



CAPUTI
RESOURCES

CAPUTI RESOURCES COMPANY LTD
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DAR ES SALAAM
United Republic of Tanzania

FEASIBILITY STUDY REPORT
ON MINERAL EXPLORATION AND
MINERAL PROCESSING

2023

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Executive Summary

This business plan is tendered to Tanzania Investment Centre (TIC) to support application for Certificate of Incentive.

Caputi Resources Company Ltd is an organization envisaged on mineral exploration, mining and mineral processing with Prospecting License in Kasulu, Kigoma.

The purpose of the feasibility study is meant to portray business portfolio and investment analysis including sensitivity analysis of the ongoing concern.

According to the studies carried out reveals that the industry is one among in Tanzania fetching more foreign currency to the country.

The financial projections of the proposed project reveal lucrative profits with strong cash base on cash flow, cash discounted flow reveal IRR with high gearing financial ratio, financial indicators on sensitivity analysis also depicts payback period from Return on Equity (ROE) and Return on Investment (ROI) could offset liabilities before the project timeline. Capital injected has been sourced by directors themselves from Australia and Germany.

The project is technically sound and financially viable. The first four years of operation will be carried on without any revenues from operations due to the program as indicated in the financial analysis. Profitability analysis reveals contribution of positive cash balance at the end of the project that would be geared on sustainability and ploughed back for re-investment.

1 Introduction

1.1 Legal Status

Caputi Resources Company Ltd is registered under Certificate of Incorporation No.156189626 on 19th May,2022, TIN 156 – 189 – 626 with office in Dar Es Salaam and project site in Kasulu, Kigoma Region.

1.2 Directors and Shareholders

The directors of the company are:

- Saeed Mokhtari, holding 310 shares
- Tihitina Taddesse Endale, allotted 210 shares and

See attachment 2 – Memorandum and Articles of Association.

1.3 Authorized Share Capital

The authorized share capital of Caputi Resources in Tanzania Shillings is 50,000,000 (fifty million) divided into 1,000 (one thousand) ordinary shares each of Tanzanian Shillings 50,000 (fifty thousand), with the projection for the company to increase the capital to TZS 5, 000,000,000 (five billion) upon resolution that will be passed by the directors.

See attachment 2 –Memorandum and Articles of Association.

2. Project Description

Caputi Resources is engaged in project of exploration of different minerals such as lithium, tantalum, graphite, copper, potash, and rare minerals.

Caputi has acquired Mineral Prospecting License for Kasulu Kigoma and is conducting desk work on exploration. Following rigorous desk work, sample collection from trenches and plan for further works based on laboratory analysis will be carried out to finalize detailed geological mapping program.

2.1 Phase 1: Research, Exploration and Program Planning

Phase 1 of the project consists of desk research, field research, extensive program planning, exploration and mapping. Accordingly, the below timeline for activities to be carried out during phase 1 was established.

Action	Timeline			
	Year 1	Year 2	Year 3	Year 4
Carry out geochemical sampling	■			
Undertake trenching, pitting and sample collection				
Compile geological mapping, data and laboratory analysis of the channel samples collected				
Exploration report				
Job training				
Channeling samples collected from trenches and further planning		■		
Undertake geological mapping program				
Plan drilling program from trench and sampling program				
Training			■	
RC an DD drilling to carried out in the area in order to understand mineralized zones			■	
Undertake logging of the drilled RC chips and diamond drilled core materials				
Establishment of the project data base				
Interpretation of the drilling program date				■
Modelling and evaluation of the resources from data accumulated from drilling program				
Compilation of the feasibility report				
Environment Impact Assessment which will provide the best practice during mining operations				
Application for mining license				
Production				

2.2 Phase 2: Raw Materials

Kasulu energy minerals property is located in NW Tanzania close to the Burundi-Rwanda boarder. The property can be accessed from Dar es Salaam approximately 880 km Through paved road and about 20 km rough Roads towards the property. This area also known for industrial minerals.

Energy minerals such as tantalum and tantalite have diverse use worldwide. Tantalite is the most important mineral form of tantalum, a specialty metal used mainly in the electronic industry for the manufacture of capacitors and in several specialty alloy applications. Tantalum powder is used in the production of capacitors for electronic circuits. One of the main advantages of using tantalum is its extreme corrosion resistance, making it ideal for use in corrosive environments. This makes it a perfect choice for medical equipment, aerospace engineering, and other industries where corrosion resistance is important. Additionally, tantalum is highly malleable and ductile, which can easily be formed into various shapes or designs without breaking or cracking. This makes it an ideal material for precision parts such as microchips or complex components. Furthermore, tantalum retains its strength even at very high temperatures, making it suitable for use in high-temperature applications such as jet engines or other heat-sensitive machinery components.

