY	Sell price/t (USD)	Total revenue over LOM USD	Cum total USD over LOM
Spodumene Concentrate (SC6)	547 [8]kt/a	699	7,649,307,278	7,649,307,278
Primary Lithium Sulphate	45.7kt/a	7,400	6,901,349,415	14,550,656,693
Tin	828 t/a	10,000	624,164,427	15,174,821,120
Artisanal Tin	600 t/a	10,000	126,022,118	15,300,843,238

Table 1.6 MLTO's Indicative Product mix as per the Base Case in the Financial Model

Please note that:

- the by-product from the lithium sulphate process, lithium slag, which could be sold to prospective buyers has not yet been considered in this economic evaluation as the price of transport is likely to eliminate this as a viable product for sale
- Tantalum and niobium are not shown.

1.7.4 Capital and Operating Costs

The estimated project capital cost of USD 545.5 M that was estimated to the American Association of Coset Engineers (AACE) International Recommended Practice No. 47R-11, Class 3, nominally ±15%, comprises the major elements below:

[8] 700 kt/a – 153 kt/a for feed stock to the Primary Lithium Sulphate plant = 547 kt/a for sale as SC6

Facility	Total USD
Mine	7,096,377
DMS Process Plant	166,583,233
Primary Lithium Sulphate Process Plant	178,623,617
Hydro Electric Power Plant	46,538,472
Non process Infrastructure	30,881,497
Roads (MN to KD and MN to HEPP) and product transport mobile equipment	41,848,038
Port equipment (roto boxes and rotator attachment)	2,040,000
General and Admin	22,273,096
Subtotal	**495,884,330**
Contingency @RISK P95 10%[9]	49,588,433
Total Capex	**545,472,763**

Table 1.7 Summary of Capex Costs in USD

The multi staged project allows for concurrent capital build in order to bring forward production where possible and thus generate operating cashflow as early as possible.

The SC6 process plant will be operational 6 months before the Primary Lithium Sulphate plant. The project capital costs include all pre-production mining and development costs, contingencies and excludes duties and taxes as applicable.

A contingency of 10% is applied to all capital items and results in an additional cost of USD 49.6 M. This contingency is for events that are known, but the consequence of the event is unknown.

Events which are unknown, and their consequence is unknown, will have to be covered by a management reserve fund, which should be over and above the contingency allowed for.

[9] The @RISK outcome at P95 was 9.66%. Rounded up 10% was applied to the project.

Operating cost estimates have been built from first principles based on metallurgical test work and the process plant design engineering work results, to optimise and validate the operating cost model. A summary of the operating cost estimate is provided in the two tables below based on product and under financial model base case conditions:

Cost Area	LOM Cost USD	Cost/t USD	% of Total Cost/t
Mining	559,407,880	49	13.2
Processing	250,348,655	22	5.9
General and Administration	265,563,932	23	6.2
Transport[10]	2,865,410,194	252	68
Royalty[11]	267,725,755	25	6.7
Totals	**4,208,456,416**	**371**	**100**

Table 1.8 Operating Costs/t for SC6 average for the Fin Model Base Case

Cost Area	LOM Cost USD	Cost/t USD	% of Total Cost/t
Processing[12]	1,891,351,234	2,016	75.8
General and Administration	95,674,053	102	3.8
Transport	269,402,584	287	10.7
Royalty	241,547,230	257	9.7
Totals	**2,497,975,101**	**2,662**	**100**

Table 1.9 Operating Costs of Lithium Sulphate average for the Fin Model Base Case

[10] Based on average rate for Lobito and Dar es Salaam as the split is 50/50 to each
[11] Royalty is calculated as 3.5% of Sell Price on a CIF Basis
[12] Includes SC6 as a feed product at cost (3.4 t SC6 to 1 t Primary Lithium Sulphate)

1.8 Project Timeline

The key milestones for the full implementation phase, post the Financial Investment Decision (FID) are shown in Table 1.10. Commencing with early works[13] prior to FID is possible with limited funds held by AVZ.

Key project milestones are listed in Table 1.10.

Milestone	Date
Early works commencement[14]	May 2020
ESIA submission for A.C.E in the DRC for approval	April 2020
PE application submitted to CAMI in the DRC	July 2020
Financial Investment Decision[15]	Jul 2020
Process Plant EPC contract award	Jul 2020
HEPP EPC contract award	Jul 2020
Lithium Sulphate Plant EPC award	July2020
Commence construction (PP, LSP and HEPP)	Aug 2020
Practical completion DMS plant	Aug 2021
Practical completion of Lithium Sulphate plant	Jul 2022
Practical Completion HEPP	Oct 2021
First HEPP Power to MLTO	Oct 2021
First SC6 on ship (FCOS)	Jan 2022

Table 1.10 Key Implementation Milestones

[13] This Early Works program may be deferred by the Covid 19 pandemic and its consequences. No effort has been taken to pre-empt the end of the pandemic date in order to realign these dates.
[14] Site construction activity starts May 2020, but engineering could start in April 2020. Assumes that funding will be released early pending board approval and funds availability at the time.
[15] Assumes FID date of 1 July 2020, Covid 19 allowing negotiations to take.

1.9 Geology

The Manono Lithium and Tin Project lies within the mid-Proterozoic Kibaran Belt, an intra-cratonic domain stretching for over 1,000 km from just north of Kolwezi north into southwest Uganda. The belt strikes predominantly southwest to northeast and is truncated by the north-south to north-northwest-south-southeast trending Western Rift system. The Kibaran is underlain in the east by Archaean rocks of the Tanzanian Craton and in the west and south by Lower Proterozoic metamorphic rocks.

The Kibaran belt comprises a sedimentary and volcanic sequence that has been folded, metamorphosed and intruded by at least three separate phases of granite. The latest granite phase (900 to 950 MA) is assigned to the Katangan cycle and is associated with widespread vein and pegmatite mineralization containing tin, tungsten, tantalum, niobium, lithium and beryllium. Deposits of this type occur as clusters and are widespread throughout the Kibaran terrain. In the DRC, the Katanga Tin Belt stretches over 500 km from near Kolwezi in the southwest to Kalemie in the northeast, comprising numerous occurrences and deposits of which the Manono deposit is the largest known.

Historically the Manono Lithium and Tin Project has been referred to as the Manono-Kitotolo Deposit, comprising the north-eastern Manono Sector and the south-western Kitotolo Sector separated by 2 km by Lake Lukushi.

The area is covered by a variably lateritised eluvial cover up to 8 m thick and consists of orange brown sandy or clayey-sandy, loose laterites, crumbly laterites and hardpan laterites. Sandy alluvial material cover occurs along the Lukushi River and its tributaries. The alluvial and eluvial (including the lateritised material) cover contains significant cassiterite and minor columbite- tantalite mineralization and was mined prior to the discovery of the pegmatite-hosted mineralization and is still mined by artisanal miners today.

Within the Manono-Kitotolo sectors there are currently 7 large discrete pegmatite intrusions recognized, namely Roche Dure, Kyoni, M'Pete, Tempete, Carriere de L'Este, Malata and Kahungwe, along with several smaller unnamed pegmatites (Figure 1.4).

The host rocks to the pegmatites comprise mica schists and mafic schists/amphibolites, the latter being more prevalent in the hanging wall to the Carriere de L'Este and Kahungwe pegmatites of the Manono Sector. The rocks are derived from sedimentary, probably argillic with subordinate arkosic compositions, and mafic volcanic protoliths (Spitalny, 2018; Dewaele et al., 2015) of the Kibara Supergroup.

The mica schists contain lenses of amphibolite and have a well-developed schistosity and compositional banding, with variations in the quartz and mica contents, parallel to the schistosity. In places the mica schists contain numerous staurolite porphyroblasts (>5mm) and may also contain tourmaline and rarely contain garnet porphyroblasts (Bassot and Morio,1989 and Spitalny, 2018). These rocks dip at ~70° to the northwest and vary locally from moderate to steep dips (50°-85°) with minor intra-folial folding.

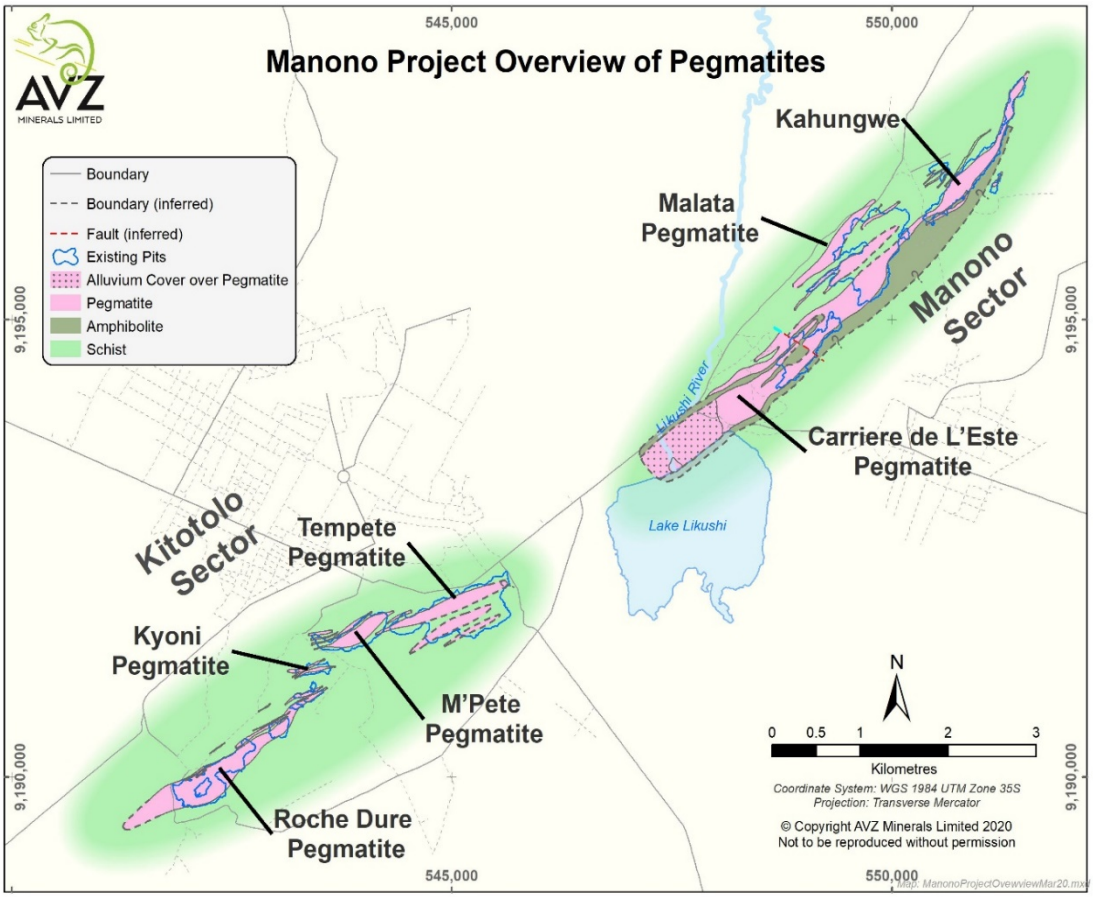


Figure 1.4 *Map of the main pegmatite at Manono in the eastern DRC*

The pegmatites have a surface exposure of approximately 12 km along a northeast-southwest strike with an average exposed width of approximately 400 m, but this varies from 50 m to 800 m wide (Kokonyangi et al, 2006; Dewaele, 2015), and true thicknesses of up to 250 m (for the Roche Dure pegmatite) to <25 m in the northeast (in the Kahungwe pit). The individual pegmatites vary in length from ~400 m to >3,000 m, are lens-shaped, thickest in the centre and thinning along strike, and often have thin offshoots parallel to the main pegmatite body.

The Roche Dure Pegmatite is the largest of the four pegmatites in the southern Kitotolo Sector. It is at least 2,800 m long, based upon exposed pegmatite in pit-walls and natural outcrops and with intersections achieved from the recent drilling. The pegmatite has a strike of about 055° and dips at about 40° to the southeast. The pegmatite has a broadly lenticular shape and drilling completed by AVZ has confirmed that at its thickest point the Roche Dure pegmatite has a true thickness exceeding 250 m and thins along strike in both directions.

The pegmatite is hosted by mica and biotite schists. The only distinct recognisable zone within the Roche Dure Pegmatite is a narrow wall zone of contact metamorphosed tin rich greisens (typically about 0.5 m-1.0 m but can be up to a few tens of metres thick); the remainder of the pegmatite is essentially homogenous with regards to the distribution of spodumene, when the entire volume of the pegmatite is considered.

The greisen's are a minor component and were developed along the contacts with the host rock. They may also be randomly distributed within the pegmatites and discontinuous. Small lenses and larger partings of the host schists and amphibolites are common within the pegmatites and of variable continuity. The larger more continuous partings are more common towards the footwall of the pegmatite and to northeast, where the Roche Dure pegmatite thins.

Drilling by AVZ at Roche Dure has shown the depth of weathering to be more variable from 0 m to 100 m with an average depth of 43 m. A transitional zone is also recognised from the drill core where the spodumene appears fresh and unaltered, but the feldspars are weathered, and the core is partially oxidised and broken.

1.9.1 Resource Definition

The decision to commence resource delineation drilling at Roche Dure in the south-west of the Kitotolo sector, was based on information from a limited number of historical vertical cored boreholes completed by the last mine operating company Zairetain. This work proved the existence of a large, partially dipping pegmatite orebody so it was the only evidence to hand of an underlying orebody as all other historic workings are filled with water that obscures the mined orebodies. The historical boreholes were only drilled to about 40 metres vertical depth and they were only assayed for tin and tantalum, as there was no commercial interest in lithium at that time although older reports from the 1950s confirmed the presence of spodumene in the tin bearing rock.

The due diligence drilling programme conducted by AVZ Minerals in early 2017 included 2 reconnaissance holes at Roche Dure that indicated the presence of a large buried slab of pegmatite and the visual logging and assays from these early cored drill holes confirmed the presence of abundant lithium bearing spodumene for the first time since the closure of the mining operations in the 1980s.

These drill results, coupled with the later information from a further 5 reconnaissance drill holes drilled along strike of Roche Dure and including the first drill hole at Carriere de L'Este, were instrumental in persuading the AVZ Board to sign the Joint Venture agreement with Dathomir Mining Resources SARL and La Congolaise d'Exploitation Minière in mid-2017, which paved the way for the commencement of modern exploration at the MTLO.

Field mapping and surface sampling of exposed pegmatite outcrop commenced immediately and continued in parallel with other site works. Site preparation for drilling at Roche Dure and the accompanying renovation of the administration and accommodation site at Colline Manono commenced in August 2017 and drilling commenced at Roche Dure in February 2018 with a single drilling rig operating on a double shift basis. This rig was joined in March by 4 other drill rigs and drilling continued throughout the rest of 2018.

Early observations of the mineralisation at Roche Dure, backed up by the mineralogical studies of the orebody and the first pass variography work (by the MSA Group in Johannesburg) on wider spaced drilling on 400 m line spacings initially, confirmed that the Roche Dure pegmatite was not a typical zoned orebody and that the lithium mineralisation was homogeneously distributed both across the width and along the length of the orebody. The mineralogical work also confirmed that the lithium mineralisation was almost exclusively hosted by the mineral spodumene which was visually evident throughout the core being brought to the surface.

The confirmation of these critical aspects from the early wide spaced drilling allowed the Company, in conjunction with its independent consultants at the MSA Group, to have confidence that the following drill pattern would give sufficient coverage and the necessary density of data points to define sections of the Roche Dure orebody at the various JORC 2012 confidence levels as follows:-

Item	Drill Pattern	Definition of orebody
1	200 m to 400 m line spacings x 100 m hole spacings	Inferred Resource
2	100 m line spacings x 100 m hole spacings	Indicated Resource
3	100 m line spacings x 50 m hole spacings	Measured Resource

Table 1.11 Variography drill patterns at Roche Dure and expected status of Resources

An initial Maiden Mineral Resource Estimate was completed in August 2018 based on the results from 31 diamond drill holes covering 980 m of strike of the orebody and confirmed the presence of 259.9 Mt of ore grading 1.63% Li_2O (greater than the 0.5% Li_2O cut-off) of which 43 Mt were in the Measured category at 1.71% Li_2O, 871 ppm Sn and 42 ppm Ta.

An intermediate rerun of the resource estimate was announced in late November 2018 using assay data from 68 drill holes and geological interpretations from a further 13 holes. This modelling using the new information, generated a 54.1% increase in total Measured, Indicated and Inferred Resources from 259.9 Mt to 400.4 Mt grading 1.66% Li_2O (spodumene) containing 6.64 Mt of lithium oxide (Li_2O).

In addition to the intermediate lithium resource estimate, a maiden estimate of 300 kt of Tin, as cassiterite, grading 750 ppm Sn and 13.2 kt of Tantalum (Ta) grading 33 ppm Ta, was also reported for the first time. This tin and tantalum resource, located within the fresh hard rock Roche Dure pegmatite orebody, is a globally substantial orebody. The resource was split into a low and a high-grade zone based on 2 geological occurrences of tin: lower grade in the hard rock pegmatite and higher grade in the greisen proximal to the edges of the pegmatite.

A further tin Mineral Resource has been estimated from the overlying weathered pegmatite. This is a total combined Measured, Indicated and Inferred Resources of 18 million tonnes at 1,162 ppm Sn an 46 ppm Ta, a resource which may yet to prove to contain significant value as a standalone economic target despite there being no recoverable lithium in this weathered upper portion of the orebody.

Drilling continued throughout the rest of the year with the final resource hole, as opposed to holes drilled to generate bulk material for metallurgical testing or for other purposes, drilled in early November 2018, with the completion of hole number MO18DD083. Assay results and geological interpretations from eighty-six holes were used to define the current JORC compliant Mineral Resource Estimate.

Due to the lead time taken to log and process the drill core on site then transport it to Perth for analysis, the final geological and assay results were not available for input into the geological model until late February 2019. The addition of the balance of information was put into the model by the MSA Group and the final Mineral Resource Estimate was generated and reported to the public in May 2019.

The Mineral Resource was reported in accordance with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code). The Mineral Resource is stated at 400 Mt with an average grade of 1.65% Li_2O (spodumene) and was further categorised into Measured, Indicated and Inferred Mineral Resources as shown in Table 1.12.

The Roche Dure Mineral Resource now covers 1,600 m of strike length which has been drilled (86 holes) and sampled. The pegmatite dips at approximately 45° to the southeast. Lithium (Li_2O), Sn and Ta grades, have been estimated by ordinary kriging, with all other assayed variables and density, estimated by inverse distance weighting to the power of 2 (Section 3).

Areas have been classified as Measured, Indicated or Inferred Resources in accordance with the guidelines of the JORC Code (2012) as shown in Table 1.12.

Category	Tonnes (Millions)	Li_2O %	Sn ppm	Ta ppm	Fe_2O_3 %	P_2O_5 %
Measured	107	1.68	836	36	0.93	0.31
Indicated	162	1.63	803	36	0.96	0.29
Inferred	131	1.66	509	30	1.00	0.28
Total	**400**	**1.65**	**715**	**34**	**0.96**	**0.29**

Table 1.12 Roche Dure Pegmatite Lithium Mineral Resource at a 0.5% Li_2O cut-off grade

All tabulated data have been rounded and as a result minor computational errors may occur.
Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.
Fe_2O_3 and P_2O_5 are potentially deleterious elements.

Category	Tonnes (Millions)	Li_2O %	Sn ppm	Ta ppm	Fe_2O_3 %	P_2O_5 %
Low Grade Tin Domain						
Measured	14	1.70	191	28	0.95	0.30
Indicated	34	1.73	177	27	1.01	0.29
Inferred	77	1.65	171	24	1.03	0.28
Total	**125**	**1.68**	**175**	**26**	**1.01**	**0.28**
High Grade Tin Domain						
Measured	93	1.68	932	37	0.92	0.31
Indicated	128	1.60	967	38	0.94	0.29
Inferred	54	1.67	996	37	0.96	0.28
Total	**275**	**1.64**	**962**	**38**	**0.94**	**0.29**

Table 1.13 Roche Dure Pegmatite Tin and Tantalum Mineral Resource

Note: all above Roche Dure Pegmatite Tin and tantalum Mineral Resources are at a 0.5% Li2O cut-off grade reported based on tin domains

All tabulated data have been rounded and as a result minor computational errors may occur.
Mineral Resources that are not Mineral Reserves have no demonstrated economic viability.
Fe_2O_3 and P_2O_5 are potentially deleterious elements.

The JORC compliant Mineral Resource Estimates have been used for the basis of the Mining Study, including conversion to Proven and Probable Ore Reserves and the subsequent economic evaluation.

1.9.2 Geotechnical Investigation

The initial high definition mapping of the orebody contacts with the barren country rock, both at Roche Dure and the other pegmatites at Manono, was used to not only assist in the design of the drilling programme but also in the initial appraisal of the geotechnical attributes of the exposed hanging wall country rock and in places how this material made contact with the underlying pegmatite.

In February 2019, specialist Johannesburg based geotechnical engineering company, Middindi Consulting (Pty) Ltd (Middindi), was sub-contracted through the MSA Group to prepare indicative slope angles for the 2 Mt/a and 5 Mt/a Scoping Studies that were reported in 2019. In order to do this, information needed to carry out an initial geotechnical appraisal

of the likely rock engineering properties of both the overlying hanging wall, the underlying footwall country rock, contact rock types and the primary pegmatite ore, were extracted from the geological database. A copy of the geological database was already available to the MSA Group to track the increasing resource base during that year.

Information that was gathered by Middindi in February 2020 included the following:-

- Full photographs of drill core from which indicative rock mass quality data was obtained
- The structural data which provided sufficient data for a concept design
- Rock Quality Designation (RQD) data from all 83 resource drill holes
- Field estimates of strength using typical R0 to R6 classification
- Field codes for weathering logged by Dathcom field geologists and
- The use of field estimates of strength benchmarked against standard geotechnical values for the rock types at Manono

Middindi used the information collected from the database and cross-referred the field strength estimates against benchmarked parameters for the rock types at Manono to generate scoping level slope angles. This information was then applied to pit wall angles in the early design work completed by Alan Dickson and Associates, in the 2 scoping studies.

In September 2019, Middindi Consulting won the contract to provide DFS level slope angles to Perth based CSA Global to be used for the 20-year open pit design at Roche Dure. In order to do this a site visit was conducted by their geotechnical engineer in October 2019 to collect field information from both the diamond drill core kept on site as well as from exposures of country rock (both hanging-wall and foot-wall) and both weathered and fresh pegmatite ore.

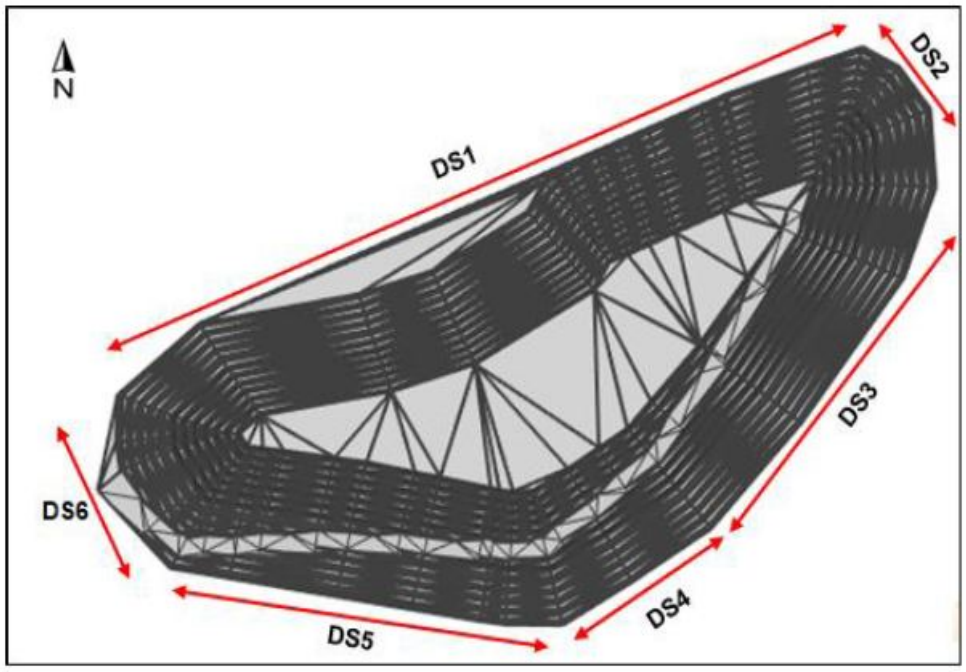
Samples of drill core were collected and sent to specialist geomechanical testing laboratory, RockLab in Pretoria in South Africa, for a range of specialist tests concerning the strength of the ore rock and surrounding country rock, as well as friction coefficients of the various rocks. The results were reported to Middindi in November 2019.

The laboratory results were used in conjunction with the field data, which had been expanded and checked from the earlier scoping study programme to include the extra data collected, which is now included:

- Field checked RQD entries for the 83 holes
- Strength classification entries (R0 to R6) in the logs checked by the engineer
- Orientation line reliability indices for holes
- The conversion of discontinuity alpha and beta angles into dip and dip direction using DIPS. Further requirements were:
    - Dip direction and dip of the collar position of each hole and
    - Down hole survey data per hole
- Scanline or exposure mapping of dewatered pit walls – about 10 scanlines each 30 m long on selected walls (not completed at time of writing)
- Geotechnical logging of the core is mandatory using the full suite of geotechnical descriptors – 10 holes were field checked
- The Dathcom structural logging was checked for accuracy and quality control
- A rock testing programme be commissioned for the HW, ore and FW rocks – whole core is required.

The data collected by Middindi during geotechnical logging of the core was used to determine the rock mass quality by calculating the rock quality designation (RQD), rock mas rating (RMR_{89}), geological strength index (GSI) and the Q-Index for each rock type encountered at Roche Dure. This information was used to define 6 separate design sectors or geotechnical domains within the 20-year Roche Dure open pit (Figure 1.5). Each of these design sectors have different wall angles and berm widths specific to the combination of weathering, rock type encountered and geotechnical and geo-mechanical data from these geographical areas that in turn determine the design of the wall in these areas. A safety factor is also included in each of these areas to cater for the data collected from each area.

This approach to data collection and pit slope design delivers an auditable design. It should be noted that these designs assume dry wall conditions and indeed, the exploration drilling did not encounter any water inflow confirming that water is not expected to be an issue in the operations.



Design Sector	Wall Dip Direction (°)
1	133
2	230
3	315
4	335
5	10
6	50

Figure 1.5 Wall design sectors at Roche Dure with wall dip directions

1.9.3 Hydrogeology and Hydrology Studies

This specialised work programme is required as an input into the mining study and into sections of the early works programme and the handover period, transitioning into operations. Whilst the study has commenced, it has not yet been completed and remains a work in progress. The work programme is being undertaken by Canadian and DRC based consulting company, Groupe RD Consultants and is split into several distinct phases of work.

The overall scope of work comprises the following:-

- Gather as much information regarding the local hydrogeology and hydrology of the mine area, the processing plant area and the proposed tailings storage facility

- Generate a hydrological groundwater model of the water table for the Roche Dure pit and surrounding areas of influence
- Confirm and verify the raw water sustainability for plant process water from Lake Lukushi for the LOM
- Identify potential borehole sites for possible potable water supplies for Camp Colline, Roche Dure and the process plant
- Develop an overall water management plan (WMP) in conjunction with EmiAfrica SARL and the running and execution of the plans encompassed by the ESIA.

The work programme has been split into several phases, with Phase 1 having already been completed in early 2020. This comprised a site reconnaissance trip by the consulting group in order to make direct field observations and gather information pertinent to the planning of the Phase 2 work programme. The second phase encompasses the physical site investigation programme, to collect the data required to complete the hydrological modelling.

Phase 2 will include drilling of at least 10 piezometer or observation wells, around the perimeter of the proposed open pit (Figure 1.6) to investigate the levels of the free standing water table and how that water table may respond to the disruption caused by future mining activities. These holes will be deep enough to gather information to contribute to mine design works for at least a third of the proposed LOM. Deeper investigations of the water table in proposed high walls will be conducted at regular intervals over the LOM.

The Phase 2 Roche Dure hydrogeological site investigation does not have to be related to the final LOM but can be restricted to the first few years of operations and will be added to, from an operational standpoint, as part of the long term mine planning operational programme.

Water quality samples, that may determine some of the inputs into the Water Management Plan, have been collected as part of the ESIA already. This data will be used in a collaborative manner between these Dathcom consultants, to develop recommendations and detailed plans for water management, both from any future dewatering requirements of the Roche Dure pit, significant meteorological input to the regional hydrology and the reuse of water from the TSF and disposal of the same, if actually required.