Another energy mineral that has ample uses in our modern world is lithium. The most important use of lithium is in rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles. Lithium is also used in some non-rechargeable batteries for things like heart pacemakers. Lithium metal is made into alloys with aluminum and magnesium, improving their strength and making them lighter. A magnesium-lithium alloy is used for amour plating. Aluminum-lithium alloys are used in aircraft, bicycle frames and high-speed trains. Lithium oxide is used in special glasses and glass ceramics. Lithium chloride is one of the most hygroscopic materials known and is used in air conditioning and industrial drying systems (as is lithium bromide). Lithium stearate is used as an all-purpose and high-temperature lubricant.

3. Production Process

Most of the mineral resources that we use in our daily lives aren't easily found and don't come out of the ground in a useable form. Finding these resources, obtaining (mining) them, and processing them into something useable takes many varied and often technologically advanced steps. Mining, particularly the mining of energy minerals has rigorous steps. An ore is a material that occurs naturally and that contains a minerals that can be extracted. The typical steps in recovering a mineral resource and converting it to a useable state include:

- a) Extraction and discovery
- b) Concentrating (Beneficiation/Smelting/Refining)
- c) Remediation/Reclamation

Every step of the mineral extraction process is much more complex than described below.

3.1 Extraction and Discovery

Caputi resources is planning to carry out open cut mining in Kasulu, Kigoma site. Topsoil will be dug and collected at the leading edge of an active mine. This soil is later returned for use in land rehabilitation, a key focus of progressive sustainability in the mining. Holes will be drilled for industrial explosives to break up rocks safely.

Open cut mining is one of the safest and most sustainable way of extracting minerals. This increased efficiency is because up to 90 per cent of the resource can be extracted at the seam. The process is simple and allows for fast access and production. Compared to underground mining, the resource is more accessible to bigger and more efficient drilling and digging machinery. Furthermore, this type of extraction helps to eliminate safety hazards that can accompany complex underground mining operations.

Caputi Resources is committed to environmentally sustainable mining. At every stage of mining process, the mine area must undergo rehabilitation to minimize environmental damage. This step in the mining process is critical to ensuring the sustainability of the land for future use. First, waste dumps are contoured to flatten them out and stabilize them. If the ore contains sulfides, it is covered with a layer of clay to prevent rain and oxygen from oxidizing the sulfides into sulfuric acid, to prevent acid mine drainage.

Then, the waste dump is covered with soil, vegetation is planted, and the area is fenced to prevent livestock from eating the newly planted vegetation. This layer will eventually erode but in the meantime, it will allow the leaching of heavy metals to occur slowly enough for the surrounding environment to absorb them.

Furthermore, Caputi has a strong regulatory and cultural approach. Safety is a key element for what is open-cut mining. Early detection and prevention of incidents is part of the safety framework within the company. This involves processes for gas emissions, dust, slope stability and monitoring, fire-risk minimization and interactions with vehicles.

3.2 Concentrating (Beneficiation/Smelting/Refining)

At this stage the company will take several steps of separating energy minerals from the grains obtained. One of the methods employed during this step is known as Flotation. Flotation is one way to separate the grains of the desired mineral from the grains of other minerals. During flotation, the rock slurry is mixed with a specifically selected reagent that adds bubbles. Due to the chemistry, the desired minerals will attach themselves to the bubbles and then float to the top. The froth of bubbles and attached minerals is skimmed off the top. The extra water and/or reagent is filtered off, and the mineral may go on to be further concentrated, with other processes including using activated carbon, electroplating, and/or leaching with other reagents.

Caputi Resources is engaged in sustainable mining where different methods to maintain natural resources will be employed that improve social, economic, and environmental outcomes. This means being financially profitable, technically appropriate, environmentally sound, and socially responsible. It involves the responsible management of “the triple bottom line” of economic development, environmental impact and social concerns.

Mining shall be carried out during the day only in order not to disturb tranquility required during the night. Processing, however, shall be done day and night. The company shall therefore operate a three-shift day for the processing department.

3.3 Remediation/Reclamation

The restoration of land to natural condition often involves the process of stabilizing soils and slopes in an area through grading by creating gentler slope and planting trees and different plants. Usually the addition of new soil, or treatment of the existing soil, is necessary prior to revegetation. Reclamation will be done as either parts of the surface mine or the waste rock piles. This has a crucial role in improve the aesthetics of the mine area while it is still open. Caputi Resources plans to conduct remediation and reclamation process during different stages of operation.