Direct water level observation wells are also planned for the environs in and around the proposed plant site and the TSF. The completion of this programme will also form part of the early works programme along with continuing and specific geotechnical investigations into the foundations of the plant site and the hydrological status of the ground conditions in and around the proposed TSF.

It is important that his programme remain flexible, given the planning work and fine tuning of the project post DFS.

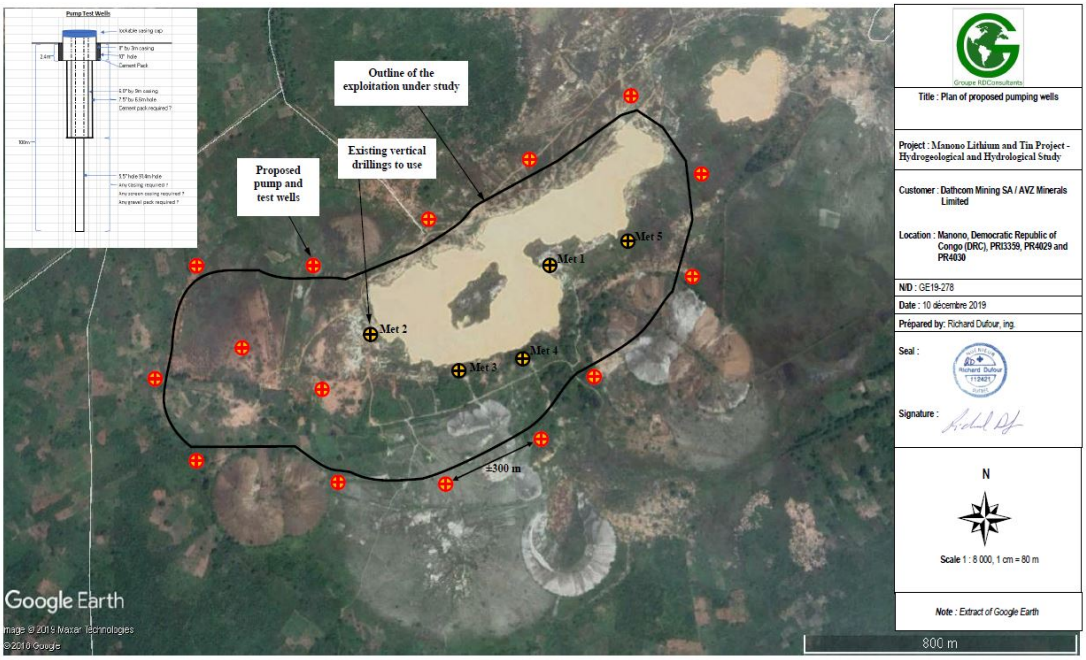


Figure 1.6 *Proposed observation well locations for water table studies at Roche Dure*

1.10 Mining

1.10.1 Conversion of Geological Resources to Mineable Reserves

A list of financial and physical parameters was prepared by CSA Global in conjunction with AVZ. These were used for the optimisation of the Roche Dure deposit. Only Indicated and Measured Resources were used for the pit optimisation based on these variables, which in effect represent a snapshot in time and are used to report for the DFS.

The impact of the 'wedge' of Inferred material below the Roche Dure pit floor, which was previously inaccessible to drill due to water within the existing pit, has been assessed and discussed in detail in Section 4 and in Section 2.1. This material cannot be converted to a Mineable Reserve without new drilling and is therefore regarded, for the time being, as waste material that should be pre-stripped before mining of ore can occur. This has obvious costs associated with having to mine waste material in order to access deeper ore, monies that must be expended 'up front'.

For the sake of clarity, Paragraph 29 of the JORC Code (2012 Edition) specifies:

"An 'Ore Reserve' is the economically minable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could be reasonably justified."

Ore Reserves are subdivided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves, defined by JORC Code (2012 Edition) as:

"A 'Probable Ore Reserve' is the economically minable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve."

"A 'Proved Ore Reserve' is the economically minable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors."

Given the current variables discussed elsewhere, the optimised open pit shells at Roche Dure indicate that 93 Mt of pegmatitic ore has been converted from a geological Resource into a combination of both Proved and Probable mineable Reserves.

This Ore Reserve of 93.0 Mt has been estimated as 44.6 Mt Proved and 48.5 Mt Probable Ore Reserves, reported in accordance with the JORC (2012 Edition) and as shown in Table 1.14 along with some qualifying notes.

Reserve category	Tonnes (Mt)	Grade Li_2O (%)	Contained Li_2O (Mt)	Grade Sn (g/t)	Contained Sn (kt)
Proved	44.6	1.62	0.72	958	42.7
Probable	48.5	1.54	0.75	1016	49.3
Total	**93.0**	**1.58**	**1.47**	**988**	**92.0**

Table 1.14 Ore Reserve Estimate, April 2020

Notes: Figures above may not sum due to rounding applied.

Mining dilution by elevation has been applied to represent the changing quantities of waste dilution existing on each bench of the pit:

- *Surface to the 565RL has 5% mining dilution applied*
- *565RL to the 505RL has 2% mining dilution applied*
- *505RL to the 435RL has 1% mining dilution applied*
- *Below the 435 RL has 0% mining dilution applied, as the whole bench is ROM.*

A variable mining recovery has also been applied:

- *Surface to 565RL has 98% mining recovery applied*

- *Below the 565RL has 99% mining recovery applied.*

The Ore Reserve estimate has been based on a cut-off of > US$0.00 block value comprising an economic block by block calculation.

It should also be noted that some of the final study parameters have varied since completing the pit optimisations, using the applied input parameters. Confirmatory pit optimisations will be conducted at the conclusion of this study, however sensitivity analysis of the pit optimisation showed that the variations in study parameters were not likely to significantly impact the chosen pit shell dimensions.

The 93 Mt of mineable reserves are sufficient for a plus 20-year mine life delivering 4.49 Mt of ore to the plant per annum.

1.10.2 Mining Operations

AVZ has decided to initially use contract mining for the operation and will review this position at the end of a 3-year cycle. Mining will be by conventional drill and blast as applicable to hard rock mining, with articulated haul trucks direct tipping into the ROM (Run of Mine) bin and onto the ROM pad for campaigning and blending.

Studies of ore stability and fragmentation suggest that both the Roche Dure Formation (overburden) and most of the ore body in the open pit are relatively hard pegmatite and can be mined with the use of Ammonia Nitrate Fuel Oil (ANFO) and emulsion for wet areas as explosives for blasting.

The Roche Dure Formation overburden is to be mined by drill and blast method using hydraulic excavators to load trucks. Any oversize material that may occur in the lithology will be broken by hydraulic rock breakers. Conventional 60 ton articulated mine haul trucks will be used to transport mined ore and waste rock to their respective destinations. Waste rock will be excavated and loaded into haul trucks (60 t capacity) that will transport the material from the open pit to a waste rock stockpile, located within the mining lease.

The waste rock stockpile is planned to reach 30 m high by the end of the Life of Mine (LOM). Overburden deposited on the dedicated stockpile will be spread and compacted by bulldozers and compaction rollers. The overburden stockpile reaches approximately 6 m in height. The overburden stockpile will be located not more than 3km from the Roche Dure pit.

Broken stock ore will be mined by excavators and articulated dump trucks, with ore breakage in the open pit being performed by drill and blast methodology. Once the ore has been converted into broken stock, the mine geologist will flag or mark the different ore head grades

which are then moved to the ROM pad for direct tipping into the ROM bin ore is deposited on grade separation fingers on the ROM pad for later blending.

Once grade separated ore is stockpiled on ROM ore finger stockpiles, front-end loaders will load the ore directly into the ROM bin or onto the haulage fleet consisting of 60 ton class articulated haul trucks, depending on the economic, which will transport the ore from the ROM pad finger to the ROM bin for tipping into the ROM bin. High grade ore ex pit will be hauled directly to the ROM bin for feeding to the primary crushing facility. The high-grade ore will then be crushed and sent to the DMS circuit. Lower grade ore (with grades that are too low for immediate sale) will be hauled to the ROM pad and deposited on one of the temporary ROM finger low grade stockpiles.

The management of used tyre disposal will occur in a designated area within the waste rock stockpile footprint, where these cannot be used for road delineation and other useful purposes above ground.

All mining and support equipment will be diesel powered until such time as the hydro-electric power plant (HEPP) is operational and electric mining plant is commercially available in the market. A fleet of mobile service equipment, including maintenance vehicles, fuel tankers/bowsers and cranes will also be used in the pit. Electrically powered lighting plants will be used for night-time work and electric portable water pumps will be used for in-pit dewatering. Mining activities at the pit are scheduled to operate on a 24 hours per day, seven days per week basis for 365 days per year subject to availability. All operations by MLTO will be fully compliant with the DRC labour codes and union regulation as follows:

- DRC Labour Code Law no 15/2002 of October 16, 2002 Concerning the labour code
- SMIG - Salaire Minimum Interprofessionnel Garanti – Par le décret no 18/017 du 22 mai 2018 du Premier ministre, Chef du Gouvernement.

1.11 Metallurgy

The Phase 1 metallurgical test work programme for the DFS was commissioned by AVZ Minerals Ltd and managed by Process and Infrastructure Engineering (PIE). Much of the test work programme was completed by Nagrom, with specific elements completed by ALS Metallurgy and Köppern Machinery Australia.

Samples for comminution test work were taken from three of the five metallurgical holes drilled in the proposed Roche Dure pit.

The unconfined compressive strength (UCS) results indicate the ore is of medium hardness (50-100 MPa) in terms of rock strength (Figure 1.7). In terms of the Crushing Work Index, the samples are also classified as medium hardness (10-18 kWh/t). JK Drop Weight and SMC testing indicated the ore samples were classified as medium in the impact breakage tests (Axb) and soft medium in the abrasion breakage tests (ta). The Ball Mill Work Index results indicate the ore is classified as hard (14-20 kWh/t) in the size range relating to fine grinding. While the Abrasion Indices indicate the ore is likely to be abrasive (0.2-0.4), the pegmatite ore is expected to be highly abrasive in materials handling applications due to the very sharp acicular quartz and spodumene crystals evident in the samples.

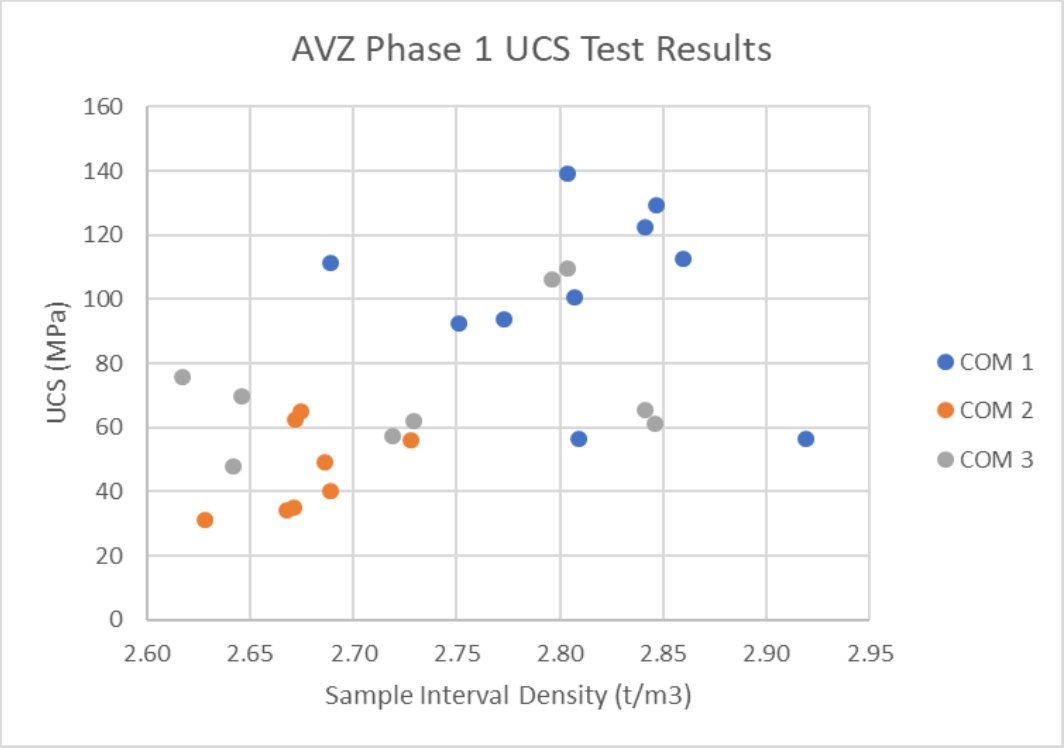


Figure 1.7 *UCS test results*

Heavy Liquid Separation (HLS) test work was undertaken on crushed sample sizes of 10 mm, 5.6 mm and 3.35 mm. 10 mm was found to be too coarse for the desired liberation. Subsequent Dense Media Separation (DMS) test work indicated that the 3.35 mm material was too fine, resulting in high -0.5 mm losses. The 5.6 mm size was taken forward into the DMS design.

The DMS test work was based on a particle size distribution (PSD) produced from a controlled (jaw) crushing process. Given the process design incorporates an HPGR for tertiary crushing, further test work was concluded using material produced by an HPGR.

1.12 Process Plant Spodumene Concentrate (SC6)

Spodumene as a SC6 concentrate is a predominantly white coarse granular material.

The overall plant flowsheet is based on unit operations that are well proven in industry, including three stage crushing (primary jaw, secondary cone and tertiary High Pressure Grinding Rolls (HPGR), dense medium separation to produce a spodumene concentrate and gravity concentration to produce a separate tin concentrate.

Figure 1.8 Picture of Spodumene as an SC6 Concentrate

The SC6 process plant will operate continuously (24 hours per day, 365 days per year) with a mechanical availability of 65% for the primary and secondary crushing plant ahead of the crushed ore stockpile, and 85% for the treatment plant including HPGR, feed preparation, DMS, tin gravity concentration and downstream materials handling.

The DMS process plant was developed to treat approximately 4.5 Mt/a of ore to produce approximately 700 kt/a of lithium concentrate with a grade of >6% Li_2O (SC6.0). For production of primary lithium sulphate, 153 kt/a of this SC6 will be used internally, leaving 547 kt/a for sale as SC6 to the market under agreed offtake contracts.

The process plant includes the following unit operations:

- Two stages of crushing and screening circuit utilising a primary jaw crusher and a secondary cone crusher to produce an intermediate crusher product of 100% passing (P100) 36 mm
- A crushed ore stockpile with sufficient live capacity for 12 hours of operation
- A tertiary crushing stage with an HPGR and an integral screen to produce a final crushed ore product of P_{100} -5.6 mm
- A feed preparation screen to remove the -0.5 mm fines prior to DMS
- A mica removal step incorporating Reflux Classifiers
- Two parallel DMS circuits utilising DMS cyclones
- Two stages of DMS (primary and secondary) in each circuit to produce the following streams:
  - 2.7 SG Primary DMS floats (coarse tailings)
  - 2.95 SG Secondary DMS floats (middlings stream)
  - 2.95 SG Secondary DMS sinks (final concentrate)
- Reagents storage, mixing and dosing and water storage to support the process.

The -0.5 mm fines removed prior to DMS will be pumped to the tailing storage facility. The primary DMS floats will be conveyed to the Tailing Storage Facility (TSF) to be used in ongoing construction of the TSF walls. The secondary DMS floats will be conveyed directly to the feed stream of the primary lithium sulphate plant.

A 3D image of the proposed plant is shown in Figure 1.9.

Figure 1.9 SC6 Process Plant Layout

1.13 Process Plant Primary Lithium Sulphate (Li_2SO_4)

The Primary Lithium Sulphate process plant will be located adjacent to the DMS plant. It will be a single train capable of producing 45.7 kt/a of Li_2SO_4 (lithium sulphate). This is the equivalent of 20 kt/a of Lithium Carbonate Equivalent (LCE).

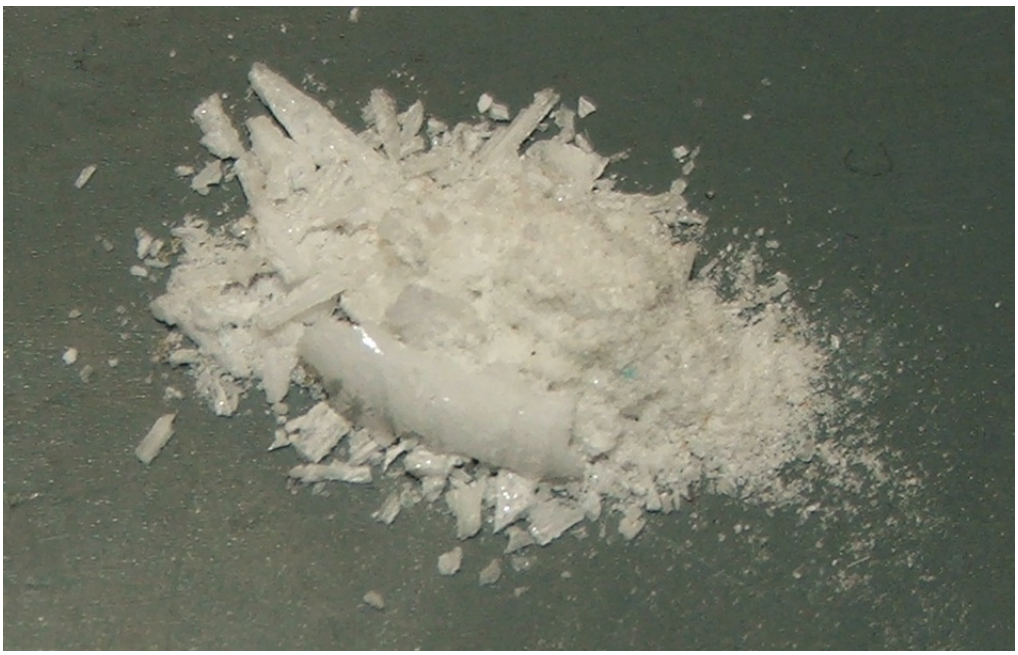


Figure 1.10 Typical Lithium Sulphate crystals (Source Wikipedia)

Spodumene Concentrate Calcination Process

Spodumene concentrates supplied from the concentrator (SC6 ore beneficiation plant) will be transported to a storage yard by a conveyor. Then, the concentrates will be fed into a material hopper by front end loader where the materials will be weighed through a weigh feeder, which is located under the material hopper. Afterwards, these materials will be conveyed to a dosing bin via a belt conveyor. The roller press crushing system designed under the dosing bin that will enable large particle concentrates to be crushed to less than 5mm. Then the crushed materials are to be sent to temporary storage bins respectively, by a belt conveyor.

The weigh feeder, located under storage bin 2, will be used for weighing concentrates. After weight measurement, the materials will be fed into a preheater system by belt conveyors. After completing heat exchange in preheater system, then the materials will be conveyed to a rotary kiln for calcinations and conversion. The fuel to be used here is diesel. There is no

natural gas available in Manono and these large rotary calcining kilns will be operating at 1,050°C – 1,100 °C and are not able to be powered with electricity.

Exhaust gas from the preheater will have dust removed by a bag filter, before being released to the atmosphere by fans. The dust collected by the bag filter will be conveyed to storage bin by a chain conveyor, then be transferred to a storage bin by pneumatic conveying equipment later before being finally feeding into a preheater system.

The calcine produced by the rotary kiln will be discharged from the kiln outlet to the grate cooler for cooling. Then, the cooled materials will be conveyed by a chain conveyor and ground in the mill. After milling, the powdered materials will be stored in a calcine bin through an elevator.

Cooling air will be sent into the grate cooler by blowers for cooling the hot materials. After a heat exchanger, the hot gas will undergo dust removal by a cyclone separator the temperature is reduced in a heat exchanger. Then the exhaust gasses will be treated for dust removal via a bag filter before being released to the atmosphere.

Figure 1.11 *Typical calciner plant*

Source: Sichuan Calciner Technology PTY Ltd

Acid Roast Process

Fine calcine will be sent to the dosing bin located at the inlet of sulphation kiln by a pneumatic conveying. The fine calcine and concentrated sulphuric acid will be blended in a pug mixer. This mixture will be reacted in an electrical heated sulphation kiln. After the reaction is completed the materials will go to the sulphation cooling kiln for cooling. Then, the cooled materials will be transported to the leaching process by a chain conveyor.

The exhaust gas produced from the reaction in the electrically heated sulphation kiln, will be treated by an exhaust gas treatment system. There is some potential to harness waste heat in a waste heat boiler for the generation of steam for the downstream process or for electricity generation. Neither of these options was studied during the DFS and remain as future opportunities.

Leaching Process

Cooled acid roast product is directed to a slurry mixing tank. The exhaust gas scrubbing liquid is directed to the slurry mixing tank.

Most of the slurry mixing water sent by the slurry mixing water pump, enters the slurry mixing tank and is mixed with solids in the tank. The various sulphates, mainly Li_2SO_4 in the solid, are leached and dissolved into the liquid phase.

Limestone powder will be stored in a vertical vessel, conveyed via a screw feeder into the calcium powder slurry mixing tank in a controlled manner. With controlled water addition the slurry is pumped into the slurry mixing tank. The limestone powder reacts with the slurry, in the tank, to fully neutralize the sulphuric acid.

When the slurry completes the lithium salts leaching and sulphuric acid neutralization in the slurry mixing tank, it is pumped to the lithium slag filter press. The resulting filtrate is a leach liquor which is sent to the transfer tank.

After the filter pressing operation, washing water will be supplied to the filter press equipment for filter cake washing, so that residual Li_2SO_4 contained in the filter cake can be recovered. The liquid stored in the 1st washing water tank, the 2nd washing water tank and the 3rd washing water tank will be pumped into the filter press, respectively, for filter cake washing. The 3rd washing water tank will be filled with fresh water and recycled condensed water that is produced by evaporation and crystallization. Then, this water can be used to wash the filter cake for the 3rd and final washing stage filter press. This 3rd stage washing

water is then directed counter current through the 2nd and 1st stage filter presses as wash water. After this washing process, the liquid is transported into a water storage tank, then it is pumped into a slurry mixing tank.

The filter cake completes three stages of washing discharges from the lithium slag filter press, which is then sent for storage, by belt conveyor, to a stockpile. The stored lithium slag can be sent to a truck, by belt conveyor, for delivery out of plant.

The liquid in the leach liquor transfer tank is pumped into a leach liquor filter press. The resulting filter residues is sent to a filter press transfer tank and is mixed with adequate water to form a slurry. This is then sent back to the filter residues slurry mixing tank, by pump. The leach liquor produced is sent to a filter press transfer tank, and the liquid in the tank is pumped after flowing through a fine filter, to the fine filter transfer tank. The liquid in this tank is pumped, after passing through a surface filter, to the surface filter transfer tank. The liquid is then pumped to a leach liquor storage tank.

Solution Purification Process

The liquid in the leach liquor storage tank will be pumped into a leach liquor heating tank. After heating, it is pumped to a reaction vessel (purification). In addition, an adequate amount of NaOH solution and Na_2CO solution is added into the reaction vessel from the NaOH solution head tank and Na_2CO head tank. The NaOH reacts with sulphate contained in the leach liquid, such as $MgSO_4$, $Fe_2(SO_4)3$, $MnSO_4$ and $Sn(SO_4)2$ and produces precipitates such as Mg(OH)2, Fe(OH)3, Mn(OH)2, Sn(OH)4 and Na_2SO_4. While, Na_2CO_3 reacts with $CaSO_4$ contained in the solution to produce $CaCO_3$ and Na_2SO_4.

The completed slurry from the reaction vessel (purification) is pumped to the plate and frame filter press and the resulting calcium residues are dumped into a blending and washing tank. After controlled water addition, to form a slurry, the slurry is pumped to the slurry mixing tank. The leach liquor produced is purified liquor and is sent to a purified liquor tank.

Evaporation and Crystallization

The liquid in the purified liquid tank is pumped to the clear liquid storage tank, which is mixed with the mother liquor returned from the mechanical vapour re compressor (MVR) evaporation and crystallization system. Then, the mixture will be pumped to the MVR evaporation and concentration system. Water contained in clear liquid will be heated and evaporated, so the solution is concentrated and then separates out into $Li_2SO_4{\cdot}H_2O$ and Na_2SO_4 crystals, as well as K_2SO_4 crystals.

Slurry from the MVR evaporation and concentration system will be sent to the crystallizing tanks. After cooling and blending properly, the crystals $Li_2SO_4 \cdot H_2O$, Na_2SO_4 and K_2SO_4 will be further separated out. When the crystallising operation is completed, the slurry is discharged from the crystallising tank and sent to the centrifuges for solid and liquid separation. The resulting filtrate is the mother liquor of evaporation and crystallisation, after being collected in the mother liquor tank, it is sent to the clear liquor storage tank by pump. The resultant wet solid residues obtained, dumps into a lithium sulphate bin, which will be sent to a dryer through a screw conveyor and is dried by evaporation.

Solids coming from the dryer are fed into the material bin through the feeder on to the cooler for cooling, by the screw conveyor.

Solids discharged from the cooler are fed into a material bin and transported to the magnetic separator, by a screw conveyor, to remove magnetic and mechanical impurities.

Product Drying Process

Solids discharged from magnetic separator are fed into material bins through a feeder and then discharged into the product packaging area to the bulk bag packer and 25 kg bag packer. Bagged product is palletised and loaded in to shipping containers for dispatch to Clients.

Off Gas Treatment

The dust containing exhaust gas and air mixture released from crystallising tanks, dryer and coolers is drawn into three sets of spray tower systems. The gas is reacted with water spray before being release into the atmosphere. Throughout the scrubbing process, the separated liquid containing dissolved Li_2SO will be returned to the slurry mixing tank for the lithium salt leaching process.

Plant Capacity

The product is produced at a rate of 45.7 kt/a, using 153 kt/a of SC6 to achieve this Primary Lithium Sulphate product. This is a conversion of 3:4 SC6 to Primary Lithium Sulphate.
Several reagents will be used for the lithium sulphate process as follows:

S/N	Raw and Auxiliary Materials	Technical Specification	Unit	Annual Demand Amount
1	Spodumene Concentrate (Dry Basis)	Li_2O: 6.0%	t	153,181
2	Sulphuric Acid	98%	t	41,175
3	Sodium Carbonate Solution	Calculated as per 100% Na_2CO_3	t	337
4	Sodium Hydroxide Solution	32%	t	8,280
5	Limestone Powder	Calculated as per 100% $CaCO_3$	t	3,735
6	Product Packing	Bulk bag (1 tonne) accounted for 80%	Piece	37,800
		25kg bag accounted for 20%	Piece	378,000

Table 1.15 List of reagents for the Primary Lithium Sulphate Plant Source: SCT

Diesel 12,350 t/a (10.127 ML) will be used as a consumable to fire the two calciners as no natural gas is presently available in Manono. Compressed Natural Gas (CNG) is available in Dar es Salaam, but the quantities required were too large for the suppliers and the transport methodology made it impractical to use as the pressure vessels containing the gas were too heavy and costly to rail.

Waste Stream

The Primary Lithium Sulphate plant will produce 153 kt/a of lithium slag which will be a filtrate sludge produced by the filtration process of purifying the sulphate prior to crystallization. The lithium slag from the process could be used as a product in brick making and for fortifying large aggregate concrete. AVZ has decided to put this lithium slag, which will be acid neutral due to the limestone neutralisation process, into the Tailings Storage Facility. The reason is that the intrinsic value of the material is USD 20/t so the cost to transport it makes it unviable as a product and also that the construction requirements for concrete and bricks will be completed by the time the plant produces the product. A certain portion can be offered to the local Manono brick makers, but the balance will be sent to tailings where it can assist in binding the tailings. AVZ has done a literature review on the uses of lithium slag and has found that it is good for brick making, strengthening concrete and for fortifying in pit tailings.

Further literature reviews will be conducted to ascertain if this lithium slag material will be good for road construction purposes and then use it the region for road upgrades.

Emissions

The Lithium Sulphate Plant will have hot gas emissions from the two calciners and these gasses will be cooled, scrubbed, and then released to the atmosphere in a clean format in compliance with Australian Standards for emissions.

Heat/Energy Recovery

During the detailed design phase of the project, special attention will be paid to determining if the heat generated in the kilns could be recovered through a waste heat boiler to be converted to electric power through a small steam turbine.

Product Handling and Transportation

The Lithium Sulphate product will be presented in either 1 t bulka bags or in 25 kg bags packed onto pallets. The product is hygroscopic so it will be packaged in suitable packaging materials to prevent moisture ingress to the product while I transit in marine sea freight containers. During detailed engineering, some consideration will be given to the packaging materials to ensure that they are recyclable and that they do not adversely contribute to humidity entrapment in the bags.

1.14 Tailings Storage Facility (TSF)

AVZ Minerals Limited (AVZ) proposes to reopen the existing open pit mine at Manono to exploit the Manono Lithium and Tin deposit, which is host to highly prospective lithium pegmatites in southern Democratic Republic of Congo (DRC). This document presents the details of the above ground tailings storage facility (TSF) for project with an in-pit tailings storage facility (IPTSF) as a possible option to start the project. The IPTSF cannot accommodate the life of mine (LOM) tailings and it would have to be supplemented with above ground TSF to accommodate LOM tailings. The geotechnical site investigation works to support the design of the above ground TSF to DFS level have not been completed and the work for the above ground TSF concept presented in this document is considered at a PFS level of accuracy.

A circular paddock style TSF to be raised in stages by downstream construction, located near the process plant was the option selected for this study with the IPTSF, into one of three available open pits, providing an alternative for the start of the project. In the absence of geotechnical investigations, assumptions have been made in relation to the material parameters for the design.

The hazard category rating of the TSF, in accordance Australian National Committee on large Dams (ANCOLD) 2019 is High-A. Dam break studies have been executed to assess the impact of the TSF failure. The design concept which has been developed generally meets the requirements for this hazard classification. Further work is recommended to better define the geotechnical and seismic parameters relevant to the project to confirm the conceptual design can be implemented.

It is understood that like other lithium projects and in line with confirmatory testwork, the tailings material is non-acid forming (NAF) and any leachate will be benign. The fine tailings which are to be contained in the TSF can be classified as a medium plasticity clayey sand and a preliminary assessment indicates these materials can be considered potentially liquefiable. Tailings testing indicated that there is only a marginal difference in the laboratory testing of tailings between 40% solids and 67% solids and the water recovery system needs to be geared to maintain the supernatant pond as small as practical and adjacent to the rock ring. The DMS Middlings which are a by-product of the processing classified as a low plastic sandy gravel and may be used in the TSF construction can be considered potentially liquefiable.

The design concept adopted for the starter embankment and all subsequent embankments, has downstream slopes of 3.5:1 horizontal to vertical (H:V), upstream slopes of 2:1 (H:V) and embankment crest widths of 8 m. The primary structure will comprise a homogenous, compacted 'select' soil embankment with a cut-off trench. The cut-off trench will be backfilled with compacted 'select' clayey borrow. The materials for embankment construction and the depth of the cut-off will need to be confirmed in future geotechnical investigations. The design concept includes compaction of the in-situ clay to form a basin liner of approximately 300 mm thickness. The proposed future embankment raises are to be executed by downstream construction techniques, using either dried tailings or mine waste overburden/borrow material for the internal zone and mine waste overburden/borrow material for the downstream zone. Mine waste overburden/borrow materials will be sourced from within the mine lease.

Construction of the TSF is to be undertaken in accordance with the Construction Specification for the facility. A draft construction specification is included with the TSF documentation. Tailings will be deposited using sub-aerial deposition techniques from multi spigot locations on the perimeter embankment. Tailings spigotting or deposition is to be executed in thin layers of not more than 300 mm to ensure a uniform tailings beach is developed, sloping towards the decant facility. The spigotting sequence is to be formulated such that the supernatant water pond is always maintained around a decant structure.

As water management is a key stability parameter the concept design incorporates a decant rock ring filter to maximise the clarity and volume of the return water and minimise the lateral extent of the supernatant pond. Water removal from the TSF is set at approximately 80% of the slurry water. The design and operation of the TSF is to maximise water recovery and maximise the in-situ dry density of the deposited tailings.

A preliminary water balance analysis for the TSF was prepared using an excel spreadsheet provide water recovery is maximised the TSF is expected to perform in accordance with the concept design.

The TSF will be instrumented with vibrating wire piezometers or similar to facilitate the monitoring of pore pressures.

A preliminary emergency action plan for the TSF is included with the TSF documentation. Under normal operating conditions, that is the tailings surface and surface of the supernatant water pond being within the freeboard requirements the probability of embankment failure during normal operations is very low. There is a requirement that the supernatant pond must not be closer than 150 m from the perimeter embankment.

Given that the TSF is to be raised in the downstream direction, progressive rehabilitation of the downstream slopes of the facility will not be possible throughout the life of the operation unless the outer embankments are constructed to the full embankment width for the ultimate embankment height. The outer slopes are to be covered with nominally 500 mm of armour materials, normal to the slope, to provide protection against erosion due to rainfall runoff. Once a finer grained growth medium, such as topsoil, is added to the rock armour, the development of vegetation can commence. As part of the topsoil/growth medium placement process, the outer slopes should be contour ripped. Timing of the rehabilitation works is to be confirmed during the operation of the facility.

It is recommended that any vegetation development on the outer slopes of the TSF comprises local grasses and small shrubs with shallow root zones. The establishment of trees should be avoided due to the increased potential for the roots to penetrate the tailings.

Following completion of deposition within the TSF, the deposited tailings are to be left to dry and consolidate. It is expected that the water liberated by consolidation and rainfall runoff will continue to pool in the centre of the facility where the decant rock ring is located. Periodic removal of this water will be required.

Upon confirmation that further perimeter embankment raising is not going to be required and once the deposited tailings have consolidated such that they have gained strength to support construction equipment, the surface of the facility is to be reshaped, such that it does not permit the pooling of water, and then capped with a layer of clayey fill. Rehabilitating in this manner will provide a much more stable and low risk feature post closure, when compared to one where water is permitted to pool on the surface. Contouring of the final surface and downstream perimeter embankments will aid in reducing the likelihood of rainwater run-off eroding the exposed surfaces.

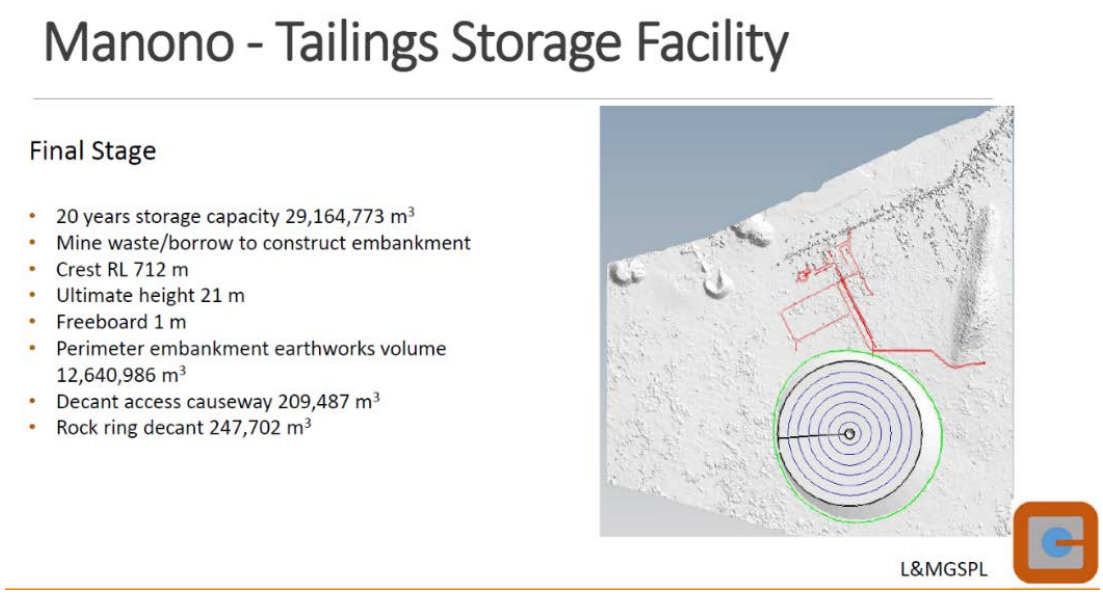


Figure 1.12 High level summary of key parameters of the TSF

1.15 Mpiana Mwanga Hydro Electric Power Plant (HEPP)

AVZ has through its 100% owned DRC based legal entity, AVZ Power SAU (AVZP), successfully negotiated and signed an MOU with the DRC government. This MOU now grants AVZP the right to begin full studies into the redundant and abandoned Hydro Electric Power Plant (HEPP) located 87 km south east of Manono at a town called Mpiana Mwanga, which is situated on the Luvua river a large tributary of the upper Congo river further to the north. The intent of the MOU is to progress the studies to a point where ownership of the HEPP will transfer to AVZP for operation by AVZP or whomever AVZP engages to do so.

AVZ has commissioned a DFS report on the HEPP and has determined that the power plant can be refurbished and that it could operate viably. The DFS determined that the HEPP could

be refurbished for USD 50.5 M[16], including high voltage (HV) substations, HV powerline and a contingency and produce power at an operating cost of USD 0.04/kWh.

The timeline to complete the reconstruction is 18 months start to finish. The Capital will procure the following:

- All design engineering, construction management and direct manhour costs
- Reconstruction of Mpiana Mwanga No2 (MP2)(3 x 10.3 MW Kaplan turbines with alternators and control systems)
- Repair of all building, pen stock and general civil works
- Installation of 2 new HV substations inclusive of all HV transformers (at HEPP and in Manono)
- Installation of a new 60 MW, 120 kV aluminium overhead powerline with insulators, optical ground wire (OPGW) and monopoles from the new Mpiana Mwanga HV substation to the new Manono HV substation (~87 km)
- Service road refurbishment from Manono to Mpiana Mwanga.

The HEPP facilities are old and consist of two powerhouses, Mpiana Mwanga No 1 (MP1) and Mpiana Mwanga no 2 (MP2), independent of one another. MP2, the newer of the two powerhouses (built circa 1952) has capacity for 3 Kaplan vertical axis turbines each capable of producing 10.3 MW once retrofitted giving a total installed generation capacity of 30.9 MW. 10% power losses are anticipated between generation source and take off user end of the 120 kVa HV overhead powerline.

MP1, the older of the two powerhouses (built circa 1932) has the capacity for 3 Francis vertical axis turbines each capable of producing 4.5 MW once retrofitted giving a total generation capacity of 13.5 MW should the current civil work be re utilised as is. If the civil work was significantly modified, then this facility could potentially also provide 3 x 10.3 MW Kaplan vertical axis turbines. This was not studied in detail in this DFS as the power generated from MP2 already meets the demand for this phase of the Manono project. This option may become viable in Stage 3 of the Manono Lithium and Tin project when the Hydroxide plant is planned for and will be re studied as part of that DFS.

Stage 1 of the Manono Lithium and Tin Project, i.e. a dense media separation (DMS) plant and a primary lithium sulphate plant, requires a total installed power of circa 26.5 MW and a

[16] Excludes the road upgrade between Manono and Mpiana Mwanga

demand load of 23 MW. This indicates that the 3 x 10.3 MW turbines will generate more power than required for initial Stage 1 requirements, resulting in the understanding that two turbines will be run on duty and the third one is the unit on standby (2n+1).

Under Stage 1, i.e. two turbines in duty and the third in standby mode, the power generated will exceed the demand side usage and so the balance of the power will be offered to the local population through the SNEL grid for use in electrifying the towns of Mpiana Mwanga and Manono or any other off-takers that present themselves to SNEL.

1.16 Non Process Infrastructure

The infrastructure required to support the operation includes raw water supply, water management, sewerage systems, waste disposal facility, power supply, roads, bulk earthworks, accommodation, communications, Manono airport, mine infrastructure, processing infrastructure and security.

Raw water will be obtained from the historical process water source at Lake Lukushi and pumped to the mine site, Camp Colline and Kitotolo Village. Water treatment plants, wastewater treatment plants and diesel generator power stations will be established at the mine site and accommodation locations. An overhead power line will be installed at the Lake Lukushi pump station from the Manono substation.

The mine infrastructure will service the mine mobile fleet. A wash bay, refuelling station, offices and workshop facilities will be provided.

Power for the mine site will initially be supplied by diesel generators. It will transition to hydroelectric power when the Mpiana Mwanga power station and HV transmission line is refurbished.

The power demand for the MLTO will be in the order of 26.5 MW versus an installed power load of ~23 MW.

1.17 Corporate Social Responsibility (CSR)

AVZ Corporate will ensure that a Social Development Plan (SDP) is put in place to assist with the control and monitoring of the needs of the community. The impact of the social grants which will be disbursed to the Manono community via Direct and Indirect spending on social projects and needs will be tracked and monitored to determine the efficacy of the system and to enable transparent paucity of the SDP by all stakeholders.

A Social Development Plan is a comprehensive plan that focuses on enhancing the quality of life for the citizens of a community and helps provide a direction for future decisions in the key areas identifies by its community members.

The SDP is being developed and implemented in a context where poverty and underdevelopment are pervasive, and community expectations for Dathcom's investment in the area are extremely high. Although Dathcom aims to secure benefits to local stakeholders, its ability to meaningfully contribute to economic growth is limited by a life of mine estimated at 20 years. Bearing this in mind, the SDP aims to identify community development projects that require affordable resources to implement, uphold the principle of sustainable development, meet the needs of local communities and ensure effective handover before or after mine closure.

The challenge for Dathcom is to demonstrate its commitment to communities and key stakeholders by setting a Social Vision whilst managing possibly unrealistic expectations and contributing to the development of affected communities. The sustainability of these community development projects is dependent on several factors, including Dathcom's ability to establish partnerships with communities, local government, civil society, NGOs and neighbouring communities. Dathcom will be required to assist these development partners with capacity building, project implementation, management and monitoring.

Creating a Social Vision through Stakeholder Engagement. The comprehensive SDP will be guided by a social vision. The process of developing a vision will start with a facilitated and consultative process with MLTO staff members. It will build upon vision elements already approved by MLTO. The intent of the social vision is to provide an idealised, yet achievable, description of the social environment desired in Manono. This exercise will bring stakeholders from MLTO to discuss the elements of a Social Development Plan. The social vision will be shaped and refined through targeted community consultation and be presented to AVZ Corporate for final approval. The targeted community consultation has already been conducted as part of the environment, social impact assessment (ESIA) and is reflected in the template document under Title VII stakeholder consultation and sustainable development plan requirements.

Developing Strategic Directions, Goals and Actions based on key policy areas and strategic directions will be set by AVZ Corporate. This will facilitate discussion on how these areas can be better coordinated by MLTO, the AVZ Foundation and future business tenants of the Special Economic Zone (SEZ) where priority areas will be revealed. These draft key directions will then be presented to AVZ Corporate for approval and become the basis for focussed community consultation.

Developing Indicators will recommend a final set of key performance indicators (KPIs) to monitor progress towards achieving the Social Vision. There will be several levels of KPIs to measure progress at the vision, strategic direction, goal and action levels.

A Social Development Plan will be of use to MLTO's, Manono and regional residents and local community service providers to:

- Provide an inventory of the current functions of the MLTO in support of social development
- Complete a socio-demographic profile to reveal the current and future trends impacting Manono and its immediate surrounding region
- Create a focussed consultation process, with MLTO, AVZ Foundation Committee and the community to reveal gaps, trends and key directions that Manono will need to address for long term planning
- Establish priorities and directions for future MLTO involvement in responding to social development
- Create a framework to strategically align the contributions of MLTO with other levels of government, community-based agencies and the private sector within the identified key strategic directions.

The SDP will be developed and aligned with the DRC government's Title VII stakeholder consultation and sustainable development plan requirements.

This stakeholder engagement consultation process has been undertaken in line with the provisions of the legal framework for the protection of the environment as specified in the Act N°11/009 of 09th July 2011 on the protection of the environment, the DRC Mining Regulations 2018 in Appendix VIII Part VII, Article 126) for public consultation and the DRC Environment Code.

Figure 1.13 *Community Stakeholder Consultations held at camp Colline Manono*

The SDP will set out a timeline of spend in USD against the key areas of the Social Vision as well as allow for some ad hoc categories of spend which may present from time to time.

The main categories of spending will align with most conventional wisdom around initial social upliftment. These all have components of direct and indirect funding and have been noted by AVZ as follows:

- Education:
  - Getting schools upgraded to fit for purpose standards (Running water, power and facilities such as desks, chairs and whiteboards)
  - Access to trained teachers
  - Access to stationery
  - Access to computers
  - Achieving full attendance through to end of secondary school for all children
  - Ensuring the females attend school through to secondary school level.
- Potable Water:
  - Bring raw water to a water treatment plant and produce drinking water
  - Plumb water to schools and hospitals
- Medical treatment:
  - Work on eradication of standing water to reduce the risk and onset of Malaria
  - Refurbish the hospital

- Electrify the hospital
- Assist with an MLTO ambulance and fire truck
- In extreme medical cases conduct mercy flights of ill patients to bigger medical centre, e.g. Kalemie or Lubumbashi
- Assist with Polio melilites vaccination drives.

- Employment:
  - Direct employment at MLTO
  - Indirect employment through a formalised artisanal mining company whereby MLTO provide assistance and buy the tin directly and exclusively from compliant miners who have authorisation to work in artisanal areas on the Dathcom's Mining Lease
  - Employment from Contractors who will gain contracts for specific works on or for the MLTO
  - Apprentices who qualified from the MLTO training academy could go off and work anywhere else if they did not want to stay at MLTO.
- Agriculture:
  - Assist with setting up training for farmers
  - Assist with initial agricultural seed stock
  - Mechanical farming equipment supply and maintenance
  - Assistance to set up livestock farming
  - Assistance to set up wildlife stock and a potential game park for tourism.
- Sport and Recreation:
  - Revitalise some playing fields for the public to use
  - Organise charity events for sporting activities
  - Start a football league or equivalent.

Once these basic human needs have been met, then the social fabric of Manono will have evolved to a point where the social needs will be different from this start out position and then the Social Vision will be adjusted accordingly.

1.18 Environmental and Social Impact Assessment

Legislation applicable: In accordance with the following agreements of February 18, 2013 as amended to-date, particularly article 123, point 15 that Law No 11/009 dated July 9, 2011 respecting basic principles on the Environment Protection, ("Environment Protection Law") was passed. Based upon environment basic principles universally recognized[1], Environment Protection Law has enacted basic principles, which should serve as the basis for special laws in order to regulate different environmental sectors. This Environment Protection Law has the obligation to carry out an environmental and social impact assessment, environmental auditing, to establish an institutional framework, to reinforce a repressive regime.

In articles 21, subsection 1, and 22, Environment Protection Law indeed stipulates that "Any development, infrastructure and operation project of any industrial, commercial, farming, forest, mining, communication activity or other that may have an impact on the environment shall be subjected to a prior environmental and social impact assessment, accompanied with its duly approved management plan". "Any industrial, commercial or farming facility of which operation may be hazardous for health, security, sanitation, environment or preservation of sites and monuments, or may be uncomfortable for the vicinity shall be categorized according to the severity of danger, inconvenient or discomforts thereof ".

"Regulated facilities shall be first subjected to a declaration, or an authorization certified by a national or provincial exploitation licence, as the case may require".

The mining sector is governed by Law No 007/2002 of July 11, 2002 relative to Mining Code (" Mining Code") and Decree No 038/2003 of March 26, 2003 relative to (" Mining Regulation "), which establish a Mining and Quarry Regime accompanied with the following mining rights: (i) Mining Permit (" PE "), (ii) Small-scale Mining Permit (" PEPM "), (iii) Mining Permit for Tailings (" PER ") and (iv) Authorization for Permanent Quarry Exploitation (" AECP "), which are granted subject to previously established terms and conditions, among others, the submission of the Environmental Impact Assessment (EIA) and Environmental Management Plan of the Project (EMPP) and the approval thereof.

These mining activities carried out under mining rights and authorization for Permanent Quarry Exploitation shall be now subjected to an Environmental Exploitation Licence established by Environment Protection Law, subsequent to the Mining Code and Decree on Regulated Facilities, subsequent to Mining Code and Regulation.

Legal Basis of the Exploitation Licence (Environmental)

The Environmental Exploitation Licence is based on article 37 of Environment Protection Law, which sets forth that "Any industrial, commercial or farming facility of which operation may be hazardous for health, security, sanitation, environment or preservation of sites and monuments, or may be uncomfortable for neighbourhood shall be categorized according to the severity of danger, inconvenient or discomforts thereof ".

In article 3, Decree No 13/015 of May 29, 2013 on the control of regulated facilities (" Decree on Regulated Facilities ") made pursuant to Environment Protection Law, describes the regulated facility as a fixed or mobile source, whatever its owner or use, likely to cause nuisances and to affect the environment, including soil, sub-soil, water, air and forest resources.

Competence to issue the Environmental Exploitation Licence
The Minister of Environment is empowered to issue the national exploitation licence, and the Governor of Province of the area is empowered to issue a provincial exploitation licence.

Therefore, the Minister of Environment is qualified to issue the Exploitation Licence of any regulated facility the existence of which may have an impact in the territory of many provinces whatever its category.

Dathcom commissioned EmiAfrica SARL out of Lubumbashi in the DRC to conduct a full ESIA on the Manono Lithium and Tin Project with the purposes of baselining the biodiversity of the proposed mine activity areas and to conduct stakeholder consultations with the local communities to begin sensitising them to the upcoming economic activity and to listen to what their views and requirements of Dathcom would be.

Furthermore, the brief was to develop the documentation that will be required to convert the current Permis de Recherche (Exploration Permit) to a Permis d'Exploitation (PE) which requires a full ESIA to be conducted and which consists of eight Title documents with the following being the key documents:

- Environmental Management Plan (EMP) to Title V specifications See Appendix I.4
- Social Development Plan (SDP) to Title VII specifications
- Draft Mine Closure Plan (MCP) to Title specification
- Full DFS Report.

This documentation will be used to apply for the Environmental Exploitation Licence which is a pre requisite to applying for the PR to PE conversion.

EmiAfrica will now focus on tailoring all the ESIA documentation toward the format of the PR conversion to PE format required and as soon as that is done, the submission to the Mining Registry will be made.

EmiAfrica attended site and conducted many baseline biodiversity studies such as:

- Soil sample analysis
- Air Quality sample analysis
- Noise sample analysis
- Surface, ground and wastewater sampling and analysis
- Radiological study
- Fauna trapping and analysis
- Flora count and documentation
- Stakeholder Consultations.

EmiAfrica also held several stakeholder engagement meetings with interested groups in Manono and immediate regions. Dathcom formally responded to all items raised at these meetings and fully auditable and transparent minutes of these meetings were kept. These minutes of meetings will now become part and parcel of the documentation required for the PE application.

Greenhouse gas (GHG) Emissions were modelled to reflect the impact which MLTO's operations would have on the environment to indicate the extend of offset areas required by Law for MLTO to comply with to neutralise the GHGs.

AVZ engaged a Perth based Environmental Consultancy, ERM to draft the Mine Closure Plan. The Plan articulates how the mine will be closed and what rehabilitation measures will be undertaken by MLTO at the time and more importantly sets out what the Post Closure activities and responsibilities of MLTO will be.

The purpose of this MCP is to specify the actions required to rehabilitate the land and water resources that will be impacted by the mining and processing operations. Dathcom envisions closure and post closure to not only align with legislative and regulatory requirements but also to focus on sustainability of the land and water resources for generational use.

The key commitments are to:

- Comply with regulatory requirements specific to the DRC Mining Code (in effect per Law No. 18/001 of 9 March 2018), associated Mining Regulations (amended per Decree No. 18/024 of 8 June 2018)

- Comply with international treaties and agreements of which the DRC is a signatory, including International Finance Corporation (IFC) policies, guidelines and procedures; in particular, social and environmental sustainability performance standards and the World Bank's environmental, health and safety guidelines
- Meet the mine closure vision and objectives
- Comply with the company's environmental health and safety policies and standards
- Meet the mitigation and rehabilitations measures for life of mine outlined in the ESIA [completed in accordance with Annex VIII Directive of the Environmental and Social Impact Study (Annex VIII) of Decree No 14/019 (Article 18)].

This plan can be seen in Appendix I.5.

1.19 Mining Licence

In the DRC, the equivalent of an Australian Mining Licence is called a Permis d'Exploitation (PE). It serves the same purpose as the Australian Mining Licence and defines the Mining Lease (ML) in the same way.

The PE is governed by mining legislation as follows:

Law no. 007/2002 of 11 July 2002 as amended by Law no. 18/001, dated 9 March 2018 ("the "2002" Mining Code), and Mining Regulations, by Decree no. 18/24, of June 2018) enacted by Decree no, 038/2003, of 26 March (the"2003 Mining Regulation")

1.19.1 Conditions Precedent for Concession Conversion to a Mining Licence

The lodging of the ESIA (containing both the Environmental Impact Assessment and the Social Development Plan) with the environmental section of the Mining Registry is one of two conditions precedent for the application to convert the Permis de Recherche (Exploration Licence) into a Permis d'Exploitation (Mining Licence). The application approval is expected to take up to 6 months after lodging the application.

The second requirement to accompany the Permis d'Exploitation licence application is the completion of a Joint Ore Reserve Committee (JORC) 2012 (or NI 43-101 equivalent) which was completed in May 2019 (Section 1.5).

1.20 Health, Safety and Security

AVZ takes the health safety and security of all of its employees, contractors and visitors seriously and has implemented a well-documented, first world safety and health policy with

all of the policies and procedures as aligned with both the Australian standards and those of the DRC to support the AVZ vision of zero harm to all.

AVZ, through its MLTO operating company, will ensure that all employees are provided with adequate training, correct tools for the job, personal protective equipment and wellness facilities to create a platform from which a sustainable business can be built.

1.20.1 Health

MLTO is aware of the medical physical health risks in the Manono region of Tanganyika province of the DRC. These include yellow fever, blackwater fever, polio melilites, AIDS and malaria to name the most prevalent ones. MLTO plans to reduce standing water puddles on the site and in the camp Colline and Kitotolo village as well as in the community, wherever it can to assist in trying to reduce the breeding grounds for the Anopheles mosquito. Prophylactic medication against malaria will be made available to all employees, contractors and visitors and a 'long sleeves rolled down' and long trousers at all times policy will be implemented on site to reduce exposed skin areas from being bitten by mosquitoes. New employees and contractors will be subjected to a full medical examination at a company designated General Practitioner prior to engagement on the site and upon termination of work at MLTO, as per normal mining standards.

Sunscreen cream for skin protection and mosquito repellent cream will be available for all to use.

Mental health will be addressed through programs such as RUOK[17] (www.ruok.org.au) and fatigue management assessment and training to instil a culture of looking out for one another's best interests at work and at home. The site access control system will monitor individual's time on site and number of shifts worked to ensure that no one exceeds the approved number of working hours and days as per their roster and that no one works on their rostered days off. No one will be allowed to work more than 13 days in a row without taking a rostered day off on the 14th day.

1.20.2 Safety

World Class Safety Policies and Procedures will be put in place and shall be developed and evolved as the MLTO matures. The Policies and Procedures will be in place for the construction phase and will be refined by the operational readiness team in anticipation of start-up of operations. These systems will be aligned with the Australian Work Health and Safety Regulations and those of the DRC:

[17] RUOK is a mental wellness mechanism whereby colleagues and peers check on one another to ensure that they are all well.

- Covered under Law No. 007/2002 of 11 July 2002: Relating to the Mining Code (Mining Code) and Decree No. 038/2003 of 26 March 2003: as amended and completed by Decree N° 18/024 of 08 June 2018 Mining Regulations
- DRC Labour Code Law no 15/2002 of October 16, 2002 Concerning the labour code, whichever is the most stringent.

Full safety training will be offered to all employees by an in-house team of safety professionals. Safety incidents will be tracked, traced, investigated and formally closed out using the software system procured at the start of the project. All incidents will be self-reported, and the more onerous reportable incidents will be reported to the Mines Department and actioned within the same shift as the incident occurred. Lagging and Leading indicators will be tracked and reported on, but the MLTO will spend a lot of time and effort in pro actively procuring to prevent incidents from happening in the first place. The main safety system will be heavily predicated on Western Australian mine safety standards as a minimum.

1.20.3 Security

MLTO will construct the necessary fences and barriers to entry around its facilities with the intention of protecting any of the local population who may wander onto the mining lease inadvertently and by so doing place themselves at risk of injury through ignorance of the facilities which MLTO will be constructing and operating. The presence of the MLTO facilities will be reinforced by public radio announcements and community awareness programmes and information campaigns such as town hall meetings to be held in the villages.

Access to the site will be via the main gate only which shall be manned 24/7 by trained security guards on contract from a specialist security company, who shall also patrol the perimeter fencing of the MLTO. Access shall be strictly limited to persons who have; been invited to visit the MLTO site, have completed the required induction, presented a photo identification and have been issued an access card by the security team. A “No access card, no access” rule will be used on site. Full PPE will also be worn on site and will be a prerequisite for access to site. MLTO will hold some PPE at the access gate for visitors to use prior to accessing the site, these will include as a minimum, long pants, Steel capped boots, hard hats, safety glasses, ear plugs and a high visibility shirt or over vest. All visitors to site shall be escorted all the time by a fully inducted MLTO employee.

The security team may from time to time also be assisted by local police and Mines police around the outside of the mining lease as and when required.

A full Emergency Evacuation Plan (EEP) has already been developed which shall be enacted should there be civil unrest or force majeure events which warrant evacuation of the site. Satellite phones are in place to manage this in the unlikely event that it should occur. In such

an event, all employees and their immediate families at risk will be evacuated. This EEP is highly confidential and will be managed by the most senior person on site at the time. MLTO has three satellite phones for communication during such events.