4. Management and Personnel

Caputi Resources will employ several experts for its projects. Among key personnel are General Manager, Geologists, Field Workers, Geophysicists, Machine Operators, Mining Engineer, Plant Technicians, Quality Controllers, Shift Supervisors, Drivers, Trades People, Lawyers, Office Administrator, Payroll Clerk, Accountant, Secretary, Human Resources Personnel and Security,



The company is governed by Board of Directors to whom the General Manager reports to. Daily technical and project related decisions shall be made by the General Manager while strategic corporate decisions shall be made by the Board at the regular Board of Directors meeting.

5. Training Program

Caputi Resources plans to hire the right, qualified personnel for different jobs. This is only the beginning of setting employees up for success at work. Accordingly, the company has set out plans for several training programs whereby Tanzanians will be trained in house by experts from Australia. These training programs provide ample support to personnel gain new skills while they are on their jobs. These trainings will also provide opportunities for employees to assume new roles in the company and be able to receive promotion.

Time frame for the program will start on the second year of the operations. The program is expected to achieve personnel elevate to different ranks in the company.

6. Market

The first annual IEA *Critical Minerals Market Review*, release new data, shows that record deployment of clean energy technologies is propelling huge demand for minerals such as lithium, tantalum, tantalite, cobalt, nickel and copper. From 2017 to 2022, the energy sector was the main factor behind a tripling in overall demand for lithium, a 70% jump in demand. The market for energy transition minerals reached USD 320 billion in 2022 and is set for continued rapid growth, moving it increasingly to center stage for the global mining industry.

In response, investment in critical mineral development rose 30% last year, following a 20% increase in 2021. Among the different minerals, lithium saw the sharpest increase in investment, a jump of 50%, followed by copper and nickel. The strong growth in spending by companies on developing mineral supplies supports the affordability and speed of clean energy transitions, which will be heavily influenced by the availability of critical minerals.

At this pivotal moment for clean energy transitions worldwide, Caputi Resources is encouraged by the rapid growth in the market for critical minerals, which are crucial for the world to achieve its energy and climate goals.

7. Investment & Re-Investment

Funds Deployment	Cost USD
Land lease and fees	16,000
Building at mine site	195,000
Plant & Heavy-Duty Machinery	329,146
Tools & Components	32,000
Office Equipment	43,450
Stand by Generator	25,000
Motor Vehicle	290,000
Pre-operational Cost	26,250
Working Capital	125,000
Total Investment Cost	1,081,846

7.1 Proposed Sources of Funds and Financing Arrangements US \$

The directors/shareholders shall be able to contribute USD 1,081,846 as their equity contribution from their own sources, they do not propose to borrow from any local financial institutions.

Description	Sponsor	Lending House	Total
Equity /Assets	956,846	-00-	956,846
Working Capital	125,000	-00-	125,000
Long Term Loan	00-	-00-	-00-
TOTAL	1,081,846	-00-	1,081,846

8. Liquidity

The project shall have sound liquidity. The first four years the project will be at the mobilization process. From Appendices 1 and 1B, Projected Cash flow statement shows that from year 5 up to year 10 period, the project shall make USD 311,199 cash excess every month and shall by the end of year 10 have an accumulated cash reserve of USD 1,655,596 million. This is despite investing in new heavy machinery, vehicles, and furniture and reserve generator in year 10.

9. Profitability

Although there shall be no production for the first four years, all expenses shall be covered and there will be no profit. Thereafter, the project shall take to uninterrupted profitability throughout from the fifth up year tenth projected period. From Appendices 2 and 2A, Projected Processing and Profit and Loss account, for the year 5 and the whole another 5 years projected period, the company shall make a steady annual profit of USD 174,148 per annum starting year 5. And this shall be for the rest of the five years, that by the end of year 10, the project shall have accumulated net profits of USD 696,236 after paying taxes totaling USD 298,387.

10. Return on Investment

The total investment cost of the project shall be USD 1.081,846 million. By the end of the year 10, the project shall have accumulated cash of USD 1.655,596 million, i.e. USD 573,750 more than the original investment cost. The project shall therefore recoup its investment cost in year 9.

11. Project Justification

11.1 Employment Creation

The project shall create direct employment to over a hundred people and indirect employment to several hundreds of others. The project will support livelihood of many Tanzanians and their families and guarantees future career development through in house trainings.

11.2 Economic Development

The multiplier effect of income flowing to many households will raise living standards generally and spur economic development in Kasulu in Kigoma Region and through trade with other regions will cause transfer of economic benefits and multiplier effect to other areas.

11.3 Environmentally Sustainable Mining

By-product wastes are capable of being recycled to produce other useful substances like sulphuric acid which minimizes toxic exhaustion during processing. The final waste shall be buried deep back in areas where mining is over to keep the environment clean.

According to other measures on climate change, every council is having a campaign on afforestation program, the company shall create budget on tree planting and other social activities in the area where business is taking place.