1.20.4 Project Implementation

A preliminary implementation schedule has been developed for the Project. It has been based on an EPC (defined) execution methodology and covers the following scope of works:

- Process Plant (SC6 and Primary Lithium)
  - Primary crusher, screens and ROM feed bin
  - Secondary crusher, screens to HPGR feed stockpile
  - HPGR crushing and screens
  - Dense media separation facility (DMS)
  - Tin (potentially Tantalum) recovery circuit (TRC)
  - Product storage warehouse
  - Primary Lithium Sulphate train
  - Tailings storage facility (TSF).
- Non Process Infrastructure
  - Raw water pump house and overland pipeline
  - In-plant roads
  - Buildings
  - Reverse Osmosis plant
  - Sewerage treatment plant
  - Diesel storage
  - Power generation
  - Compressor house
  - Raw water and firewater dams
  - Fire hydrant ring main.

- Road upgrades
    - Manono to Mpiana Mwanga (~87 km)
    - Manono to Kabondo Dianda (~170 km of a total of 340 km)
    - Site access road, N33 to process plant (~3.5 km).
- Mpiana Mwanga HEPP
    - PM 2 powerhouse (3 turbines)
    - HV powerlines to Manono
    - HV Substations and HV transformers.
- Intermodal Staging stations for transport changeovers
    - Kabondo Dianda (including ferry for Lualaba river crossing)
    - Dar es Salaam, Tanzania (for loose bulk or existing ICT)
    - Lobito, Angola (use new existing port facilities for loose bulk or containers).
- IT and communications systems.

The schedule outlines the execution of the Project scope. The schedule excludes government approvals which will be commenced well in advance of the construction works program.

1.20.5 Early Works schedule

AVZ plan to begin certain early works to assist with project access set up pending the following hurdles being in place:

- Board approval to do so
- Availability of funds
- Obtaining the Permis d' Exploitation (Mining Licence) allowing development of the lease to begin.

The plan is to fast track the development and construction of the following:

- Place long lead procurement orders with limited financial exposure
- Complete the construction team accommodation infrastructure at Camp Colline (RO water treatment plant, diesel power generator, waste-water treatment plant, complete rooms, mess, kitchen and gym)
- Refurbish the Lukushi pump house and install the overland pipeline to site
- Build a permanent site access road (~3.5 km)

- Build the site offices, ablutions and gate house complexes
- Fence off the process plant area
- Procure select mine compliant construction vehicles
- Upgrade the communications and connectivity on site and install base set, hand-held and vehicle radios (including procurement of the necessary licences)
- Install diesel storage tank capacity on site
- Install diesel generator on site
- Conduct some front end engineering and design (FEED) work including:
    - Detailed geotechnical survey
    - LIDAR or topographical survey of key plant areas
    - Completion of the Hydrogeology and hydrology study
- Establish an on-site fabrication and apprenticeship training facility.

The early works team could be 20 -30 people, possibly inclusive of 4-5 expatriates.

1.20.6 Spodumene Concentrate Process Plant schedule

The schedule for the Spodumene Concentrate process plant, roads and non-process infrastructure EPC component of the project is 84 weeks, with 52 weeks on site. The schedule is made up of the following major durations:

- 38 weeks of engineering design
- 49 weeks of procurement
- 52 weeks of construction, including wet commissioning
- 4 weeks of ore commissioning
- 6-12 months ramp up to full nameplate capacity.

To meet the proposed project implementation timeline, an early works program is proposed. The critical path is through the path of the specification, procurement, delivery, installation and commissioning of the high pressure grinding rolls (HPGR).

Mobilisation to site is scheduled backwards from the HPGR delivery date to allow time for mobilisation, site preparation, bulk earthworks, civil installation and concrete curing prior to commencement of installation of the equipment.

The construction team is expected to peak at approximately 600 people. Preliminary figures show that the number of Expatriates will be in the order of 50-75 people and non-local DRC nationals around 50 and the balance of 425-500 people will be from the Manono region.

See figure 1.14 below for the draft project schedule at level 1 definition.

1.20.7 Hydro Power Plant schedule

The schedule for the hydro power plant refurbishment and HV transmission lines project is 68 weeks, with 52 weeks on site. The schedule is made up of the following major durations:

- 26 weeks of engineering design
- 56 weeks of procurement and shipment
- 52 weeks of construction, including road reconstruction
- 4 weeks of on-line Commissioning
- Ramp up is instantaneous, albeit that it is governed by offtake requirements.

The critical path runs through the specification, procurement, delivery, installation and commissioning of the new Kaplan turbines, HV transformers and HV powerline installation.

Mobilisation to site is scheduled backwards from the longest delivery dates for critical path equipment to allow time for mobilisation, site preparation, civil installation and concrete curing prior to commencement of installation of the equipment.

The construction team is expected to peak at approximately 100 people. At least 35% will be highly skilled HV power and turbine expatiates and the balance is likely to be DRC nationals including local personnel from Mpiana Mwanga and Manono. A small temporary accommodation village will be required at Mpiana Mwanga as it is too far from Manono to commute each day. The powerline builders and road construction teams will camp in caravans or tents along the route as they install the HV powerline.

See figure 1.14 below for the draft project schedule at level 1 definition.

1.20.8 Primary Lithium Sulphate Plant schedule

The schedule for the primary lithium sulphate process plant, roads and non process infrastructure EPC component of the project is 104 weeks, with 84 weeks on site. The schedule is made up of the following major durations:

- 40 weeks of engineering design
- 46 weeks of procurement
- 84 weeks of construction, including dry and wet commissioning.

The critical path is the specification, procurement, delivery, installation and commissioning of the calciners.

Mobilisation to site is scheduled backwards from the calciner delivery date to allow time for mobilisation, site preparation, bulk earthworks, civil installation and concrete curing prior to commencement of installation of the equipment.

The construction team is expected to peak at approximately 300 people. This is to be a lump sum turnkey (black box) package to a specialised vendor and the split of expats to local people is not known at this stage but all efforts will be taken to ensure that local labour utilisation is optimised.

See figure 1.14 below for the draft project schedule at level 1 definition.

1.20.9 Total project schedule

The total project schedule will take 112 weeks from date of Financial Investment Decision (FID) and the total on site construction duration is 84 weeks. The critical paths run through the engineering, HPGR crusher, Kaplan turbines, HV powerline installation and the calciners followed by main road to Kabondo Dianda reconstruction. The schedule has accounted for inclement weather, most notably the 3-4 months a year of 1,500 mm/a – 2,000 mm/a of rainfall which adversely affects construction productivity. As the project schedule is set up now and assumes the FID in Q3 2020, the schedule will see the first rainfall season in the middle of the long lead item procurement cycles. As these long lead items are being delivered directly after that rain season providing a great opportunity to get it installed before the next rain season comes around.

See figure 1.14 below for the draft project schedule at level 1 definition.

1.20.10 Key Schedule milestones

The Key schedule milestones are as follows:

- DFS complete

- Early Works started
- Exploitation Permit (PE) issued
- Financial Investment Decision (FID) achieved and first Capital draw down
- Award major EPC contracts awarded:
    - DMS Process Plant
    - Primary Lithium Sulphate Process Plant
    - HEPP
    - HV powerline
    - Transport staging stations (Dar es Salaam, Lobito and Kabondo Dianda).
- Award mining Contract
- Award rail Contracts
    - TAZARA
    - CFB
    - SNCC.
- Award road reconstruction Contract
- First site establishment of EPC contractors
- DMS Plant ready for ore commissioning
- TSF ready to receive first Tailings
- First Artisan Qualified to a Trade (FAQT)
- First Ore on Truck (FCOT)
- First Ore on Ship (FCOS)
- First Hydro Electric Power (FHEP)
- First Lithium Sulphate Produced (FLSOT).

See figure 1.14 below for the draft project schedule at level 1 definition.

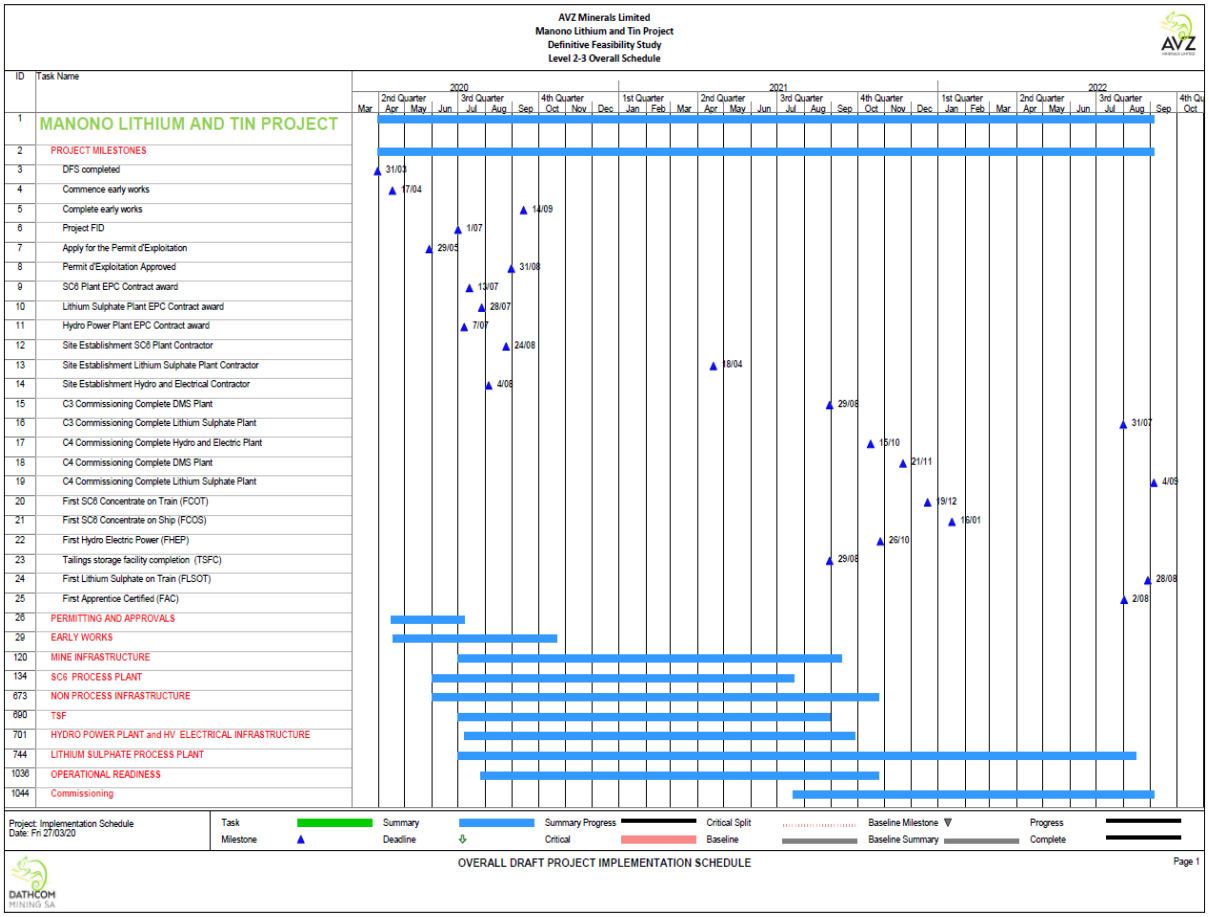


Figure 1.14 *Manono Draft Schedule (Level 1)*

1.21 Procurement and contract

AVZ will follow a strict regime of Procurement and Contracting Protocols, whereby all possible Procurement and Contracts which can be locally sourced in the DRC will be. It is understood that not everything that will be required for construction will be freely available in the DRC but, the project team will have to demonstrate that it is not available or that if it is available, that it is not economically viable to accept or else they will be obliged to use the local suppliers. AVZ is determined to benefit the DRC economy to the maximum in order to fulfil some of the AVZ Corporate Social Development goals.

Imported items will essentially be those which are not available in the DRC or are of a specific technical nature and that the suppliers are not represented in the DRC.

1.22 Quality Assurance and Quality Control

AVZ will employee a small team of inspection surveillance and expediting people, who are competent and experienced at evaluating the quality and adherence to specifications being deployed by the various Original Equipment Manufacturers (OEMs) and fabricators in general. Their role will be to provide assurance to AVZ that the equipment and bulk materials are being manufactured to specification and that they are on time according to their contract schedules, furthermore, this team will attend all witness and hold points as defined in the various contracts as well as conduct the final inspection for release to ship prior to the shipment taking place. Once released for shipping, the AVZ employee will witness the ship loading and cross verify with the insurance surveyor that the equipment was loaded properly and that it was not damaged. Once the ship arrives at AVZ's designated consignee port, then the AVZ inspector will do the same surveillance checks with the marine insurance surveyor of the unloading process.

The rigor with which this team operate on the supply side of the project will directly influence the outcome of the project, so these people are key to the project and will be carefully selected for their skill sets.

1.23 Capital and Operating Costs

The Capital costs were prepared to AAEC International Recommended Practice No. 47R-11 Class 3, providing ±15% level of accuracy. Where pricing was not based on formal quotations, it was derived from various data bases held by Engineering firms or consultants. Source of Capital estimates:

- Contract Mining by KCS Mining DRC via CSA Global
- Spodumene Concentrate Process Plant and associated Non Process Infrastructure (NPI) the pricing was obtained from GR Engineering Services (GRES)
- The Hydro Electric Power Plant (HEPP) was from Wisedesign Africa/IBC/EPS
- Lithium Sulphate Process Plant was from Sichuan Calciner Technology (SCT).

1.23.1 Capital Cost Estimate

The estimate includes all the costs associated with process engineering, design engineering, drafting, procurement, construction and commissioning of the process facility and associated infrastructure, mining services establishment, offsite infrastructure, first fills of plant reagents, consumables and spare parts to design, procure, construct and commission all of the facilities required to establish the Project. The offsite infrastructure includes Lake Likushi facilities, Camp Colline, Kitotolo Village, road, rail, port facilities and the hydroelectric power plant (HEPP) inclusive of the HV transmission powerlines.

The estimate is based upon preliminary engineering, quantity take-offs, budget price quotations for major equipment and bulk commodities. Unit rates for installation were based on market enquiries specific to the Project and benchmarked to those achieved recently on similar projects undertaken in the African minerals processing industry. GR Engineering compiled the process plant and NPI estimate and Wisedesign Africa/IBC/EPC prepared the Hydro Power Plant estimate. AVZ compiled the balance of the estimate with the help of various consultants and through direct pricing enquiries made to the market by AVZ.

The estimate pricing was obtained predominantly during fourth quarter 2019 (4Q, 2019) and is in United States Dollars (USD). Where pricing was received in a foreign currency, it was converted to USD at the foreign exchange rates set at Q1, 2020. The estimate accuracy has been developed to comply with AACE International Recommended Practice No. 47R-11, Class 3, nominally ±15%.

The overall project capital cost includes the pre-production cost for developing the process plants and infrastructure facilities, mining facilities, HEPP and an owner's contingency.

Table 1.16 provides a high level summary of the overall Capex, excluding taxes, withholding taxes, import duties, escalation and rate of exchange fluctuation.

Facility	Total USD
SC6 Process Plant	166,583,233
Lithium Sulphate Process Plant	178,623,617
Hydro Electric Power Plant and HV power line	46,538,472
Non Process Infrastructure	30,881,497
Roads (MN to KD and MN to HEPP)	41,848,038
Port Equipment (Roto Boxes, etc.)	2,040,000
General and Administration	22,273,096
Subtotal	495,884,339
Contingency at 10% at P95 based on @RISK modelling	49,588,433
Total	**545,472,762**

Table 1.16 High level Summary of Capital Cost Estimate

1.23.2 Operating Cost Estimate

The operating costs for the Manono project have been estimated based on prevailing costs for the second half of 2019. All costs are quoted in USD.

The operating cost estimate for the Manono Lithium and Tin Operations (MLTO) is based on longer-term full production rates. The operating costs in the first two years are expected to be higher due to the:

- Initial commissioning and ramp up to steady production rates
- Ramp up to signed offtake agreements
- Use of diesel generated power prior to the commissioning of the Mpiana Mwanga Hydro Electric Power Plant (HEPP) in year Q3, 2022
- Transition from Expatriate labour to National and local labour through to year 3.

The two tables below show the Opex costs for both SC6 and Primary Lithium Sulphate to the level of FOB selling status:

Please note that the SC6 product is derived from a ratio of 6.4 t of ROM feed stock to 1 t of SC6.

Cost Area	Cost/t SC6 USD FOB	% of Total Cost/t
Mining (6.413 t ore : 1 t SC6)	49	14.1
Processing	45	13.0
Transport[18]	229.38	65.9
Sub Total	**323.38**	**93.0**
Royalty[19]	24.47	7.0
Totals	**347.85**	**100**

Table 1.17 SC6 Opex Cost/t as at FOB Selling Status

Please note that the Primary Lithium Sulphate product is derived from a ratio of 3.4 t of SC6 feed stock to 1 tonne of Primary Lithium Sulphate.

[18] Based on dry loose bulk transportation to Lobito FOB
[19] Royalty is calculated as 3.5% of Sell Price on a CIF Basis

Cost Area	Cost/t Li_2SO_4 USD	% of Total Cost/t
SC6 at cost (3.4 t SC6:1 t Lithium Sulphate)	340	12.3
Processing	1,909	69.1
Transport[20]	255.29	9.2
Sub total	**2,504.29**	**90.6**
Royalty	259	9.4
Totals	**2,763.29**	**100**

Table 1.18 Primary Lithium Sulphate Opex Cost/t as at FOB Selling Status

1.23.3 Contingency

Contingency for the project has been determined using @RISK software which deployed a PERT distribution across all the high level cost line items within the estimate and the triple point scope change and cost ranges for each. The software ran 10,000 iterations before completing the simulation and returned a P_{95} value of 9.66% across the board. The AVZ project team has applied 10% across the board given the complexity of transportation in and out of the DRC for construction purposes as well as the sovereign risk to the project, all of which are difficult to quantify.

Both the operating and capital cost estimates have been prepared to Definitive Feasibility Study level and presented in USD to AACE International Recommended Practice No. 47R-11, Class 3, nominally ±15%. All numbers have been reviewed and agreed by the executive management team at AVZ.

1.24 Supply Chain Logistics

AVZ has worked with consultants and railway line operators and vendors to determine the best possible route to transport the finished product from the MLTO site to the most economic port of export for the individual clients. The study has considered shipment of SC6 in dry loose bulk format and Primary Lithium Sulphate in 20-foot GP marine containers.

Several possible routes were examined in detail and all involved intermodal transport solutions as no single transport route was viable on a stand-alone modal basis. The answer is to use a combination of truck road freight and rail and then ultimately marine shipping.

[20] Based on containerised product transportation to Lobito FOB

AVZ has finalised and priced two preferred routes which service the east and west coast of Africa for ports of export at Lobito in Angola and Dar es Salaam in Tanzania, in that order of preference. The two routes provide flexibility to ship product either way and mitigate situations such as a derailment on one allowing MLTO to ship product to the other in the interim. This also optimises marine shipping for Americas and Europe based clients versus eastern based clients. The western route will also reduce the CIF costs for American and European clients.

See figure 1.15 below for the various transportation routes investigated by AVZ during this DFS.

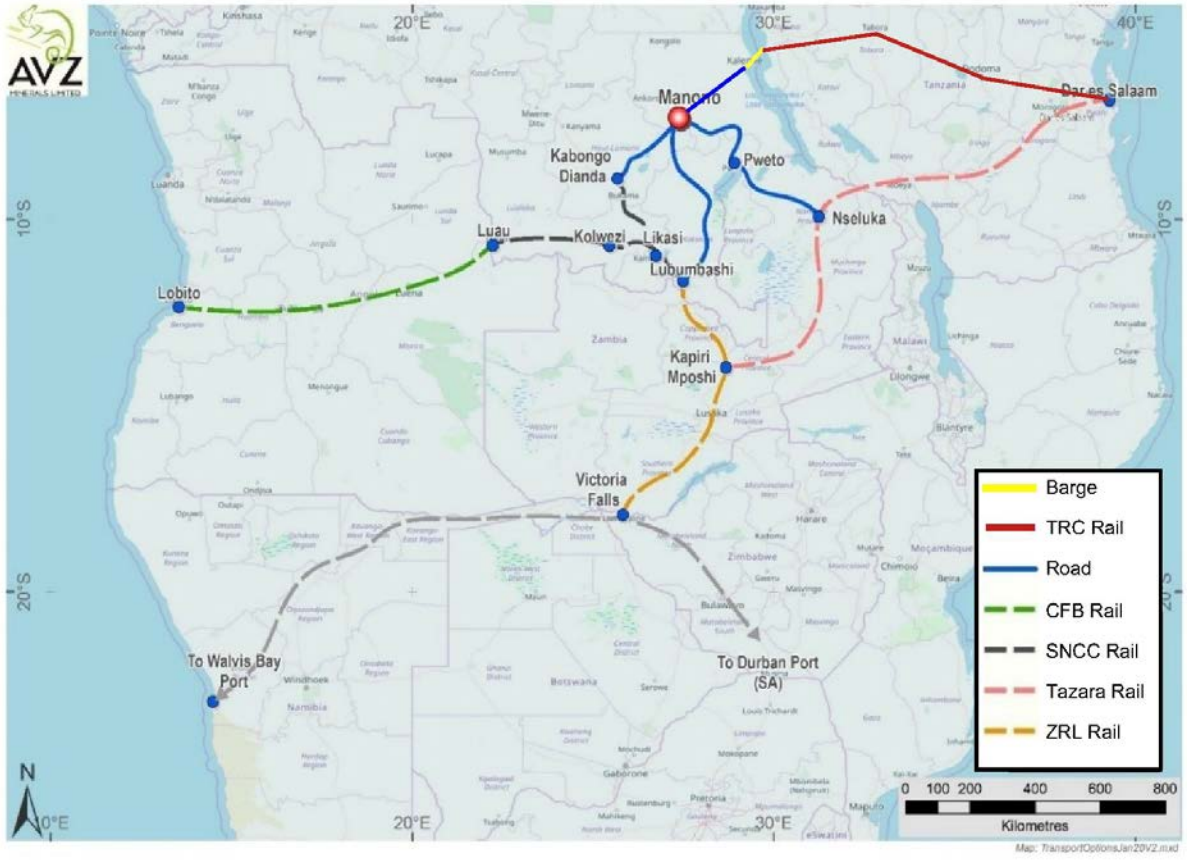


Figure 1.15 *Routes investigated for product transportation*

Prior to finalising these two routes, AVZ had a specialist rail consultant conduct technical due diligence studies on the various rail systems available as follows:

- SNCC in DRC (Lubumbashi to Kabondo Dianda and Lubumbashi to Kolwezi)
- CFB in Angola (Dilolo to Lobito)

- TAZARA in Zambia and Tanzania (Dar es Salaam to New Kapiri Mposhi)
- ZRA in Zambia (New Kapiri Mposhi to Sakania)
- The TRC was not assessed at the status of the railway was known to AVZ's rail consultants already.

The due diligence was undertaken by sending a technical rail expert from the Perth based consulting firm Infraology. Their brief was to traverse the entire length of the railway routes and report on the condition of the railways, associated locomotives, rolling stock and workshop facilities. The reports conclude that the railway lines are in operating condition and that all, bar the CFB railway line, require varying degrees of 'catch up' maintenance regimes and funding to bring their ballast and fish plate routine upkeep in line so as to limit and even eliminate potential derailments. CFB was precluded as it has a new railway line, rolling stock and locomotives. Infraology's two reports can be seen in Appendices T.1 and T.2 of the DFS report.

The study determined that the shortest road access to a working railway line was for the product to travel from Manono south westwards to Kabondo Dianda (KD). The unsealed all weather road (N33) is not in very good condition for about 160 km of the entire 340 km but can be easily upgraded. AVZ has allowed for this upgrade to a 60 t carrying capacity in the Capex calculation and for the ongoing upkeep in the Opex costs. The road has 18 bridges en route and is also impeded at the Lualaba river by a ferry crossing as there is no bridge there. Allowance has been built into the Capex to reconstruct the bridges with 60 t load bearing concrete or Bailey bridge structures. The existing ferry is in a good serviceable condition, but it is too small to take a 60 t gross weight truck on it, so new ferry capacity will be procured as part of the project Capex to make crossing the river viable and reliable.

Figure 1.16 *Road route from Manono to Kabondo Dianda*

Once the truck arrives at Kabondo Dianda (KD) from Manono, it-self tips to a stockpile in staging station which will be constructed for this purpose. The intermodal staging station will have spur rail lines connecting it to the SNCC rail network in the KD station vicinity.

The SNCC train will travel south to Tenke where it can either go west or east.

When the train is scheduled to go west, it travels along the SNCC railway line to Laua outside of Dilolo (this is where the Angolan border is located). Here the train can link up to the Angolan CFB railway network service and travel due west to Lobito, which is the export port. At Lobito, the port of Lobito has a new bulk materials handling terminal which accepts bottom discharge wagons and automatically conveys the material to an undercover stockpile equipped with a reclaimer onto a conveyor that is linked to the wharf side bulk ship loader capable of loading at 5,000 t/h. No capital investment from AVZ is required in this option.

When the train is scheduled to go south east from Tenke, it will cross the DRC border at Sakania into Zambia and continue until it reaches Ndola. At Ndola the train service joins the Zambian railway network, operated by the TAZARA. The TAZARA railway line officially starts at New Kapiri Mposhi which goes east to Dar es Salaam. In Dar es Salaam, an intermodal staging station will be constructed at Yambo, where the train wagons will bottom discharge the product, it will then be moved onto a stockpile by a stacker unit. The product will be

reclaimed and placed into AVZ procured and owned roto boxes, (specialised half height open top containers capable of being lifted by a rotator attachment that empties the container into a ship's hold by rotating it through 180 degrees, which), will be on a dedicated port shuttle train. The port shuttle train, operated by TAZARA will take the roto boxes up alongside the ship in the wharf and the Tanzania Ports Authority's new mobile cranes will hook up a special rotator grab (owned by AVZ) to lift and empty the roto boxes into the ship's hold at a rate of 500 t/h. AVZ has allowed for Capital to build this greenfield intermodal staging station.

Both railway routes are currently transporting export goods to their prospective ports, and both could work well for the AVZ project. AVZ is fortunate to have this flexibility of transport options, especially if a derailment blocks one of the lines.

Research and physical visits to Dar es Salaam, Lobito and Walvis bay ports were conducted and all demonstrated new berths and equipment that are highly capable of servicing AVZ's requirement to export SC6 concentrate out of the DRC. Both Dar es Salaam and Lobito have railway lines up along berth for easy loading of ships directly from the train. Walvis bay has a significant road leg from Livingston to Grootfontein to meet up with the TransNamib railway at Grootfontein, so this is considered a fallback route option in the DFS.

Figure 1.17 Lobito port on LHS and Dar es Salaam on RHS

AVZ has calculated the cost of product transport to a port of export under International Chamber of Commerce (ICC) Incoterms 2010, free on board (FOB) Lobito or Dar es Salaam. The table provides the summarised costs for transportation of SC6 product in loose bulk format using both AVZ approved routes. This summary is provided in the Table 1.19 below:

Route	Product format	Road cost[21] USD/t	Rail cost USD/t[22]	Port handling costs USD/t	Customs and duties cost USD/t FOB	Total cost USD/t FOB
Manono to KD to Lobito (2,486 km)	Dry Bulk	29.70	152.58	17.96	29.15	**229.39**
Manono to KD to Dar es Salaam (3,137 km)	Dry Bulk	29.70	199.01	17.5	29.15	**275.36**
Manono to KD to Lobito (2,486 km)	Container	36.34	169.98	17.96	31.01	**255.29**
Manono to KD to Dar es Salaam (3,137 km)	Container	36.34	234.07	17.5	31.01	**318.92**

Table 1.19 Transport cost summary based on the Financial Model Base Case Scenario

Please note that the pricing includes all duties and charges levied by government and provincial agencies known to AVZ. Any excluded costs are expected to be waived under the AVZ and DRC Government's Special Economic Zone (SEZ) agreement which is being negotiated now. A Memorandum of Understanding (MOU) is already in place and signed with the Ministry for Industry, opening the pathway to these SEZ negotiations. The prices exclude any logistics and freight forwarders agency fees as AVZ will take on this role in-house and has allowed for these people in the Opex estimates.

1.25 Marketing Study

Roskill - Spodumene Concentrate (SC6)

The rapid consumption growth of lithium has been fuelled by the increase in its application in rechargeable batteries. The rechargeable battery sector became the largest lithium consumer in 2006 driven by consumption growth in the portable electronics sector, and in 2015 rechargeable batteries accounted for over three times the volume consumed by the next largest sector, ceramics.

[21] Includes Ferry crossing costs at the Lualaba river
[22] Includes a correction factor for moisture content at 4% and intermodal station rehandling.

Whilst the rechargeable battery is still the core end-use market, Electrified Vehicles (EV's) is now the largest demand sector and is forecast to sustain lithium market growth over coming decades. Given strong growth in recent years combined with the EV industry's relative infancy and heavy investment from transport manufacturers, lithium consumption is expected to grow at almost 16% per annum to 2040.

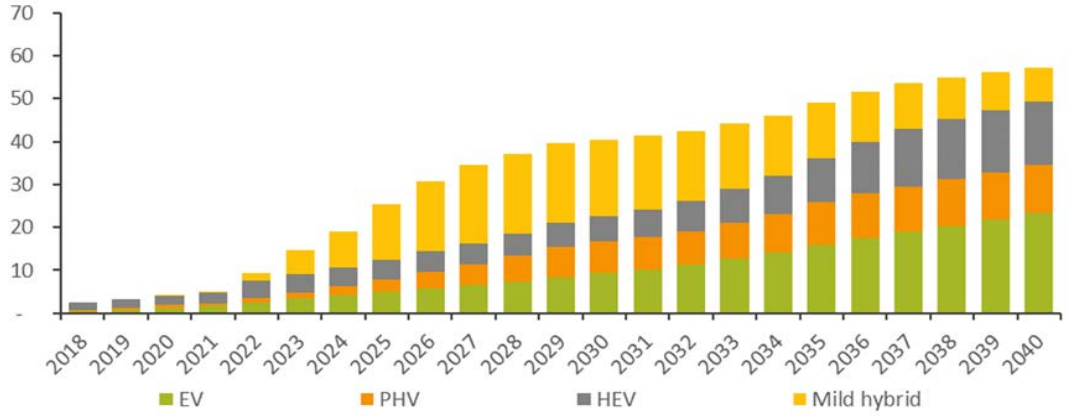


Figure 1.18 ***Passenger EV sales forecast, 2018 – 2040 (M units)***

Source: Roskill

Quantities of lithium consumed within batteries will greatly differ depending on the specific chemistry type and application. Battery Electric Vehicles (BEVs) also described as full electric vehicles, which have the largest battery capacity (30-100 kWh), is expected to consume approximately 80% of total lithium demand.

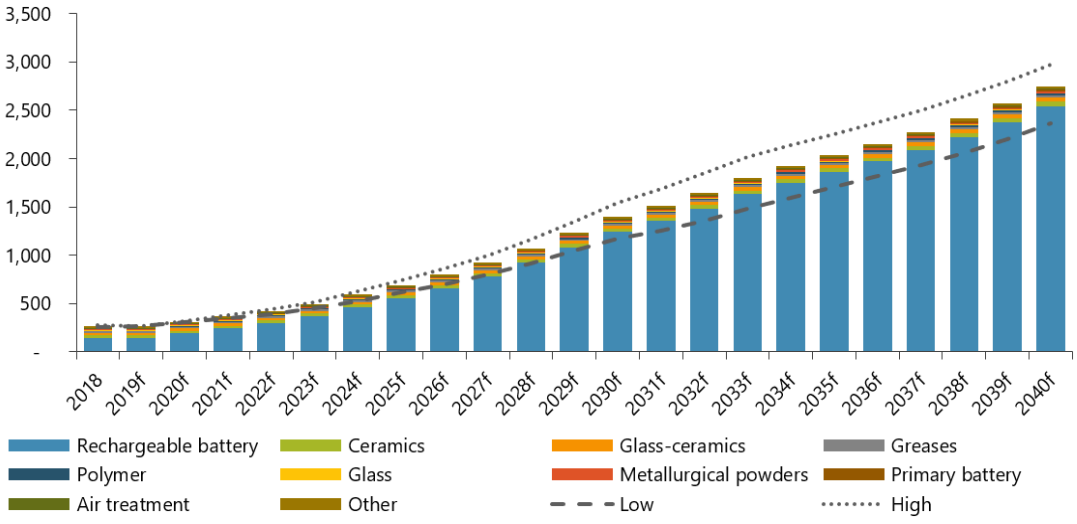


Figure 1.19 ***Consumption of lithium by first use, 2018-2040 (000t LCE)***

Source: Roskill

Lithium consumption as a raw material in lithium-ion rechargeable batteries is as a chemical compound is in the form of lithium carbonate and lithium hydroxide. Use of lithium hydroxide is still in its infancy in terms of scale when compared to carbonate. Yet lithium hydroxide is

considered the core growth product of lithium chemicals moving forward, with battery-grade carbonate coming in second.

Soon battery grade lithium hydroxide is expected to substitute carbonate as the most widely adopted lithium compound. This comes as high-performance automotive batteries are shifting toward using nickel rich cathodes (>60% Ni) which require hydroxide as the lithium raw material. The tipping point for this is expected to occur mid-decade and where by 2030 and 2040, 715 kt Lithium Carbonate Equivalent (LCE) and 1.4 Mt LCE will be demanded respectfully. By such time lithium hydroxide as a proportion of total lithium demand is forecast to account for over half the lithium market at 51% increasing from only 14% in 2019.

As a function of forecast strong battery-grade lithium hydroxide demand, spodumene concentrate converters are best placed to capitalise on this growth. This is due to their ability to produce a battery-grade hydroxide directly from concentrate. Comparatively, current lithium brine extraction technology requires the production of carbonate to then be used as hydroxide feedstock. As such, the requirement for large scale hydroxide production from converters is poised for significant growth in the coming decade.

In 2020, Roskill forecast around 191 kt LCE (equivalent 1.528 Mt Spodumene Concentrate) of mineral concentrate feedstock will be required by converters. This amount is expected to quadruple by 2030 reaching 759 kt LCE (equivalent 6.072 Mt Spodumene Concentrate). When accounting for 2 months of stockpile at each converter an additional 126 kt LCE would be required to sit idle at conversion plants by 2030.

The spodumene concentrate market balance in the near term is expected to be proactively managed by miners adjusting production to meet market demand. In the longer-term, continued strong demand and consumption growth will place a strain on supply. Beyond 2025 Roskill forecasts the spodumene concentrate market to be faced with a structural deficit where existing mining capacity is insufficient to meet the increasing demand (Figure 1.20).

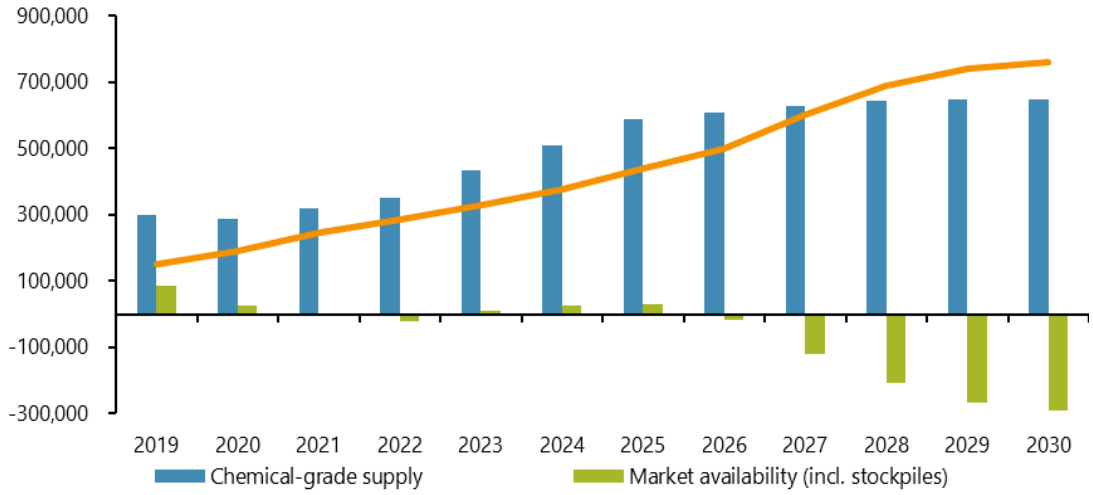


Figure 1.20 Lithium chemical-grade concentrate availability including stockpiles (t LCE)

Source: Roskill

AVZ believes that the Manono project will be well placed to supply into the forecast structural deficit considering Manono's low onsite operating costs, high quality chemical grade spodumene concentrate product, with key low impurities of iron and mica and long mine life.

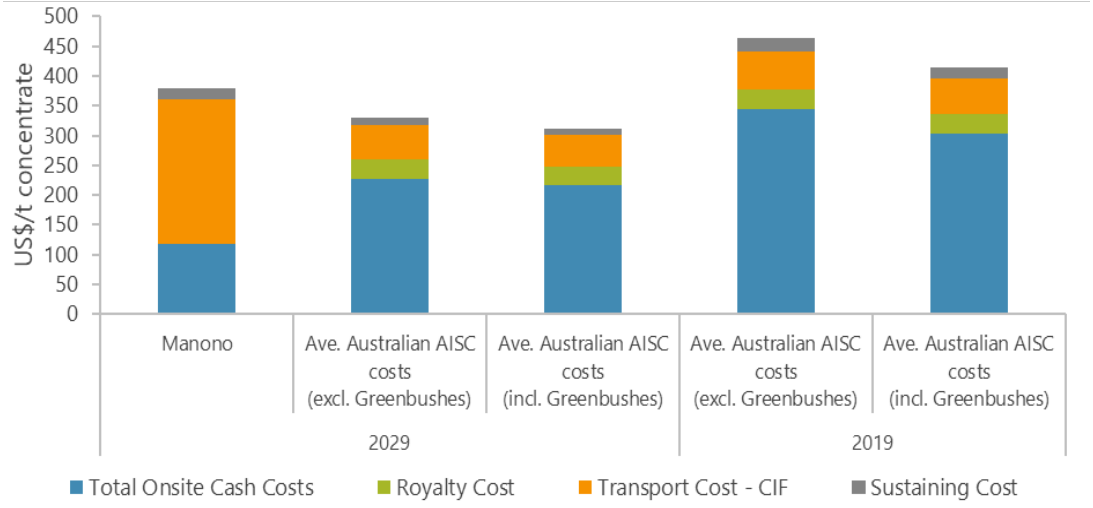


Figure 1.21 AISC breakdown, Manono vs Australian producers, 2019 vs 2029

Source: Roskill

Chemical-grade spodumene concentrate pricing is expected to remain under pressure in the near term with Roskill forecasting an average real arm's length price of USD 736/t CIF for the period 2020 to 2040.

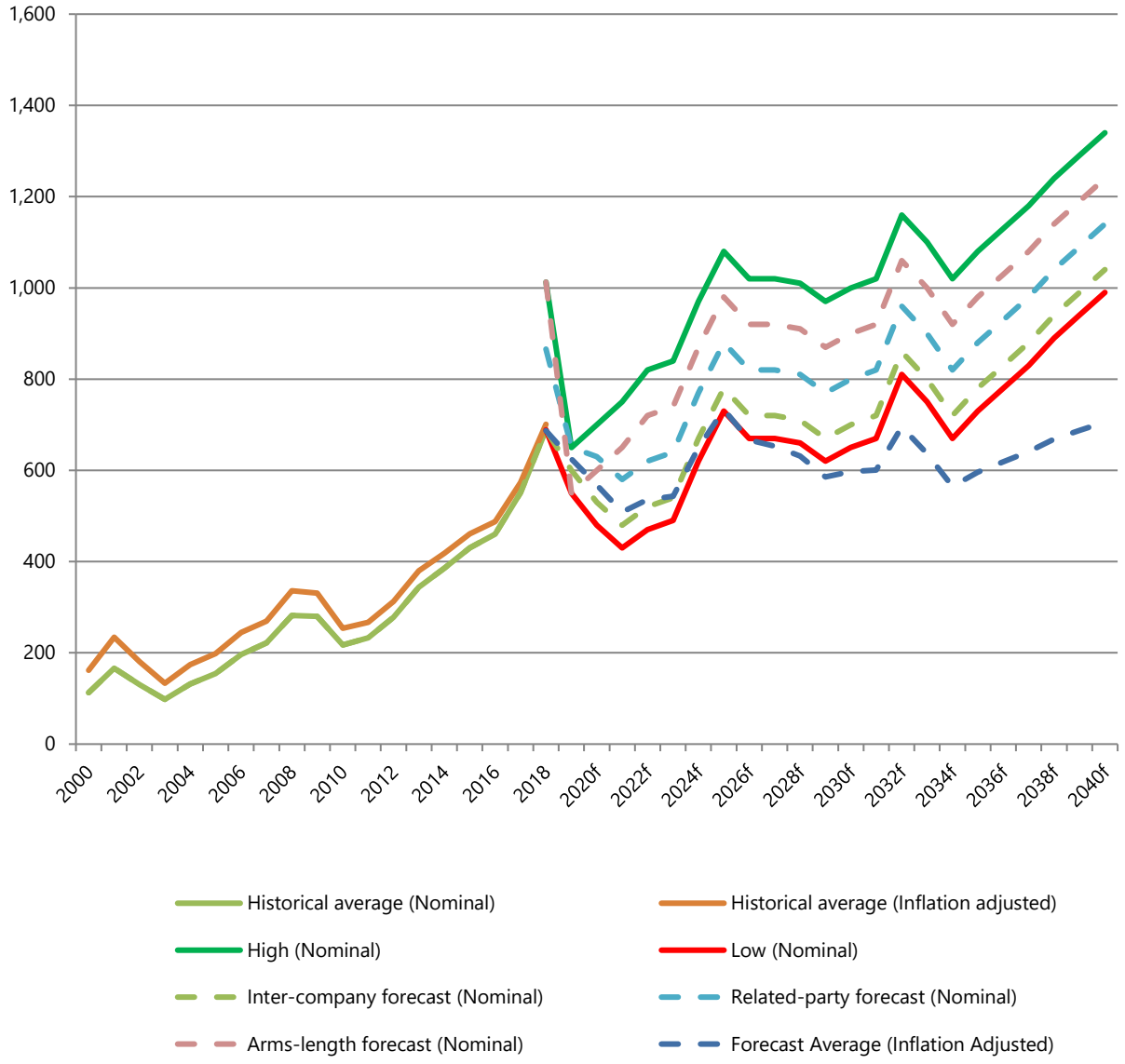


Figure 1.22 ***Annual average price forecast trend for chemical grade spodumene.***

Source: Roskill

Year	Inter-company price		Related-party price		Arms-length price	
	Nominal	Real	Nominal	Real	Nominal	Real
2018	689	701	866	881	1013	1031
2019	600	600	650	650	550	550
2020	530	519	630	617	600	588
2021	480	461	580	557	650	624
2022	520	489	620	583	720	677
2023	540	497	640	589	740	682
2024	670	604	770	695	870	785
2025	780	689	880	778	980	866
2026	720	623	820	710	920	796
2027	720	610	820	695	920	780
2028	710	590	810	673	910	756
2029	670	545	770	626	870	708
2030	700	558	800	637	900	717
2031	720	562	820	640	920	718
2032	860	657	960	734	1,060	810
2033	800	599	900	674	1,000	749
2034	720	528	820	601	920	675
2035	780	560	880	632	980	704
2036	830	584	930	654	1,030	725
2037	880	607	980	675	1,080	744
2038	940	635	1,040	702	1,140	770
2039	990	655	1,090	721	1,190	787
2040	1,040	674	1,140	738	1,240	803
Average 2020-40	*743*	*583*	*843*	*663*	*935*	*736*

Table 1.20 Average annual price forecast for chemical grade spodumene concentrate.

Source: Roskill

Note: Real prices adjusted to constant 2018 US dollars using World GDP deflator data from the International Monetary Fund's World Economic Outlook Database.

Note: All statistics, forecast supply and demand and pricing as per Roskill's Market Study research report commissioned by AVZ. See Appendix N.2. for the full report.

Primary Lithium Sulphate - MSI GBS

Another potential development in hard rock processing is the growth of a lithium intermediate market, namely being lithium sulphate. Lithium sulphate results from the acid roast step, which involves mixing sulphuric acid with the calcined spodumene at approximately 1,050 ^{o}C. Lithium then remains in sulphate form through the subsequent leaching, neutralisation and impurity removal, magnesium and calcium precipitation and ion exchange process steps before it's mixed with sodium carbonate solution and crystallised as lithium carbonate.

Quality and level of impurities in the Lithium Sulphate depend on the exact process being undertaken. There are two more common Lithium Sulphate products and end markets:

- Primary Lithium Sulphate (Monohydrate $Li_2SO_4 \cdot H_2O$ 80%) which contains sodium sulphate and is the raw material for Lithium salt market, such as Lithium chloride, Lithium phosphate, Lithium Hydroxide Monohydrate and Lithium Carbonate
- Lithium sulphate which can be monohydrate or anhydrous but with high purity ≥97%. This Lithium Sulphate is principally used as a flavouring agent for food and beverages and as an additive for special high-strength glass, but it can also be used as raw material for Lithium chloride, Lithium phosphate, Lithium Hydroxide Monohydrate and Lithium Carbonate.

A small domestic market for Primary Lithium Sulphate already exists within China having an established concentrate converter and chemical refining industry.

Discussions held with several Chinese converters agree that sulphate could be used as a feedstock but further agreed it is a relatively new entrant in the lithium supply chain.

Primary Lithium Sulphate – Pricing (MSI GBS commentary)

The Primary Lithium Sulphate market, whilst having some trading between Chinese converters, is a market segment in its infancy. The potential demand side for Primary Lithium Sulphate is essentially the same as Spodumene concentrate raw material feeding into refined lithium compounds and into the EV sector. AVZ strongly believes that the Primary Lithium Sulphate market is a growth sector and that it will become widely traded and an in-demand product.

AVZ has commenced several discussions with converters and battery manufacturers regarding Primary Lithium Sulphate and has decided to initially use a price formula based on the pricing for lithium carbonate and hydroxide.

Lithium sulphate is an intermediate product between spodumene concentrate and refined lithium compounds. Based on discussions held to date, and to be conservative in that pricing range, we have taken Roskill forecast price for Technical Grade Lithium Carbonate between 2020 and 2040 and applied a simple 50% value for Primary Lithium Sulphate.

From Table 1.21 below the average for 2020 to 2040 between Contract Asia and China Spot Nominal pricing is USD 14,862 CIF basis, and 50% is USD 7,431 which has been rounded down to USD 7,400 CIF used in the model.

	Contract Asia		China spot	
Year	Nominal	Real (inflation adjusted)	Nominal	Real (inflation adjusted)
2018	15,805	16,086	14,248	14,501
2019	12,284	12,284	7,754	7,754
2020	9,800	9,600	7,000	6,857
2021	10,000	9,596	9,000	8,636
2022	10,000	9,401	10,500	9,872
2023	10,000	9,211	11,000	10,132
2024	12,500	11,277	13,500	12,179
2025	14,000	12,372	15,000	13,255
2026	13,000	11,253	14,000	12,118
2027	12,900	10,937	13,900	11,785
2028	12,800	10,630	13,800	11,460
2029	12,000	9,761	13,000	10,575
2030	12,500	9,960	13,500	10,756
2031	13,000	10,146	14,000	10,926
2032	15,500	11,849	16,500	12,613
2033	14,500	10,857	15,500	11,606
2034	13,000	9,535	14,000	10,268
2035	14,000	10,058	15,000	10,776
2036	15,000	10,555	16,000	11,259
2037	16,000	11,028	17,000	11,718
2038	17,000	11,477	18,000	12,153
2039	18,000	11,903	19,000	12,565
2040	19,000	12,307	20,000	12,955
Average 2020-40	14,476	11,388	15,248	11,968

Table 1.21 Average annual price forecast trend for technical-grade lithium carbonate.

Source: Roskill

Table 1.21: Average annual price forecast trend for technical-grade lithium carbonate, 2017-2040 (USD/t CIF)

Note: Nominal forecast rounded to nearest USD 500/t. Real prices adjusted to constant 2019 US dollars using World GDP deflator data from the International Monetary Fund's World Economic Outlook Database.

1.26 Risk

AVZ has completed a risk register to the Australian Standard (AS) AS 31000 , which covers risk profiles from construction through to operational stage to the best of AVZ's ability and with the information known now. This standard is like the 5 x 5 matrix used widely internationally to evaluate risk by likelihood and consequence. The probabilistic outcome is the product of the two measures, i.e. likelihood and consequence. The result is then ranked in terms of risk profile and then a matrix value is assigned to the risk which guides one to take further mitigation action and the to re-evaluate the risk against the matrix to determine the residual risk after the application of mitigation treatments have been applied. The residual risk is then covered off by taking out insurance, allowing money to meet the risk when it happens or just accepting that a risk exists. Usually these residual risks are mitigated down to an acceptable level of risk through this process.

The major risk for AVZ is Sovereign risk. AVZ has worked with a reputable insurance broker with DRC experience to understand the risk profile presented in the DRC and then to minimise these risks with insurance cover as a mitigation treatment. The Financial model has accounted for the Sovereign risk cover required to protect AVZ and Dathcom against the following specific circumstances:

- Confiscation
- Expropriation
- Nationalisation
- Political Violence (including Terrorism and War)
- Selective Discrimination
- Forced Abandonment
- Forced Divestiture
- Licence Cancellation

- Contingent or full Currency Inconvertibility or Non-Transfer.

1.27 Information Technology

The IT and Communications strategy maps out the scope and budget for the IT and communications projects, at a high level, necessary for the success of AVZ Minerals' (AVZ) Manono Lithium and Tin Operations' (MLTO) construction and first stage of production requirements. It allowed for the infrastructure, systems, people and processes required, including:

- IT management, support and processes
- Internal and external connectivity (with 4G coverage and emergency satellite phones)
- Communications systems and infrastructure
- File data storage and collaboration
- Enterprise resource planning (ERP) and other information management systems
- Security systems, including cameras, access and control systems
- End user devices; workstations, laptops, phones and printers
- IT and communications security
- Systems monitoring and reporting, including access to reporting for control systems
- IT server infrastructure
- Camp systems, including DSTV and internet.

This strategy provides for the AVZ Perth and Lubumbashi corporate offices and MLTO site; the transportation inter modal staging facilities, utilities and campsite offices that support MLTO and the AVZ Foundation office in Manono.

The modular and secure interoperability of all systems has been considered to ensure support for future expansions, such as the possible extension of systems to support the creation of a Special Economic Zone (SEZ).

The remote location of MLTO poses a risk to the reliability of its external communications. To minimise the likelihood of losing connectivity, MLTO will implement terrestrial and satellite connections from different vendors, as well as emergency backup voice connectivity.

A 12-month, 5-phase implementation plan has been designed to meet the escalating IT and communications requirements of AVZ as MLTO moves through its construction phase into production. The plan takes into consideration the varying priorities, lead-times and dependencies of each project and aims to maximise the time available.

1.28 Insurances

AVZ has completed an insurance assessment of its requirements through construction and into ongoing mine operations. In many instances risk, as assessed in the risk register, is mitigated by treatment in the form of an insurance policy. AVZ already has some policies in place to cover travel and site activity.

Further Policies have been allowed for in the execution phase of the project for sovereign risk, public liability, workman's compensation, travel and works cover. Sovereign risk cover categories are discussed with other risks under Section 1.18.

1.29 Compliance

AVZ Minerals Limited is a fully ASX listed company and as such will comply with all the corporate governance requirements imposed on it by the ASX both in the DRC and in Australia.

AVZ and all of its subsidiaries, most notably Dathcom, in the DRC, will comply domestically with all of the local Laws, Taxation and Regulations governing the DRC as these will be interpreted through the Special Economic Zone (SEZ) which is being negotiated with the DRC government.

AVZ and Dathcom will sign up as full members of the ITA and partake in their iTSCi (International Tin Supply Chain Initiative) programme of auditing and transparency in the trading of tin and tantalum in the DRC and working to achieve avoidance of conflict financing, human rights abuses, or other risks such as bribery in mineral supply chains in DRC.

Dathcom plans to formalise, regulate and control the artisanal mining of these tin based products on its Mining Lease in order to create as many jobs as possible to local Manono people who will not otherwise obtain jobs on the Dathcom mine site where large scale Spodumene mining will take place. These artisanal miners can still be employees, but their

role will be by artisanal mining on the Dathcom mining Lease (PE) and Dathcom will procure all their production as if they were employees.

Dathcom will consider smelting the artisanal tin production to produce serialised ingots to align with the transparency of non-conflict mineral mining practices and to provide comfort to purchasers of the products. The production may be as concentrates of tin and tantalum or as tin and tantalum ingots.

The Dodds-Frank Act Section 1502 will be the instrument under which these international buyers and Dathcom will be protected, through its oversight from iTSCi, and will comply with all the conditions required to meet international ethical standards of mining.

Dathcom and AVZ are also receptive to investigating any other international ethics programs which may be suitable for acceptance as additional guidelines to ethical mining.

2. OPPORTUNITIES FOR FURTHER STUDY

2.1 Conversion of Roche Dure Pit Floor Inferred Resources to a Reserve

From the modelling carried out by CSA Global, the Inferred Resources on the Roche Dure pit floor, that were covered with water until January 2020, are approximately 10.8 m t of material. This area is triangular in section and runs the length of the Roche Dure pit. It is colloquially known and referred to as 'the wedge.'

Dathcom believes that most of the wedge to be pegmatite, from direct observation now that the water has been pumped out of the pit although there can be no assumptions made on either the lithium content or the degree of weathering of this material. This must be confirmed by new drilling.

From previous work done on this issue it was noted that any drilling done within the current pit shell will not change the overall tonnages of pegmatitic material at Roche Dure but it will upgrade the overall combined Measured and Indicated Resources at the expense of the current Inferred tonnages.

The ability to now be able to drill the pegmatite on the pit floor, and also to add to the mapping of the Roche Dure orebody, presents Dathcom with a good opportunity to carry out further geological investigations in order to increase our knowledge of the orebody. It is anticipated that any new drilling will lead to some, if not most, of the Inferred material being upgraded to at least an Indicated Level (Probable ore) and perhaps to a Measured Resource (Proven ore) in places. This will depend on the amount of drilling carried out on the pit floor.

This in turn will have quite dramatic affects to the current model and project economics. A worked example is given below to show the possible sensitives to the existing model if all the Inferred pit floor material is converted to mineable ore.

Note – if a decision is made to drill this material post DFS reporting, it can be done at any time up to a few months before the commissioning of the processing plant and the mine design can be updated at that time (the model has been run using the same mining parameters but using different commodity prices).

The conversion of the 10.8 Mt of Inferred within the pit to Indicated/ROM feed changes the economics of the project. CSA ran a comparison between the pit optimisation both with and without the Inferred wedge that is included in the mining report. In summary, the conversion of the 10.8m tonnes of Inferred rock within the pit to Indicated/ROM feed results in a 7% increase in discounted cashflow, 25% lower stripping ratio and a 45% longer mine life. The earlier cashflow and easier access to low waste stripping ore will result in an optimal pit depth

being deeper, increasing the overall quantity of Indicated and Measured included in the revised and deeper pit design.

Table 1.22 summarises the potential pit optimisation comparison from the mining study report based on the possibility of increasing the known ore reserves at Roche Dure:

Item	Unit	Wedge not included	Wedge included	% Difference
Revenue factor		0.555	0.560	1%
Total Mined	Mt	122.2	166.8	36%
Strip ratio	t:t	0.4	0.3	-25%
ROM feed	Mt	88.0	128.2	46%
ROM Li_2O feed grade	%	1.57	1.54	-2%
ROM Sn feed grade	g/t	977.7	974.0	0%
Operating costs	US$	5,607.00	8,041.60	43%
Revenue	US$	10,003.70	14,323.30	43%
Cash Flow	US$	4,392.10	6,278.20	43%
Worst DCF	US$	1,758.10	1,836.40	4%
Best DCF	US$	1,928.90	2,128.30	10%
Ideal DCF	US$	1,826.40	1,953.20	7%
Mine life	Years	19.6	28.5	45%
Shell depth	m	290	320	10%

Table 1.22 Pit optimisation comparisons post wedge resource to reserve conversion.

It is recommended that the proposed drilling programme of part, or all, of the pit floor be planned and carried out as soon as possible as this has the greatest potential to reduce the project payback period.

2.2 Ore Sorting

Benefits of Ore Sorting. AVZ identified the potential for further enhancement of the Manono Project economics through the integration of ore sorting technology to pre-beneficiation. High level test work undertaken by AVZ to date, although early stage, has indicated that ore sorting has the potential to selectively reject waste and low-grade ore upstream of processing. The sorting and pre-concentration of Manono ores has the potential to reduce the feed tonnage (with an associated increase of the feed grade) to the HPGR circuit. The benefits of effective pre-concentration include reduced processing facility capital costs, reduced tailings and lower operating costs. Nexus Bonum Pty Ltd (Nexus) was engaged by

AVZ Minerals Ltd (AVZ) to assess the merits of incorporating an ore sorter facility into the Manono Project.

The initial assessments have been based on limited scale bulk test work undertaken by Steinert (Perth) in September / October 2019. The test work was carried out on two samples taken from drill core from the Roche Dure Resource. The samples were prepared for a size range of -31.5 mm +10 mm to represent the crushing circuit output PSD feed to the HPGRs. The test work determined that the applicable technologies for achieving upgrade are laser scanning to selectively identify the spodumene and XRT scanning for identifying the tin mineralisation. Five flowsheet options for the integration of sorting to the Manono project were reviewed in the process of determining the ultimate concept design. The preferred option includes the dual range particle size range feed for laser ore sorting only to produce a spodumene pre-concentrate. XRT sorting to skim the tin, although considered in other options, was discarded due to the number of XRT ore sorters required and the limited benefits of generating a tin pre-concentrate.

The key outputs of the modelling of the sorter configuration, are:

- Head grade to HPGR increased by 20% from 1.58%[23] Li_2O to 1.90% Li_2O.
- Feed rate to the HPGR decreased by 25% from 604 t/h (4.5 Mt/a) to 452 t/h (3.3 Mt/a).
- 90.6% recovery of Li_2O in ore sorter circuit.

The initial investigation suggests that the introduction of an ore sorting circuit and a resultant 25% reduction in feed to the HPGR may result in a significant reduction in capital and operating costs of the downstream plant. This should be further investigated and specifically to determine whether alternate sorting parameters (yield and recovery) produce enhanced outcomes. Capital and operating savings in the downstream plant need to be assessed against the additional Capex and Opex required for the sorting operation. The work completed to date provides indicative metrics for the sorting plant Capex although not to the accuracy of this DFS and further work is required to confirm the Opex. It is important to note that Nexus has identified additional (potential) advantages of integrating sorting to the Manono circuit including:

- Increased Recovery: The increased feed grade is likely to result in a significant improvement in Li_2O recovery in the downstream DMS circuit. Alternatively, with a

[23] Please note that 1.58% was the average head grade of the two drill holes used to cast the concept study. Since then extensive metallurgical test work has proven the average head grade to be 1.65%.

higher feed grade, the concentrator could be run with a lower mass pull to reduce concentrate tonnage without sacrificing recovery.

- Increased Concentrate Grades: Improved DMS recoveries resulting from the higher feed grade with ore sorter pre-concentration may also lead to higher concentrate grades (which was evidenced in recent variability test work reported by AVZ), which may provide additional flexibility with respect to marketing and improved payment terms.

- Reduced Concentrate Shipment Costs: A potential reduction in concentrate tonnes with a reduced concentrator plant feed tonnage and higher feed grades. Shipping reduced tonnes of a higher grade concentrate will generate a significant reduction in concentrate transport and related costs, which are projected to be the biggest component of operating costs for this project.

AVZ treat the prospect of using ore sorting as a very important addition to the flow sheet and accordingly will study ore sorting in the spodumene application in further detail at a later stage once the MLTO is operating steadily, but for now ore sorting is excluded from the base case of the DFS.

2.3 Lithium Hydroxide Production

AVZ acknowledges that due to the above average transportation costs of low cost SC6 product from site to port, the natural opportunity would be to convert more of the SC6 converted to Lithium Sulphate or to Lithium Hydroxide on site and then ship a smaller quantity of higher value added product, at significantly higher selling price from site to client.

AVZ's assessment is that producing Lithium Hydroxide from day one would be a challenge and that starting out along an incremental product production route would be a better fit for the MLTO organisation, which is a start-up mining operation. AVZ is not averse to revisiting the opportunity of producing Lithium Hydroxide once the MLTO is stabilised and operating in the DRC. It is fully understood that this next step will continue with that sustainability. It is envisioned that MTLO will always be, as a minimum, a two product producer as some of the offtake agreements are likely to be for SC6 only and others will be for Primary Lithium Sulphate (Li_2SO_4) and the third product would be Lithium Hydroxide (LiOH).

2.4 Improve Tin Recovery from fines Tailings Stream

Metallurgical test work conducted on tin recovery, has indicated that it may be beneficial to process the -0.5 mm fine tailings stream for additional tin recovery prior to discharging it to the TSF. Indicatively this could be done by passing the fines tailing stream through a bank of spirals. Further detailed investigations will be conducted in the detailed engineering and design phase of the project to finalise the viability of executing this additional recovery process.

2.5 Tin Smelter

Pending the quality of tin (cassiterite), tantalum (coltan) which is produced in the tin circuit of the DMS plant combined with the potential to procure concentrate from legitimate and regulated artisanal miners, AVZ may consider installing a small AC smelter to produce tin and or tantalum ingots. The benefit will be increased product value and reduced and simplified transportation of the ingot. Retaining this process in house will also assist with the negation of the aspersions around conflict mineral mining in the DRC, as MLTO will be able to prove that its supply chain is fully complaint with all of the international requirements and regulations which now govern tin mining and smelting in the DRC. AVZ is signing up for membership of the iTSCi to provide transparency and confidence that AVZ is complying with global regulations in the DRC.

2.6 Tailings Storage in existing pits

It may be possible to utilise one of the existing old tin mining pits to store tailings. A study could be commissioned to look at re utilising one of the various old pits as a TSF until the level reaches the surrounding topography, after which it could become an above ground dam or simply covered over with topsoil and rehabilitated. This opportunity has the potential to defer initial capital spend of ~USD 13 M for a few years pending the size of the pit used. The traditional TSF will then be funded from sustaining Capital if it is required. The Malata, Carrier de l'Este and Kahungwe pits at the northern end of the strike are potentially good pits for this as they have higher mica content than the other pits and would be the last pits to be mined, if ever they were mined at all.

Table 1.23 clearly shows the opportunity at 1.6 t/m^3 and at 1.8 t/m^3 in-situ dry tailings densities.

Pit Name	Capacity (Mm^3)	Mt @ an in-situ dry density of 1.6 t/m^3	Years @ 1.921 Mt/a	Slurry Water to be recovered (min) Mm^3/a	Displaced Water Mm^3/a (assuming 80% of the pit volumes is occupied by water)	Minimum Volume of water to be removed Mm^3/a
Malata	7.8	12.5	6.5	2.46	0.96	3.42
Carriere de L'Este	2.6	4.2	2.2	2.46	0.96	3.42
Kahungwe	2.0	3.2	1.7	2.46	0.96	3.42
Total	12.4	19.9	10.3			

Pit Name	Capacity (Mm^3)	Mt @ an in-situ dry density of 1.8 t/m^3	Years @ 1.921 Mt/a	Slurry Water to be recovered (min) Mm^3/a	Displaced Water Mm^3/a (assuming 80% of the pit volumes is occupied by water)	Minimum Volume of water to be removed Mm^3/a
Malata	7.8	14.0	7.3	2.53	0.85	3.39
Carriere de L'Este	2.6	4.7	2.4	2.53	0.85	3.39
Kahungwe	2.0	3.6	1.9	2.53	0.85	3.39
Total	12.4	22.3	11.6			

Table 1.23 In Pit Tailings Storage Facility (IPTSF) Capacity shown at 1.6 and 1.8 t/m^3

Given that the SC6 process plant will produce 1.921 Mm^3/a of -0.5mm tailings, the capacity of these existing pits would see the process plant not requiring a free standing TSF for the first 10.3 years as a minimum over the LOM of 20 years.

2.7 Remove tailings thickener from the flow sheet

Following on from the initial work completed to develop the DMS plant flowsheet by GRES and the rheology and water settlement test work conducted by the TSF consultants, it is now apparent that there is potential to not have to thicken the tailings prior to dispatching them to the TSF as the settlement rate is rapid enough to not warrant flocculation and thickening. This opportunity will be revisited during detailed engineering.

2.8 Increase the Life of Mine

The USD 699/t Whittle shell (based on Roskill's projected SC6 product pricing from 2021 onwards) was used as the basis of the mine plan and has indicated that a mine sustainability period of longer than 20-year LOM is possible. The pit shell indicates a LOM of 251 months or ~21 years.

Further increases to the LOM are always possible if product pricing increases and if the market demand requires more production as the Manono strike length allows for more pits to be opened in future, e.g., the Carriere de L'Este pit.

2.9 Waste heat recovery from Calcining facilities

AVZ could potentially harvest some of the heat from the exhaust gasses emanating from the calciners to either generate steam or electricity from a waste heat boiler. This will be studied in detail in the detailed design phase of the project.

2.10 Negotiate lower rail rates with Railway Companies

AVZ should be able to negotiate improved long-term contract rates with the Railway operators once the project is approved to proceed.

2.11 Consider alternative site locations for the Primary Lithium Sulphate Plant

AVZ will conduct trade off studies to determine if there is any economic benefit in constructing the Primary Lithium Sulphate (PLS) plant in an established Industrial Park closer to essential services required to operate the PLS. The motivation trade off study will be to locate the plant in a place which reduces the costs of reagent transportation and increases the potential to procure natural gas and be closer to a larger mining related talent pool for operation and maintenance of the Plant. These considerations could be, but would not be, limited to the following key concepts:

- Proximity to rail network for transporting SC6 from Manono
- Access to Natural gas for firing of the calciners
- Readily available connection to the power grid from SNEL
- Access to Sulphuric acid which is costly and dangerous to transport over long distances

- Potentially source cheaper diesel if it could be locally sourced and not transported all the way to Manono
- Proximity to a skilled and qualified labour talent pool from the Southern DRC and northern Zambian mining belts.

Various options for qualified labour can be considered, to name a few:

- Lubumbashi
- Tenke
- Kolwezi
- Ndola.

2.12 Lithium Slag Uses

AVZ will conduct a study to determine if there was a way to utilise the lithium slag, produced by the Primary Lithium Sulphate plant, to make stronger roads for the region. Certain research has been located which indicates that it is good for large aggregate concrete construction, but there will not be a very large demand for this product in Manono and transportation to a larger centre where they have a cement factory is impractical due to the costs associated with transport over large distances. It is well documented that the lithium slag is good for brick making and AVZ will ensure that the local mud brick makers avail themselves of this product, but that demand will be too small so an alternative solution must be found by applying innovative thinking to the problem. It is estimated that there will be ~150 kt/a of this material produced from the process.

2.13 Micro Hydro Electric Turbine at Lake Lukushi

AVZ will investigate the channelling of the weir overflow at Lake Lukushi to see if a small hydro-electric turbine could be constructed there to harness the energy from the water movement to the benefit of the community or for the pump house power requirements, pending the size of the turbine possible. This is likely to be a water wheel type generation facility rather than a turbine giving there is no real head differential, but there is constant water flow. Possibly it could be used for a flour mill for the community.

2.14 Revisit Mpiana Mwanga Reconstruction Strategy

AVZP could potentially consider refurbishment of the Kaplan turbines in MP2 as this is regularly done in small HPPS and could come with a 20-year guarantee which matches the

LOM for less Capital. AVZP has held initial discussions with a professional company that refurbishes this type of rotary machine having successfully done some in the DRC in the last five years.

2.15 Conduct trade off study for Coal versus Diesel Calciner

AVZ will conduct a trade-off study in the next stage of the project to determine if the diesel fired calciner could be fired with coal. Some potential benefits will be the reduced diesel transport in special tanker wagons versus the use of the bulk ore wagons for coal transport, optimising backloads in terms of transport costs. Coal could potentially also be cheaper per Joule than diesel as a source of energy. Environmental consideration will also be factored into the trade off study where GHGs are emitted and how to neutralise this impact on the environment.

3. CONCLUSIONS

3.1 Robustness of the Project

3.2 The Ore body

The ore body is now well understood as being a large pegmatite of relatively homogenous composition and an average grade of 1.65% lithia. There is 270 Mt in Measured and Indicated by JORC category for all the Roche Dure orebody drilled to date. Of this only 93 Mt, or 34% of combined Ore Reserves are required to support a Life of Mine of >20 years.

3.3 Product Demand and Pricing

Roskill has deliberated on the future demand and price forecasts for SC6 and hydroxide and their understanding is that there will be an increase in demand from 2021 with a complimentary predicted price rise to USD >699/t for SC6 product CIF (ICC Incoterms 2010). The SC6 price is expected to plateau from 2021 at around USD 720/t for the foreseeable future.

3.4 SC6 Production (Li_2O)

The DFS engineering coupled with the metallurgical test work campaigns 1 and 2 indicate that a DMS plant capable of producing 700 kt/a of SC6 is readily possible from the Roche Dure pit alone at an ore mining rate of 4.5 Mt/a.

3.5 Primary Lithium Sulphate Production (Li_2SO_4)

The DFS engineering coupled with specialized calcining test work indicate that a Primary Lithium Sulphate plant capable of producing 46 kt/a of Primary Lithium Sulphate is possible from the SC6 product produced in the DMS process plant. The conversion rate from SC6 to lithium sulphate will be ~3:1, i.e., sacrificing 153 kt/a of the total 700 kt/a production of SC6 to achieve 46 kt/a of a higher valued, Primary Lithium Sulphate product. The Primary Lithium Sulphate process is reliant on more chemicals as reagents than is the SC6 process, making it a slightly more complex plant to operate and supply logistically, but is totally rewarded with high margins. A 46 kt/a single train will be built as the base case of the DFS with a further identical train of 46 kt/a (stage 2) being allowed for in the planning of the site layout as well as for a lithium hydroxide (LiOH) plant which would be fed from the primary lithium sulphate plant. This would then constitute stage 3 of the MLTO strategic plan for project development.

3.6 Product and Reagent Supply Chain Logistics

The DFS study has determined that two routes are possible for product export via either Dar es Salaam in Tanzania (3,137 km) or Lobito in Angola (2,486 km). The entire route is made up of inter modal transportation involving road, ferry and various train railway networks. Product can be shipped as dry loose bulk or as containerized bulk. Lithium sulphate can only be shipped in containers as it is bagged and placed on pallets and must be keep moisture free due to it being hygroscopic. Transportation is very expensive either way, but the cost is recoverable with the quantum of future price and demand forecasts provided by Roskill.

3.7 Refurbishment of the HEPP

The Mpiana Mwanga Hydro Electric Power Plants (1 and 2) are both in a satisfactory condition allowing them to be sustainably repaired and brought back on-line without major renovation work to civil concrete and structures. All control systems, electrical, mechanical equipment and substation, as well as the HV powerline shall be replaced with new equipment. The site access road will need to be upgraded to manage the construction activities as well as for ongoing routine inspection and maintenance of the HV powerline during the Life of Mine (LOM) of 20 years. The Capex in the financial model, only considers refurbishing MP2 at this stage, with MP1 deferred to the future and is to be funded from operations.

This report does not further detail MP1 as the commentary is like that stated about MP2.

3.8 Special Economic Zone and Public Private Partnerships

Pursuing and completing the successful negotiation of the SEZ and PPP agreements will be critical to the success of the project and for the long-term sustainability of the MLTO. Fortunately, excellent progress has been made to date by achieving an MOU for the SEZ and the next step is already planned and set for a workshop, to develop the next level of details comprising the SEZ format and content, to be completed as soon as possible.

Work towards the various PPPs is ongoing and is most likely be formed out of the shape and size of the SEZ agreement which is imminent.

3.9 Renewable Energy Operated Facilities

AVZ will develop a mining operation that will be as close to carbon footprint neutral as is physically possible, given the location of the site relative to infrastructure and services that are available. Carbon offset is to be put in place via forestation projects in the region according to the calculation to meet the offset requirement of the MLTO output. The HPP will provide enough renewably generated energy to operate the mines' diggers/shovels, haul

trucks and light vehicles electrically as soon as EVs are commercially available on the market. As soon as a prototype is available, AVZ will try to obtain these to begin field testing and to follow up, once the EVs are commercially available.

4. RECOMMENDATIONS

It is recommended that AVZ proceed with the project as follows:

- Design and build an environmentally green mine capable of producing 4.5 Mt/a of ROM ore with as little physical impact on the environment as is possible and to be operated on renewable energy to the maximum extent possible
- Conduct the proposed drilling program of some, or all, of the pit floor as it has the greatest potential to reduce the payback period of the capital
- Continue with investigations into optimizing the geological resources within the current pit shells at Roche Dure
- Design and build the required process plants to produce 700 kt/a[24] of SC6 and 45.7 kt/a of primary lithium sulphate.
- Proceed with the refurbishment of the HEPP. The following steps should be considered:
  - MP2 power station first as it will provide the largest amount of power first off and lends itself to be refurbished quicker than does MP1 which has a lower power generation capacity anyway
  - Build the complete substation, switchgear and HV transformers to accommodate both MP2 and MP1 at the same time, making the inevitable stage 2 of upgrading MP1 simpler
  - Supply excess power generated into Mpiana Mwanga village and to Manono town
  - Revisit MP1 in future and refurbish from sustaining Capital funding.
- Complete the ESIA and the Mine Closure Plan and consolidate into the format required to apply for the Exploitation Permit as soon as is possible
- Strengthen social responsibility ties with the Manono community and implement the AVZ Foundation
- Employ local Manono residents and train them with transportable skills such as apprenticeships to assist with uplifting the socioeconomics of Manono and Mpiana Mwanga regions

[24] Of the 700 kt/a, 153 kt/a will be used for primary lithium sulphate production and 547 kt/a will be sold as SC6.

- Sign up the iTSCi and other institutions or bodies that will embellish AVZ's commitment to the eradication of conflict mineral mining in the DRC
- Continue to push for the elimination of green-house gas (GHG) emissions by using electric machinery and vehicles as they become commercially available
- Conduct trade off studies and requisite negotiations for all opportunities, as alluded to in section 2.

APPENDIX 2

Ore Reserve Estimation Process

1. Material Assumptions and Outcomes from the Feasibility Study and Optimisation Study (including Economic Assumptions)

Appropriate studies for the development of the Manono Project have been undertaken by AVZ and several suitably qualified independent consultants, experts and contracting firms. All study assumptions are to a minimum of a Pre-Feasibility Study (PFS) standard, with the majority of key parameters to a Feasibility Study level of confidence. The DFS was based on a 4.5 Mt/a Dense Media Separation (DMS) with a lithium sulphate processing facility. The proposed process produces a 6% Li_2O concentrate as a saleable product and from that 45 kt/a of Primary Lithium Sulphate product. This plant size forms the basis of the Ore Reserve estimate. The outcome of the DFS has been to demonstrate that the Project currently meets the investment criteria of AVZ to progress the Project to the next stage of development.

Outcomes of the DFS include a mine life of 21 years, 14.5 million tonnes of 6% Li_2O concentrate produced, 930 kt of lithium sulphate produced and 62.7 kt of tin concentrate produced.

Product	US$
Spodumene 6% concentrate (US$/t)	699
Lithium Sulphate (US$/t)	7,400
Tin (US$/t)	10,000

Table 1: Product pricing used for pit optimisations

Pit optimisations in Whittle™ software used the product prices as shown above in Table 1. The pit optimisations and DFS were based on Measured and Indicated Mineral Resources only.

Geotechnical analysis was completed by Middindi Consulting Pty Ltd ("Middindi Consulting") in January 2020. Middindi Consulting analysed the Roche Dure pit and provided pit wall batter and berm configurations for each wall orientation within each of the weathering domains. Table 2 shows the design sector definition and Table 3 through to Table 7 show the slope geometry for each design sector. This slope geometry was used as a basis for the pit optimisation as well as pit and stage designs within the DFS.

Design Sector	Wall Dip Direction (°)
1	133
2	230
3	315
4	335
5	10
6	50

Table 2: Design sector definition

Design Sector Material	Bench Height (m)	Berm Width (m)	Number of benches	Bench Face Angle	Stack Angle (°)	Overall Slope Angle (°)
Weathered	5.00	4.50	1.00	75	N/A	48
Pegmatite	15.00	10.00	5.00	80	50	
Schist	15.00	10.00	8.00	80	50	

Table 3: Design sector 1 slope geometry

Design Sector Material	Bench Height (m)	Berm Width (m)	Number of benches	Bench Face Angle	Stack Angle (°)	Overall Slope Angle (°)
Weathered	5.00	4.50	1.00	75	N/A	47
Pegmatite	15.00	11.50	2.00	80	47	
Schist	15.00	11.50	15.00	80	47	

Table 4: Design sector 2 slope geometry

Design Sector Material	Bench Height (m)	Berm Width (m)	Number of benches	Bench Face Angle	Stack Angle (°)	Overall Slope Angle (°)
Weathered	5.00	4.50	5.00	75	41	46
Pegmatite	15.00	10.00	6.00	80	50	
Schist	15.00	10.00	5.50	80	50	

Table 5: Design sector 3 slope geometry

Design Sector Material	Bench Height (m)	Berm Width (m)	Number of benches	Bench Face Angle	Stack Angle (°)	Overall Slope Angle (°)
Weathered	10.00	4.50	7.00	75	51	49
Pegmatite	15.00	10.00	4.00	80	46	
Schist	15.00	10.00	4.50	80	45	

Table 6: Design sector 4 slope geometry

Design Sector Material	Bench Height (m)	Berm Width (m)	Number of benches	Bench Face Angle	Stack Angle (°)	Overall Slope Angle (°)
Weathered	5.00	4.50	4.00	75	41	47
Pegmatite	15.00	10.00	9.00	80	50	
Schist	15.00	10.00	3.00	80	50	

Table 7: Design sector 5 slope geometry

2. Criteria Used for Classification, including Classification of Mineral Resources on which Ore Reserves are Based and Confidence in Modifying Factors

The Ore Reserves have been classified according to the underlying classification of the Mineral Resource and the status of the Modifying Factors. The status of the Modifying Factors is generally considered sufficient to support the classification of Proved Ore Reserves when based upon Measured Mineral Resources and Probable Ore Reserves when based upon Indicated Mineral Resources. Analysis of the financial model on the main economic assumptions indicate that the Project is robust in terms of all operating costs, recoveries, and product pricing; it is most sensitive and at greatest risk to changes impacting on revenue, being commodity prices and metallurgical recovery.

3. Mining Method Selected and Other Mining Assumptions, including Mine Recovery Factors and Mining Dilution Factors

Open cut mining using conventional 60 tonne trucks and 120 tonne excavators have been selected for the Manono Project as it occurs close to the surface. The equipment selection is appropriate for the proposed scale and selectivity of this operation, and this size of equipment is readily available in DRC. Mining dilution by elevation has been applied to represent the changing quantities of waste dilution existing on each bench of the pit:

- Surface to the 565RL has 5% mining dilution applied
- 565RL to the 505RL has 2% mining dilution applied
- 505RL to the 435RL has 1% mining dilution applied
- Below the 435 RL has 0% mining dilution applied, as the whole bench is Ore.

A variable mining recovery has also been applied:

- Surface to 565RL has 98% mining recovery applied
- Below the 565RL has 99% mining recovery applied.

Detailed pit designs have been prepared with the following parameters:

- Batter face angles, berm widths, and overall slope angles applied as per section 1 of this report
- A geotechnical berm 15 m wide at the 575RL
- Dual lane ramps are 23.1 m wide
- Single lane ramps are 13.6 m wide and are utilised for the final 30 vertical metres of the pit design, with passing bays every 15 vertical metres
- Ramp gradient of 1:10 for all designed ramps
- Minimum mining width of 35 m
- Minimum cutback width of 40 m.

The pit will extract resources between the surface and the base of the open pit at the 390RL, a depth of 290 m. The final pit floor is at the 395RL and a 5 m goodbye cut has been designed. Access to the full pit depth is via a dual-lane ramp starting in the hanging-wall, with one and a half passes before becoming a single lane ramp at the 425RL.

4. Processing Method Selected and Other Processing Assumptions, including Recovery Factors Applied and Allowances made for Deleterious Elements

The processing method comprises a Dense Media Separation (DMS) process to produce Spodumene and Tin Concentrate and a secondary process on a portion of the Spodumene Concentrate to produce a Lithium Sulphate product. Figure 1 shows the DMS processing flow sheet for the Manono Project. The DMS Processing Plant for the Manono Project consists of:

- 3-stage crushing comprising Primary Jaw Crusher, Secondary Cone Crusher and Tertiary High-Pressure Grinding Rolls (HPGR)
- 0.5 mm wet screening with up-current classification for the removal of Mica
- Two stage, split sized (plus and minus 2 mm) dense media separation to maximise lithia recovery
- Rougher, cleaner and scavenger spiral circuit treating fines for the upgrade of tin and tantalum minerals to a pre-concentrate
- Wet high intensity magnetic separation.

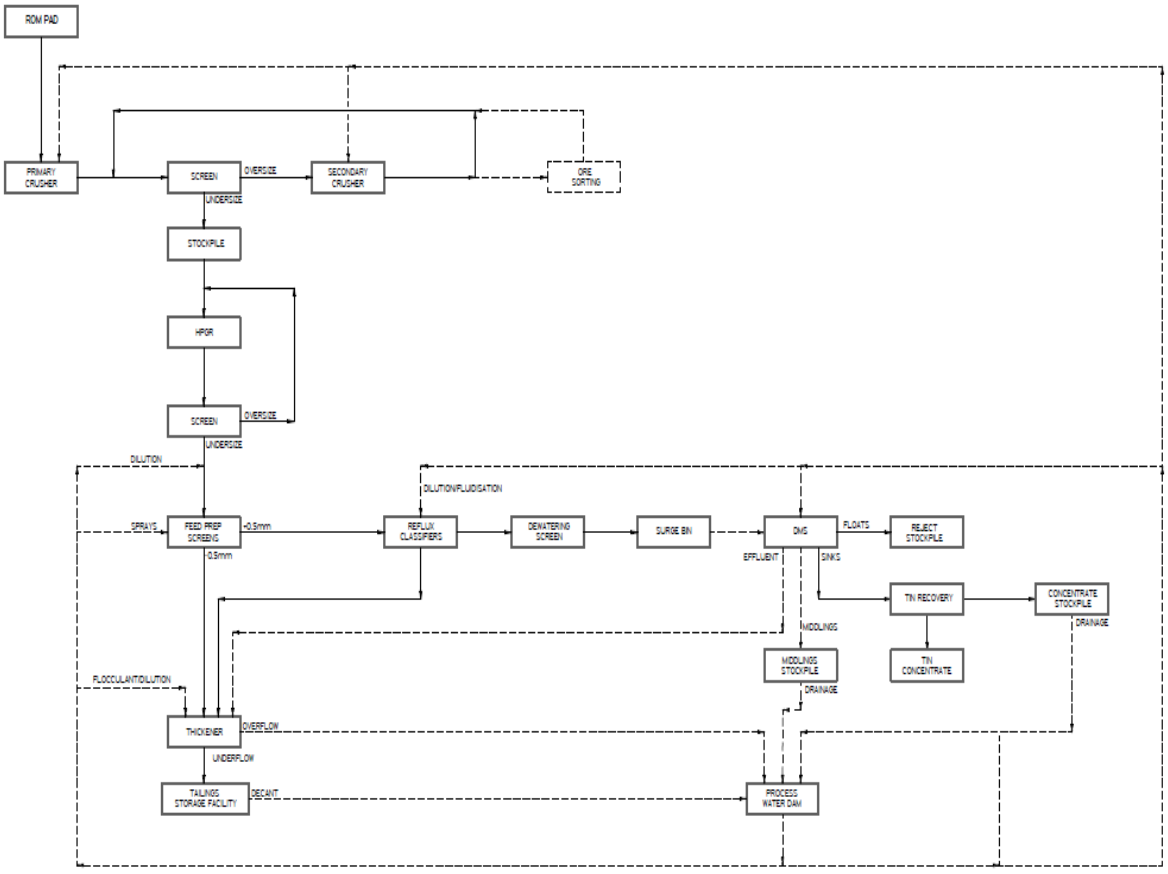


Figure 1: DMS Process flowsheet

On average and under optimised conditions for a target grade of 6% Li_2O, the test work concludes a recovery of 60% of the total lithia. Operating a full-size distribution stream (-8+0.5 mm) reduces recovery to 58% for a target grade of 6% Li_2O. Figure 2 presents the process flowsheet for the Primary Lithium Sulphate process.

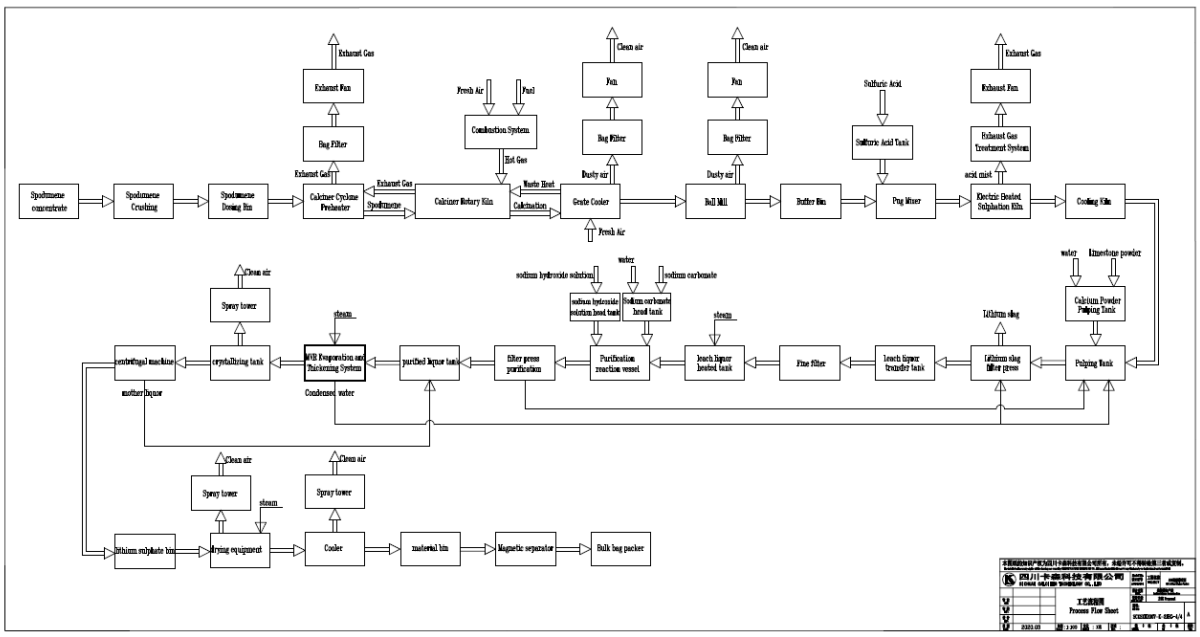


Figure 2: Primary Lithium Sulphate Process Flowsheet

The DFS was used to establish capital costs of the Project and the expected process and maintenance operating costs to an accuracy of ±15%. The proposed capacity of the processing facility is 4.5 Mt/a.

Metallurgical work completed to date has identified the Roche Dure deposit as amenable to dense media separation. The following test work has been completed to date:

- Detailed mineralogy to ascertain liberation characteristics and deleterious elements
- Crush size optimisation for a DMS only processing plant
- Laboratory to pilot to industrial performance scaling for predictive beneficiation performance
- Comminution studies including typical Bond and JK design parameters and HPGR trials
- General characterisation and liberation of heavy minerals
- Bulk crushing using industrial equipment from sample representing a 5-10 year mine plan
- Detailed heavy mineral concentration and flowsheet derivation
- Engineering, Vendor and Performance Testing
- Exploration of various process opportunities to complement the DFS flowsheet including flotation and concentrate cleaning.

Metallurgical samples were taken from 5 PQ sized drill holes selected from within the Measured Resource category including variability from the pegmatite, host rocks, and weathering levels to maintain sample variability and ensure the test work is representative of the deposit. The material that formed the basis of the test work was 13 tonnes of full core.

Total lithia recovery returned 60.1% for an average product grade of 6.1% Li_2O. Heavy mineral product recoveries were 24-41% with concentrates of approximately 64% SnO_2.

The following tailings test work was undertaken against 3 samples sent to E-prevision Laboratories and 2 samples to Graeme Campbell and Associates:

- DMS tailings
- Minus 0.5 mm fines.

The tailings test work was supervised by Chris Lane from L&MGSPL.

5. Basis of Cut-Off Grade Applied

The cut-off between ore and waste has been determined by net value per block. A total block revenue is estimated for each block within the block model, accounting for the total lithium and tin recovered to payable products, as well as the respective metal prices. Total block costs are estimated for all operating costs to the point of sale including processing, product haulage, crusher feed, general and administration, ore differential, selling costs, and grade control costs. The total block revenue minus the total block costs estimate the net value per block. Any block returning a positive net value has been defined as "ore" for the purposes of pit design and production scheduling. All blocks that have a negative value are classified as waste material.

6. Estimating Methodology

The modifying factors used to estimate the Manono Project Ore Reserve estimate are informed and bound by the findings of the DFS.

Whittle™ pit optimisation software has been used to identify the preferred pit shell on which the pit designs were based for the recovery of Measured and Indicated Mineral Resources. Figure 3 shows the final stage pit design and waste rock dump for the Project.

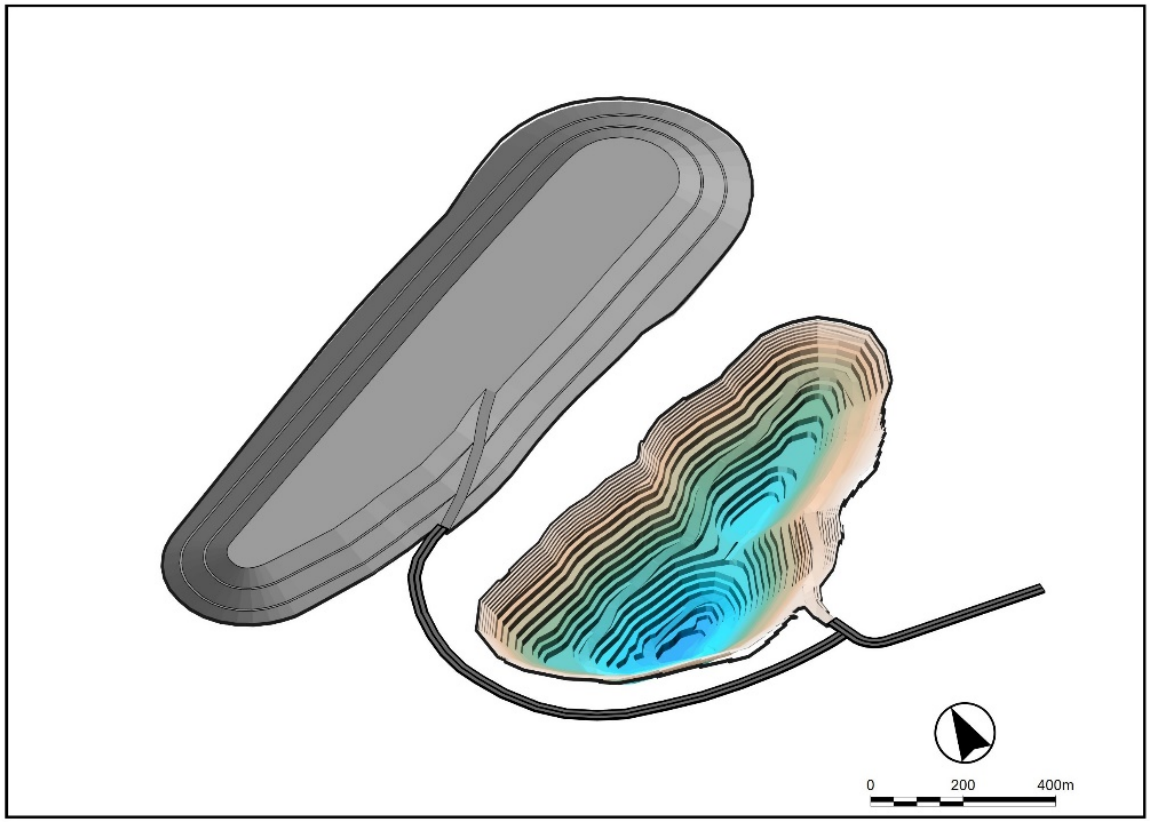


Figure 3: Roche Dure final stage pit design and waste rock dump

A detailed open pit mine design was completed and used to generate the mining schedule. The mining schedule has several operating constraints that control operations. The bench by bench schedule outputs are fed into the AVZ financial model. Capital and operating costs are estimated to a DFS level of confidence and have been applied to the planned activities. The revenue assumptions for lithium concentrate are based on a December 2019, lithium market study completed by Roskill Consulting Group Limited (Roskill). Tin prices are based on current data sourced from a third-party sales database.

The financial model for the Manono DFS indicates a Net Present Value (NPV) after tax at a discount of 10% and an Internal Rate of Return (IRR) that meets the project investment hurdles and is sufficient to support further development of the project.

The Manono Project is most sensitive to changes in revenue parameters such as the lithium sulphate and lithium concentrate price. A 20% reduction in the lithium sulphate price reduces the Project NPV but the resultant value is sufficient to support further project development. The Project is also sensitive to transport cost which account for 46% of the total operating costs of the Project. A 20% increase in transport cost reduces the Project NPV but the resultant value is sufficient to meet investment requirements.

7. Material Modifying Factors, including Status of Environmental Approvals, Mining Tenements and Approvals, Other Government Factors and Infrastructure Requirements for Selecting Mining Method and Transport to Market

The Exploration Certificate Number for the Manono Lithium and Tin Project is CAMI/CR/7113/16 and was granted to Dathcom Mining SA on December 28, 2016 under the Exploration Lease (PR) Number 13359. The Exploration Licence covers approximately 188 km^2 and is located 500 km north of Lubumbashi in the territory of Manono, Tanganyika province, DRC.

At the completion of the DFS, an application for a mining licence for the Manono Project will be submitted to the DRC government. It is anticipated that this licence will be granted on submission of a compliant application as the DRC government hold a material ownership of the project and have given every indication that development of the project is encouraged.

EmiAfrica SARL completed an Environmental and Social Impact Assessment for the Project in April 2020. EmiAfrica SARL are registered and approved by the Ministry of Mines of the DRC to carry out local environmental studies and submit environmental reports.

As stipulated in Article-64 bis of the DRC mining code, the Mining Licence gives the holder exclusive rights to carry out, within the tenement on which it is established and during the period of its validity, exploration, development, construction and mining operations targeting the mineral substances for which the tenement is established and associated or non-associated substances if it has requested an extension. The Mining Licence is a real, exclusive and transferable right in accordance with the provisions of the DRC Mining Code.

Figure 4 shows a site layout of the mining, processing and tailings facilities for the Project. The Project will consist of the following major components:

- Open pit
- Waste rock dump
- Run of Mine (ROM) stockpiles on ROM pad
- Explosives magazine
- Bulk explosives ANFO and emulsion facility
- Processing plant
- Primary lithium sulphate plant

- Tailings storage facility (TSF)
- Site buildings
- Warehouse and workshops
- Raw water pump house and reticulation to site
- HV substation in Manono with High Voltage (HV) powerlines to site
- HV substation in Mpiana Mwanga with HV powerlines to Manono, 87 km of 60 MW
- 120 kV line
- Mpiana Mwanga Hydroelectric Power Plant (HEPP) delivered in two stages
- Stage 1 – Upgrade MP2 to 3 x 10.3 MW turbines (start Q3 2020)
- Stage 2 – Upgrade MP1 to 3 x ~4.5 MW turbines (start ~Q1 2022)
- Accommodation village, Camp Colline, 150-person camp
- Kitotolo village married accommodation 15-20 houses
- Solid waste disposal, a single landfill site to serve camps and mine site
- Truck park up bay 2,000 m x 250 m
- Diesel Power generation, short terms until the HEPP is in place
- Staging station at Kabondo Dianda
- Rail spur into the staging yard off the National Railway of the Congo (SNCC)
- Staging station at Lobito port
- Staging station at Dar es Salaam port
- Corporate Office in Lubumbashi (already exists)
- Upgrade to the Manono Airport facility

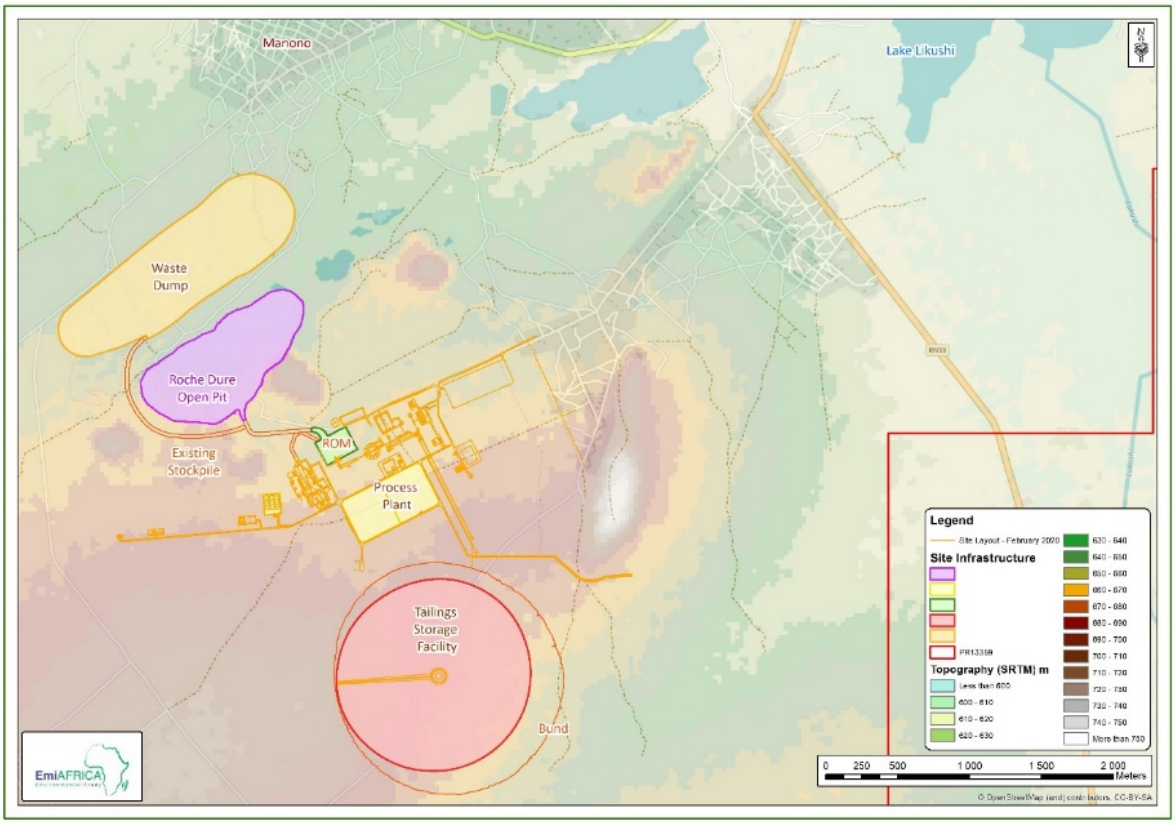


Figure 4: Project site general layout

Raw water will be taken from Lake Lukushi via a single-walled HDPE freshwater pipeline to the raw water dams located in the processing facility.

Power during operations will be supplied by a newly refurbished Hydro Power plant and 120 kV transmission line connecting the Project site to the Hydro Substation.

Since 1919, Manono has been a tin ore extraction centre with the exploitation of the deposit by Géomines. The mine and its related industries were the original reason for the town of Manono's existence. Géomines activity area extended over nearly 1,300 hectares. The Project location has two existing excavations and surrounding waste rock dumps and stockpiles.

Several artisanal miners and trading posts for cassiterite and coltan have been identified in Manono. The Exploration Licence grants exclusive rights to carry out exploration work on the mineral substances including Lithium and Tin. No other mining or quarry rights have been identified within the licence limits. Figure 5 shows the location of land rights within the licence.

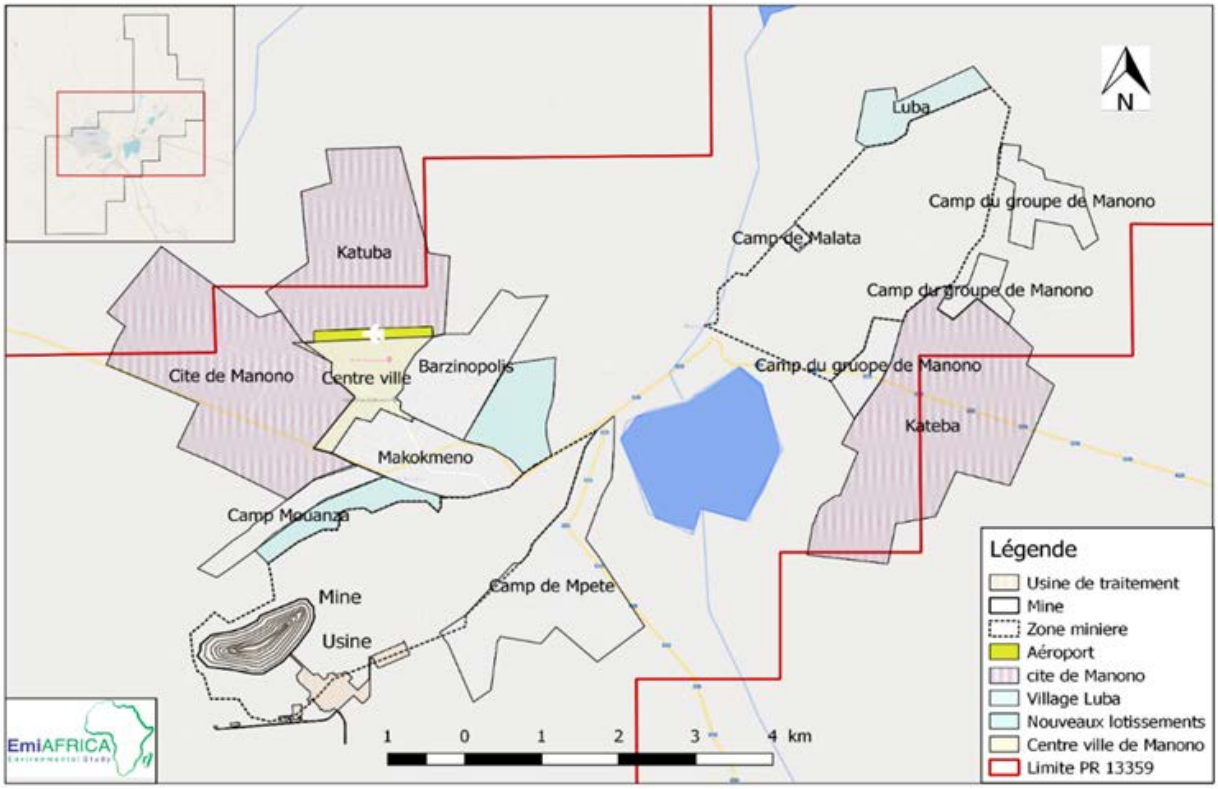


Figure 5: Location of land rights within the licence PR13359

A due diligence study for the transport route options was conducted by the Australian based railway consultancy Infraology Pty Ltd (Infraology).

Four potential concentrate product transport routes were identified during the study. The Definitive Feasibility Study concluded to use two of these transport routes from Manono.

The first is to Dar es Salaam in Tanzania through Zambia, using the Tanzania and Zambia Railway Authority (TAZARA) rail. The TAZARA rail is equally owned by the United Republic of Tanzania and the Republic of Zambia. The TAZARA railway will require upgrade and maintenance to reduce the frequency

of derailments. The route includes 340 km of unsealed road to the DRC State owned SNCC rail allocated at Kabondo Dianda. From Kabondo Dianda there is 772 km of rail to Ndola (in Zambia) and then 165 km of rail to Kapiri Mposhi on the Zambian Railways Limited (ZRL) rail which is wholly owned by the Republic of Zambia. From Kapiri Mposhi to Dar es Salaam is 1,860 km on the TAZARA rail. The route has two border crossings between the DRC, Zambia, and Tanzania. Figure 6 shows the proposed transport route in red.

Figure 6: Manono to Dar es Salaam via Kabondo Dianda (shown by the red line)

The second route to the port of Lobito has one border crossing from DRC to Angola at Luau. The route follows 340 km of unsealed road to Kabondo Dianda from Manono. From Kabondo Dianda there is 802 km of SNCC rail to Dilolo, followed by 1,344 km of the State owned Caminho de Ferro de Benguela (CFB) rail to Lobito. Figure 7 shows the Manono to Lobito route in red. Infraology noted that the CFB was in good condition, had been recently upgraded and is well managed.

Figure 7: Manono to Lobito via Kabondo Dianda (shown by the red line)

Manono Lithium and Tin Project Annual Mine of Production

AVZ Minerals Limited
Manono Lithium and Tin Project
Mine Production Per Year

Mined		Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Ore	BCM / t (000's)	33,456	1,046	1,653	1,594	1,523	1,708	1,573	1,658	1,532	1,692	1,579	1,604	1,645	1,666	1,551	1,616	1,710	1,627	1,520	1,736	1,577	1,557	89
Waste	BCM / t (000's)	17,007	474	1,320	1,409	1,949	2,049	1,280	1,810	1,040	545	633	630	578	555	658	590	444	564	345	91	22	21	1
Total	BCM / t (000's)	50,463	1,520	2,973	3,003	3,472	3,757	2,852	3,468	2,572	2,236	2,212	2,235	2,223	2,221	2,209	2,206	2,154	2,192	1,865	1,827	1,599	1,577	90
Tonnage																								
Material Mined - Ore	t (000's)	93,043	2,941	4,597	4,475	4,270	4,764	4,374	4,650	4,300	4,712	4,381	4,430	4,552	4,620	4,300	4,490	4,746	4,499	4,198	4,810	4,369	4,316	246
Material Mined - Waste	t (000's)	44,221	1,213	3,409	3,488	4,985	5,346	3,410	4,765	2,714	1,408	1,639	1,633	1,504	1,437	1,726	1,568	1,187	1,531	937	234	49	38	-
Total Material Mined	t (000's)	137,264	4,154	8,005	7,963	9,256	10,110	7,784	9,415	7,014	6,120	6,021	6,063	6,056	6,057	6,026	6,058	5,933	6,030	5,135	5,044	4,419	4,354	246
Production																								
Li2O Grade	%	1.51	1.53	1.38	1.56	1.61	1.52	1.61	1.54	1.50	1.53	1.52	1.53	1.57	1.58	1.52	1.56	1.58	1.60	1.64	1.72	1.77	1.72	0.14
Concentrate Produced	t (000's)	14,506	452	630	692	710	674	718	685	674	677	671	674	693	700	669	689	705	704	726	764	784	762	51
SC6 Production	t (000's)	11,354	375	477	539	557	521	565	532	521	524	518	521	540	547	516	536	552	551	573	610	631	609	38
Lithium Sulfate Production	t (000's)	930	18	45	46	45	45	45	46	45	45	45	46	45	45	45	46	45	45	45	46	45	45	4
Tin Production	t (000's)	63	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	0
Artisanal Tin Production	t (000's)	13	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.1
Strip Ratio	Ratio	0.48	0.41	0.74	0.78	1.17	1.12	0.78	1.02	0.63	0.30	0.37	0.37	0.33	0.31	0.40	0.35	0.25	0.34	0.22	0.05	0.01	0.01	-

Appendix 3: JORC Table 1, Sections 1 and 2

Section 1: Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* *Aspects of the determination of mineralisation that are Material to the Public Report.* *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	Diamond drilling, producing drill hole core has been utilised to sample the pegmatite below ground surface. This method is recognised as providing the highest quality information and samples of the unexposed geology. Supplementing the drilling data, surface samples were collected from outcrops by utilising channel sampling from trenches and point-source sampling of scattered outcrops. Due to the known limitations of data derived from these types of samples, the data has not been incorporated in defining the Mineral Resource. Drilling and sampling practices followed normal industry standards. The pegmatite has been sampled from the hanging wall contact continuously through to the footwall contact. In addition, the host-rocks extending from the contacts have also been sampled. Diamond drilling has been used to obtain core samples which have then been cut longitudinally in half. Intervals submitted for assay have been determined according to geological boundaries. Samples were taken at 1 m intervals. The submitted half-core samples typically have a mass of 3 to 4 kg.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	The drilling was completed using diamond drilling rigs with PQ used from surface to sample through weathered to fresh-rock and HQ sized drill rods used after the top-of-fresh-rock had been intersected. Most holes are angled between 50° and 75°. All collars were surveyed after completion. All holes were downhole surveyed using a digital multi-shot camera at about 30 m intervals. Apart from drill holes MO17DD001, MO17DD002, MO18DD001 and MO18DD008, all cores were orientated.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.* *Measures taken to maximise sample recovery and ensure representative nature of the samples.* *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Drill core recovery attained >98% in the pegmatite. Based upon the high recovery, AVZ did not have to implement additional measures to improve sample recovery and the drill core is considered representative and fit for sampling. For the vast majority of drilling completed, core recovery was near 100% and there is no sample bias due to preferential loss or gain of fine or coarse material.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* *The total length and percentage of the relevant intersections logged.*	Drill hole cores were logged by qualified geologists using a data-logger and the logs were then uploaded into Geobank which is a part of the Micromine software system. The cores were logged for geology and geotechnical properties (RQD & planar orientations). A complete copy of the data is held by an independent consultant. The parameters recorded in the logging are adequate to support appropriate Mineral Resource estimation. All cores were logged, and logging was by qualitative (lithology) and quantitative (RQD and structural features) methods. All cores were also photographed both in dry and wet states, with the photographs stored in the database. The entire length of all drill holes were logged for geological, mineralogical and geotechnical data.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.* *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* *Whether sample sizes are appropriate to the grain size of the material being sampled.*	Cores were cut longitudinally in half and sampled at a nominal 1 m length. All the exploration drilling was carried out using diamond core drilling. The sample preparation for drill hole core samples incorporates standard industry practice. The half-core samples were prepared at ALS Lubumbashi and the ALS sample preparation facility on site at Manono, with holes from MO18DD021 onwards being prepared at Manono. At AVZ's onsite sample preparation facility the half-core samples of approximately 4-5 kg are oven dried, crushed to -2 mm with a 500 g sub-sample being split off. This 500 g sub-sample is then pulverised to produce a pulp with 85% passing -75um size fraction. A 120 g subsample is then split from this. The certified reference material, blank and duplicate samples are inserted at appropriate intervals and then the complete sample batch is couriered to Australia for analysis.

Criteria	JORC Code explanation	Commentary
		Standard sub-sampling procedures are utilised by ALS Lubumbashi and ALS Manono at all stages of sample preparation such that each sub-sample split is representative of the whole it was derived from. Duplicate sampling was undertaken for the drilling programme. After half-core samples were crushed at the ALS Lubumbashi and ALS Manono preparatory facility, an AVZ geologist took a split of the crushed sample which was utilised as a field duplicate. The geologist placed the split into a pre-numbered bag which was then inserted into the sample stream. It was then processed further, along with all the other samples. The drilling produced PQ and HQ drill core, providing a representative sample of the pegmatite which is coarse-grained. Sampling was mostly at 1 m intervals, and the submitted half-core samples typically had a mass of 3-4 kg.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	Diamond drill hole (core) samples were submitted to ALS Lubumbashi and ALS Manono (DRC) where they were crushed and pulverised to produce pulps. These pulps were couriered to Australia and analysed by ALS Laboratories in Perth, Western Australia using a sodium peroxide fusion of a 5g charge followed by digestion of the prill using dilute hydrochloric acid thence determination by AES or MS, i.e. methods ME-ICP89 and ME-MS91. Samples from the drilling completed in 2017 i.e. MO17DD001 and MO17DD002, were assayed for a suite of 24 elements that included Li, Sn, Ta & Nb. Samples from the drilling completed in 2018 were assayed for a suite of 12 elements; Li, Sn, Ta, Nb, Al, Si, K, Fe, Mg, P, Th and U, with Li reported as Li_2O, Al as Al_2O_3, Si as SiO_2, K as K_2O, Mg as MgO, Fe as Fe_2O_3 and P as P_2O_5. Peroxide fusion results in the complete digestion of the sample into a molten flux. As fusion digestions are more aggressive than acid digestion methods, they are suitable for many refractory, difficult-to-dissolve minerals such as chromite, ilmenite, spinel, cassiterite and minerals of the tantalum-tungsten solid solution series. They also provide a more-complete digestion of some silicate mineral species and are considered to provide the most reliable determinations of lithium mineralisation. Sodium peroxide fusion is a total digest and considered the preferred method of assaying pegmatite samples. For the drilling, AVZ incorporated standard QAQC procedures to monitor the precision, accuracy and

Criteria	JORC Code explanation	Commentary
		general reliability of all assay results from assays of drilling samples. As part of AVZ's sampling protocol, CRMs (standards), blanks and duplicates were inserted into the sampling stream. In addition, the laboratory (ALS Perth) incorporated its own internal QAQC procedures to monitor its assay results prior to release of results to AVZ. The Competent Person is satisfied that the results of the QAQC are acceptable and that the assay data from ALS is suitable for Mineral Resource estimation. AVZ utilised Nagrom in Perth for external laboratory checks to compare results received from ALS Perth. The Competent Person is satisfied that the results from the umpire laboratory are acceptable and that the assay data from ALS is suitable for Mineral Resource estimation. Geophysical instruments were not used in assessing the mineralisation.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	MSA observed the mineralisation in the majority of cores on site, although no check assaying was completed by MSA. MSA observed and photographed several collar positions in the field, along with rigs that were drilling at the time of the site visit. Twinned holes for the verification of historical drilling, were not required. Short vertical historical holes were drilled within the pit but are neither accessible nor included within the database used to define the Mineral Resource. Drilling data is stored on site as both hard and soft copy. Drilling data is validated onsite before being sent to data management consultants in Perth where the data is further validated. When results are received, they are loaded to the central database in Perth and shared with various stakeholders via the cloud. QC results are reviewed by both independent consultants and AVZ personnel at Manono. Hard copies of assay certificates are stored in AVZ's Perth offices. AVZ has not adjusted any assay data.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* *Specification of the grid system used.* *Quality and adequacy of topographic control.*	The drill hole collars have been located by a registered surveyor using a Hi-Target V30 Trimble differential GPS with an accuracy of +/- 0.02 m. All holes were downhole surveyed using a digital multi-shot camera at approximately 30 m intervals, except MET02 and MET03 which were drilled vertically.

Criteria	JORC Code explanation	Commentary
		AVZ provided high resolution topographic contours, surveyed at 50 cm elevation differences. For the purposes of geological modelling and estimation, the drill hole collars were projected onto this topographic surface. In most cases adjustments were within 1 m (in elevation). Coordinates are relative to WGS 84 UTM Zone 35M.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* *Whether sample compositing has been applied.*	Drill hole were completed on sections 100 m apart, and collars were 50 to 100 m apart on section where possible. In situations of difficult terrain, multiple holes were drilled from a single drill pad using differing angles for each drill hole. In the Competent Person's opinion, the spacing is sufficient to establish geological and grade continuity consistent with Measured, Indicated and Inferred Mineral Resources. Samples were composited to 1 m intervals, since it was the most occurring sample length.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	The drill hole orientation was designed to intersect the Roche Dure Pegmatite at, or nearly at, 90° to the plane of the pegmatite. No material sampling bias exists due to drilling direction.
Sample security	*The measures taken to ensure sample security.*	When utilizing ALS Lubumbashi, chain of custody was maintained by AVZ personnel on-site to Lubumbashi. Samples were stored on-site until they were delivered by AVZ personnel in sealed bags to the laboratory at ALS in Lubumbashi. The ALS laboratory checked the received samples against the sample dispatch form and issued a reconciliation report. At Lubumbashi, the prepared samples (pulps) were sealed in a box and delivered by DHL to ALS Perth. ALS issued a reconciliation of each sample batch, actual received vs documented dispatch. The ALS Manono site preparation facility was managed independently by ALS who supervised the sample preparation. Prepared samples were sealed in boxes and transported by air to ALS Lubumbashi and were accompanied by an AVZ employee, where export documentation and formalities were

Criteria	JORC Code explanation	Commentary
		concluded. DHL couriered the samples to ALS in Perth.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	The sampling techniques were reviewed by the Competent Person during the site visit. The Competent Person considers that the exploration work conducted by AVZ was carried out using appropriate techniques for the style of mineralisation at Roche Dure, and that the resulting database is suitable for Mineral Resource estimation.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The Manono licence was awarded as Research Permit PR13359, issued on the 28th December 2016 to La Congolaise d'Exploitation Miniere SA (Cominiere). It is valid for 5 years. On the 2nd February 2017, AVZ formed a joint-venture (JV) with Cominiere and Dathomir Mining Resources SARL (Dathomir) to become the majority partner in a JV aiming to explore and develop the pegmatites contained within PR 13359. Ownership of the Manono Lithium and Tin Project is AVZ 60%, Cominiere 25% and Dathomir 15%. All indigenous title is cleared and there are no other known historical or environmentally sensitive areas.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Within PR13359, exploration of relevance was undertaken by Gecamines which completed a programme of drilling between 1949 and 1951. The drilling consisted of 42 vertical holes drilled to a general depth of around 50 - 60 m. Drilling was carried out on 12 sections at irregular intervals ranging from 50 - 300 m, and over a strike length of some 1,100 m. Drill spacing on the sections varied from 50 - 100 m. The drilling occurred in the Roche Dure Pit only, targeting the fresh pegmatite in the Kitotolo Sector of the project area. The licence area has previously been mined for tin and tantalum through a series of open pits over a total length of approximately 10 km excavated by Zairetain SPRL. More than 60 Mt of material was mined from three major pits and several subsidiary pits focused on the weathered upper portions of the pegmatites. Ore was crushed and then upgraded through gravity separation to produce a concentrate of a reported 72% Sn. There are no reliable records available of tantalum or lithium recovery as tin was the primary mineral being recovered. Apart from the mining excavations and the drilling programme, there has been very limited exploration work within the Manono region.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Project lies within the mid-Proterozoic Kibaran Belt - an intracratonic domain, stretching for over 1,000 km through Katanga and into southwest Uganda. The belt strikes predominantly SW-NE and is truncated by the N-S to NNW-SSE trending Western Rift system. The Kibaran Belt is comprised

Criteria	JORC Code explanation	Commentary
		of a sedimentary and volcanic sequence that has been folded, metamorphosed and intruded by at least three separate phases of granite. The latest granite phase (900 to 950 million years ago) is assigned to the Katangan cycle and is associated with widespread vein and pegmatite mineralisation containing tin, tungsten, tantalum, niobium, lithium and beryllium. Deposits of this type occur as clusters and are widespread throughout the Kibaran terrain. In the DRC, the Katanga Tin Belt stretches over 500 km from near Kolwezi in the southwest to Kalemie in the northeast comprising numerous occurrences and deposits of which the Manono deposit is the largest. The geology of the Manono area is poorly documented and no reliable maps of local geology were observed. Recent mapping by AVZ has augmented the overview provided by Bassot and Morio (1989) and has led to the following description. The Manono Project pegmatites are hosted by a series of mica schists and by amphibolite in some locations. These host rocks have a steeply dipping penetrative foliation that appears to be parallel to bedding. There are numerous bodies of pegmatite, the largest of which have sub-horizontal to moderate dips, with dip direction being towards the southeast. The pegmatites post-date metamorphism, with all primary igneous textures intact. They cross-cut the host rocks but despite their large size, the contact deformation and metasomatism of the host rocks by the intrusion of the pegmatites seems minor. The absence of significant deformation of the schistosity of the host rocks implies that the pegmatites intruded brittle rocks. The pegmatites constitute a pegmatite swarm in which the largest pegmatites have an apparent en-echelon arrangement in a linear zone more than 12 km long. The pegmatites are exposed in two areas; Manono in the northeast, and Kitotolo in the southwest. These areas are separated by a 2.5 km section of alluvium-filled floodplain which contains Lake Lukushi. At least one large pegmatite extends beneath the floodplain. The pegmatites are members of the LCT-Rare Element group of pegmatites and within the pegmatite swarm there are LCT albite-spodumene pegmatites and LCT Complex (spodumene sub-type) pegmatites.

Criteria	JORC Code explanation	Commentary
Drillhole information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* • *easting and northing of the drillhole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	See drill hole table.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	Exploration Results are not reported, therefore no data was aggregated for reporting purposes. No equivalent values are used or reported.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there*	Exploration Results are not reported. There is no relationship between mineralisation width and grade. The geometry of the mineralisation is reasonably well understood however the pegmatite is not of uniform thickness nor orientation. Consequently, most drilling intersections do not represent the exact true thickness of the intersected pegmatite,

Criteria	JORC Code explanation	Commentary
	should be a clear statement to this effect (e.g. 'downhole length, true width not known').	although intersections are reasonably close to true thickness in most cases.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	The relevant plans and sections are included in this document.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Exploration Results are not reported.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	No other exploration data is available.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Diamond drill testing beneath the pit will be carried once the pit has been drained of water. Further mining studies are planned.

Appendix 4: JORC Table 1, Section 3

Section 3: Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* *Data validation procedures used.*	•The geology, grade and bulk density data were checked by the Competent Person. •The data validation process used during Mineral Resource estimation consisted of: o Examination of the assay, collar survey, downhole survey and geology data to ensure that the data were complete and usable for all drill holes. o Examination of the desurveyed data in three dimensions to check for spatial errors. o Examination of the assay data in order to ascertain whether they were within expected ranges. o Checks for "FROM-TO" errors, to ensure that the sample data did not overlap one another or that there were no unexplained gaps between samples.
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.*	One of the Competent Persons for the Mineral Resource, Mr Michael Cronwright, conducted a site inspection in April 2018 to inspect the cores, review the exploration processes and further his understanding of the Roche Dure mineralisation. The Competent Person considers that the exploration work conducted by AVZ was carried out using appropriate techniques for the style of mineralisation.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* *Nature of the data used and of any assumptions made.* *The effect, if any, of alternative interpretations on Mineral Resource estimation.* *The use of geology in guiding and controlling Mineral Resource estimation.* *The factors affecting continuity both of grade and geology.*	The quantity and spacing of drilling are sufficient to define the shape and extents of the pegmatite to a high level of confidence. Surface mapping was used to constrain the interpretation of the pegmatite outcrop on surface. The pit is currently filled with water and it is not possible to either map the geology or drill beneath the pit. Therefore, confidence in geological interpretation in areas immediately below the flooded pit is relatively low. Geological logging and assay data were used to define estimation domains within the pegmatite i.e. Weathered Pegmatite, Transitional Pegmatite, Low-grade Hangingwall Contact Pegmatite, Main Pegmatite, Low-grade Footwall Contact Pegmatite and Internal Low-grade Pegmatite.

Criteria	JORC Code explanation	Commentary
		Geological logging was used to define the host rock domains i.e. Overburden, Hangingwall and Footwall. A dyke, which intersected the pegmatite at depth was also modelled. Tin and tantalum wireframes were modelled in Leapfrog Geo based on the spatial grade distributions in the pegmatite. Tin and tantalum mineralisation showed distinct zones of lower and higher grades within the pegmatite. No alternative geological models are likely given the geological and grade continuity of the pegmatite.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The area defined as a Mineral Resource is approximately 1,600 m along strike by approximately 700 m on dip and is limited by data extents to a maximum depth of approximately 550 m below surface. The Mineral Resource is between approximately 170 m and 370 m thick. The Roche Dure Pegmatite dips approximately 45° to the southeast and outcrops on surface within the Manono project area. The pegmatite is weathered to varying depths from 0 m to 100 m below surface. The transitional zone has been modelled to depth of approximately 130 m below surface.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* *The assumptions made regarding recovery of by-products.* *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur*	Leapfrog Geo 4.4.0 was used to model the geology and weathering states. Datamine Studio RM was used to estimate grades. Samples were composited to 1 m intervals using length weighting. The geological wireframes were filled with blocks of 25 mN by 25mE by 10 mRL and coded according to the geological zone. The blocks were sub-celled to a minimum of 5 mN by 5mE by 0.25 mRL to accurately fill the geological model. The different pegmatite domains were estimated separately from each other using hard boundaries due to distinct grade and orientation differences between the sub-domains. Top cuts were applied to the tail of the different variable grade distributions, where outliers were identified. Li_2O_pct, Al_2O_3_pct, Fe_2O_3_pct, K_2O_pct, MgO_pct, P_2O_5_pct, SiO_2_pct, Nb_ppm, Sn_ppm, Ta_ppm, Th_ppm, U_ppm, SG were estimated into the block model.

Criteria	JORC Code explanation	Commentary
	for acid mine drainage characterisation). *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* *Any assumptions behind modelling of selective mining units.* *Any assumptions about correlation between variables.* *Description of how the geological interpretation was used to control the resource estimates.* *Discussion of basis for using or not using grade cutting or capping.* *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	The Li_2O grades were estimated into the modelled pegmatite domains using ordinary kriging. All other grades (except tin and tantalum) and density were estimated using inverse distance weighting (power 2). Tin and tantalum grades were estimated into their respective domains based on the modelled wireframes. Search ellipses were roughly aligned with the range of the Li_2O semi-variogram model and are within the maximum semi-variogram range. The search ellipse was aligned in the plane of the pegmatite. A search distance of 75 m along strike, 50 m down dip and 15 m across plane was used for all variables. A minimum of 14 and maximum of 24 composites were used to estimate a block, with the maximum number per hole used to estimate being 12. Should enough samples not be collected in the first search, then the search was expanded two times, and finally 15 times to ensure all model blocks were estimated. The majority of the Mineral Resource is estimated within the first and second search volumes. Estimates were validated using visual checks of the drill hole grades against the model and statistical comparisons of the input data and output estimated grades.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages were estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	A cut-off grade of 0.5% Li_2O has been applied for the reporting of the Mineral Resource. This is based on other hard rock lithium projects but will be required to be investigated in future through economic assessments. The parameters used in the assessment of Reasonable Prospects for Eventual Economic Extraction (RPEEE) are not definitive and should not be misconstrued as an attempt to estimate an Ore Reserve for which economic viability would be required to be demonstrated.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining*	It is assumed that the Mineral Resource will be extracted using an open pit mining methodology. A high-level observation is that the entire Mineral Resource could likely be extracted from an open pit with a worst case final waste:ore stripping ratio of 1:1. Due to this observation the Mineral Resource is

Criteria	JORC Code explanation	Commentary
	reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	reported to a depth of 550 m below surface as it is reasonable to expect economic extraction to this depth. The potential economic viability of extracting the Tin Mineral Resource is premised upon this weathered low Li_2O grade material being mined in order to be able to access the high grade Lithium Mineral Resource beneath it.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Mineral characterisation and metallurgical studies have demonstrated that the economically significant lithium mineral present is spodumene, with negligible quantities of other lithium species present. Metallurgical test work was carried out on bulk samples derived from the complete Main Pegmatite intersections of drill holes, and tests can therefore be considered representative. Mineral characterisation work covered selected samples chosen to verify mineral species in, for example, varying grades of mineralisation, hydrothermally altered spodumene and greisen. It is assumed that the cassiterite in the Tin Mineral Resource will be extractable by low cost gravity separation techniques. The weathered material containing the cassiterite is assumed to have similar metallurgical characteristics to that extracted during the operational period of the historical tin mine.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an*	MSA is not aware of the details of any environmental studies that have been carried out.

Criteria	JORC Code explanation	Commentary
	explanation of the environmental assumptions made.	
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	A total of 3,137 bulk density measurements have been carried out on Roche Dure drill hole core. Most of these measurements were completed on Main Pegmatite material by the Archimedes principal of weighing the full assay sample (one metre) in air and then submerged in water. A calliper was used to measure and calculate the volume of drill hole core that was too weathered to submerge in water. This material was then weighed and the density calculated from its volume and mass. In-situ bulk density was estimated into the block model for pegmatite domains using inverse distance to the power of 2. Average bulk density values were applied to other domains as well to blocks that were not estimated.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.* *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* *Whether the result appropriately reflects the Competent Person's view of the deposit.*	The data that inform the grade estimate were derived from AVZ drill holes only and no historical data were used. In the Competent Person's opinion, these data have been collected using industry acceptable practices and are reliable. The Mineral Resource is classified as Measured in areas where the drill hole spacing is 100 m by 50 m and are not extrapolated more than 25 m downdip from assay data. Indicated Mineral Resources are defined in areas where the drill hole spacing is 100 m by 100 m and are not extrapolated more than 75 m away from assay data. Inferred Mineral Resources are extrapolated to approximately 125 m from the drilling grid. The classification reflects the Competent Persons view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	• The following review work was completed by MSA during a site visit in April 2018: o A site-based review of the drill hole data processes and data collection protocols, o Inspection of the AVZ cores used in the Mineral Resource estimate, o A complete inspection of all drilling data available at the time.
Discussion of relative	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral*	Quantification of relative accuracy was not carried out.

Criteria	JORC Code explanation	Commentary
accuracy/ confidence	*Resource 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 resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that 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.* *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	Due to the almost normal distribution of Li_2O grade values in the Main Pegmatite, it is reasonable to assume that the estimate of Li_2O grades in the Main Pegmatite of high confidence in the Measured areas. Caution should be placed on the Inferred estimates as they are based on limited data and are not suitable to support technical and economic studies at a Pre-Feasibility level. These are global estimates. Recoverable resource estimates were not carried out. No production data are available.

Appendix 5: JORC Table 1, Section 4

Section 4: Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section)

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.*	The Ore Reserve estimate (ORe) is based on the Mineral Resource estimate (MRe) released on 8 May 2019 by AVZ Minerals and prepared by Mrs. Ipelo Gasela of The MSA Group as the Competent Person. The MRe was reported using a 0.5% Li_2O cut-off. The MRe was reported as: • Total of 400 Mt at 1.65% Li_2O, 715 ppm Sn, and 34 ppm Ta • Measured and Indicated Resource of 269 Mt at 1.65% Li_2O, 816 ppm Sn, and 36 ppm Ta. The Mineral Resource is reported inclusive of the Ore Reserve estimate.
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.*	The Competent Person, Karl van Olden (Principal Consultant and Manager Mining with CSA Global) has not visited the site. Michael Cronwright (Principal Geologist employed by CSA Global), has visited the Manono Project site in December 2019 and the Competent Person is confident that the requirements of a site visit have been sufficiently fulfilled. There has been no mining or construction activity on the site since these site visits. The visits comprised of inspecting the existing and planned Roche Dure pit, existing and future site infrastructure locations, proposed plant site location, operating drill rigs, and diamond drill core.
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.*	AVZ Minerals completed the Manono Project to a Feasibility Study (FS) level. The work undertaken in this FS has addressed all the material modifying factors required for the conversion of the Mineral Resources to Ore Reserves and has shown that the mine plan is technically achievable and economically viable. This ORe applies all material modifying factors such as mining dilution, mining recovery, infrastructure, costs, legal, environmental, social and regulatory, in line with the FS.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	A variable economic cut-off grade has been used for this Ore Reserve estimation. The cut-off grade has

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>been based on a block by block analysis whereby if the revenue obtained from the two products exceeds operating costs in processing, G&A, transporting and selling both products, then that block becomes a part of the Ore Reserve if it is classified as either a Measured or Indicated Mineral Resource. All other blocks within the pit design that do not satisfy these criteria are treated as waste material.

The revenues were based on a spodumene price of US$699/t of 6% Li_2O concentrate and a tin price of US$10,000/t.</td></tr>
<tr><td>Mining factors or assumptions</td><td>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).

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 (e.g. 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.</td><td>In order to develop the mine plan for the Roche Dure deposit, optimised pit shells and pit designs were prepared using the Dassault System Whittle and Surpac software.

Input parameters for the pit optimisation were based on provided data from AVZ Minerals and supporting contractors and consultants. The input parameters were reviewed by CSA Global. Product prices are considered appropriate for the lithium and tin markets into the future. The operating costs have been based on a mixture of contractor quotations and first principle estimates, all to a minimum of a Preliminary Feasibility Study (PFS) standard.

The mining method is based on a four-staged Roche Dure pit using conventional open cut drill and blast and load and haul methods.

Pit slope parameters were made in accordance with the calculations made by geotechnical engineers Middindi Consulting Limited.

Middindi Consulting defined 6 geotechnical sectors as shown in the below table:

<table>
<tr><th>Design Sector</th><th>Wall Dip Direction (°)</th></tr>
<tr><td>1</td><td>133</td></tr>
<tr><td>2</td><td>230</td></tr>
<tr><td>3</td><td>315</td></tr>
<tr><td>4</td><td>335</td></tr>
<tr><td>5</td><td>10</td></tr>
<tr><td>6</td><td>50</td></tr>
</table>

In weathered material batter angles of 75° are proposed for all designed sectors, and a berm width of 4.5 m is proposed for all design sectors except design sector 2 which has a planned berm width of 4.5 m. Batter heights of 5 m are proposed for all</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		design sectors except design sectors 4 and 5, which have batter heights of 10 m. In fresh material bench face angles of 80° are proposed for all design sectors, and a berm width of 10 m is proposed for all design sectors except design sector 2 which has a berm width of 11.5 m. All design sectors have a proposed batter height of 15 m. There is a designed 15 m wide geotechnical berm at the 575 RL within the final stage pit design. 10 m-high benches are planned with the removal of four 2.5 m-high mining flitches. Mining dilution by elevation has been applied to represent the changing quantities of waste dilution existing on each bench of the pit: • Surface to the 565RL has 5% mining dilution applied • 565RL to the 505RL has 2% mining dilution applied • 505RL to the 435RL has 1% mining dilution applied • Below the 435 RL has 0% mining dilution applied, as the whole bench is ore. The grade of the diluting material added to the ore stream is 0% Li_2O and 0% Sn. The following variable mining recovery has been applied: • Surface to 565RL has 98% mining recovery applied • Below the 565RL has 99% mining recovery applied. These values are considered suitable for the deposit geometry, mining method and the size of the proposed mining equipment. Inferred Mineral Resources have not been considered in the pit optimisations and any Inferred Mineral Resources within the final pit design have been treated as waste material in the feasibility study. Mining infrastructure includes run of mine pad, tailings facility, overburden and waste rock dump, haul roads, workshops and offices. The establishment of this infrastructure is included in the capital cost estimate for the project.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness*	Metallurgical work completed to date as identified the Roche Dure deposit as amenable to dense

Criteria	JORC Code explanation	Commentary
	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.* *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	media separation. The following test work has been completed to date: • Detailed mineralogy to ascertain liberation characteristics and deleterious elements • Crush size optimisation for a DMS only processing plant • Laboratory to pilot to industrial performance scaling for predictive beneficiation performance • Comminution studies including typical Bond and JK design parameters and HPGR trials • General characterisation and liberation of heavy minerals • Bulk crushing using industrial equipment from sample representing a 5-10 year mine plan • Detailed heavy mineral concentration and flowsheet derivation • Engineering, Vendor and Performance Testing • Exploration of various process opportunities to compliment the DFS flowsheet including flotation and concentrate cleaning. Metallurgical samples were taken from 5 PQ sized drill holes selected from within the Measured Resource category including variability from the pegmatite, host rocks, and weathering levels to maintain sample variability and ensure the test work is representative of the deposit. The material that formed the basis of the test work was 13 tonnes of full core. Total lithia recovery returned 60.1% for an average product grade of 6.1% Li_2O. Heavy mineral product recoveries were 24-41% with concentrates of approximately 64% SnO_2.
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.*	An Environmental and Social Impact Assessment (ESIA) Environmental Management Plan of the Project (EMPP) was undertaken by EmiAfrica SARL, an approved independent consultant. At the completion of the FS, an application for a mining licence for the Manono Project will be submitted to the DRC government. It is anticipated that this licence will be granted on submission of a compliant application as the DRC government hold a material ownership of the project and have given every indication that development of the project is encouraged.

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		Geochemistry conducted by Graeme Campbell and Associates indicates there is no potential for acid rock drainage (ARD) from tailings materials. Feasibility Study level work has been finalised by the company regarding waste disposal options. The work has identified suitable areas for waste landforms and contains appropriate volumes for waste disposal in tailings storage and waste rock dumps. Waste disposal will not present a barrier to exploitation of the deposit, and that any disposal and potential environmental impacts will be correctly managed as required regulatory permitting conditions.
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.*	Raw water will be extracted from the Lake Lukushi to the raw water dams located in the processing facility. Power during operations will be supplied by a newly refurbished Hydro Power plant and 120 kV transmission line connecting the Project to the Hydro Substation. A due diligence study for the transport route options was conducted by the Australian based railway consultancy Infraology Pty Ltd (Infraology) Infraology found that the proposed railways were all intact and operational but required funding for upgrading and maintenance programs. The study proposed two concentrate transport routes. The first to the port of Dar es Salaam in Tanzania. The second to Lobito in Angola. Both routes rely on the DRC State owned Société Nationale des Chemins de Fer du Congo (SNCC) rail. The SNCC rail required improved quality of the railway ballasting and sleepers, as identified by Infraology. The route to Dar es Salaam relies on the Tanzania and Zambia Railway Authority (TAZARA) rail that requires upgrading of the railway ballasting and sleepers. This route also requires an intermodal staging station on the TAZARA property at Yambo. The Caminho de Ferro de Benguela (CFB) rail to Lobito has been recently upgraded. This route also requires an intermodal staging station on the SNCC property at Kabondo Dianda. Other transport infrastructure required is: • Unsealed all weather road reconstruction between the N33 from Manono to Kabondo Dianda, including 18 bridges that are in need of attention

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		• Ferry crossing at Lualaba river and departure aprons refurbishment • Staging area in Dar es Salaam. The Project requires the following infrastructure: • Explosives magazine • Bulk explosives ANFO and emulsion facility • Lithium concentrate processing facility • Lithium sulphate processing facility • Tailings storage facility • Site administration buildings • Warehouse and workshops • Raw water pump house • High voltage (HV) substation in Manono with HV powerlines to site • HV substation in Mpiana Mwanga with HV powerlines to Manono • Mpiana Mwanga Hydro Electricity Power Plant • 150 person accommodation village • Diesel power plant • Rail spur into the staging yard off the National Railway of the Congo • Staging station at Lobito port • Staging station at Dar es Salaam port • Upgrade to the Manono Airport facility.

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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.*	The capital cost estimate for the Manono Project Feasibility Study is an estimate based on quotations, budget prices, engineering experience, and a small percentage priced on industry norms and typical estimating factors. The capital cost estimate can be considered to have an accuracy of ±15%, based on normal Feasibility Study standards. The operating cost estimate for the Manono Project Feasibility Study is derived from quotations, tenders, and a small percentage priced on industry norms and typical estimating factors. Metallurgical test work has indicated that there are no deleterious elements that would impact the sale of products. All costs used in the study have been based on US dollars. The Feasibility Study assessed four transport routes with cost estimates for each route. The Feasibility Study chose two viable routes to Lobito as well as Dar es Salaam. The cost estimate includes 50% of product being sent to Lobito and 50% of product being sent to Dar es Salaam. Transport costs also include all necessary customs duties and taxes. A DRC state royalty rate of 3.5% is applied to all revenues. Treatment and refining charges do not apply to the products as all sales are based on Free on Board (FOB) prices.
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.*	The grade of process feed and metal content is supported by the information in the Mineral Resource estimate and driven by the mining and production schedule. Processing recoveries are based on the metallurgical test work and are applied within the financial model as 60.1% for Li_2O and 30% for Sn. Lithium concentrate prices have been based on independent pricing obtained a December 2019, lithium market study completed by Roskill Consulting Group Limited (Roskill). Tin prices are based on current data sourced from a third-party global sales database.
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*	The 2019 lithium market study by Roskill noted the rechargeable battery sector as the largest lithium consumer and that the electrification of global transport is now the largest demand sector forecast to sustain continued market growth for the coming decades.

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	identification of likely market windows for the product. *Price and volume forecasts and the basis for these forecasts.* *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	With global demand increasing, a supply shortfall is expected to be met by increased global production from new lithium projects.
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.*	The economic analysis is based on capital cost estimates described in the FS and cash flows driven by the production schedule. The cash flow projections include: initial and sustaining capital estimates; mining, processing and concentrate logistics costs to the customer; revenue estimates based on concentrate pricing; and an 10% discount factor. Sensitivity analysis completed in the FS indicates that the project results remain favourable when the key project parameters (revenue, exchange rate, grade, metallurgical recovery, capital and operating costs) are individually flexed to plus and minus 20% of the FS average values.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	Key project stakeholders were consulted during the ESIA. The stakeholder consultation process was conducted by EmiAfrica with the assistance of Dathcom representatives.

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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 the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	No material naturally occurring risks have been identified. There are no apparent impediments to obtaining all government approvals required for the Manono Project. The Manono Lithium and Tin Project ("the Project") is owned 100% by Dathcom Mining SA ("Dathcom") which in turn is 60% owned by AVZ Minerals limited ("AVZ"), 25% by La Congolaise d'Exploitation Miniére SA (a state-owned enterprise) and 15% by Dathomir Mining Resources SARL (a private company). At the completion of the FS, an application for a mining licence for the Manono Project will be submitted to the DRC government. It is anticipated that this licence will be granted on submission of a compliant application as the DRC government hold a material ownership of the project and have given every indication that development of the project is encouraged.
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).*	Proved Ore Reserves were estimated from Measured Resources and Probable Ore Reserves were estimated from Indicated Resources as per the JORC (2012) guidelines. Forty-eight (48) % of Ore Reserves have been based on Measured Mineral Resource. Mr Karl van Olden, the Competent Person for this Ore Reserve estimation has reviewed the work undertaken to date and considers that it is sufficiently detailed and relevant to the deposit to allow those Ore Reserves derived from Indicated Mineral Resources to be classified as Probable, and Ore Reserves derived from Measured to be classified as Proved.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	The FS has been internally reviewed by AVZ Minerals. The Mineral Resource estimate, mine design, scheduling, and mining cost model has been subject to internal peer review processes by CSA Global. No material flaws have been identified and the Ore Reserve basis of estimate is considered appropriate for a FS level of study.

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		The Feasibility Study and financial model were reviewed by Mr Alan Dickson of Alan Dickson and Associates Pty Ltd. Mr Dickson is a Chartered Professional and Fellow of the Australasian Institute of Mining and Metallurgy SRK Consulting completed a March 2018 technical review of the Manono Project which included an independent review of the potential of the Manono Project, AVZ Mineral's geological dataset, and a site visit to verify mapping, trenching and drill core samples.

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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.*	This Ore Reserve estimate is supported by the Manono Project FS. The Manono Project has an IRR and NPV which makes it robust in terms of cost variations. The Manono Project is most sensitive to lithium price. All estimates are based on local costs in United States Dollars. Standard industry practices have been used in the cost estimation process. Capital and operating expenditure estimates are considered within ±15% accuracy. There has been no lithium production at the project to date, so no comprehensive comparison or reconciliation of data has been made.