

**BUSINESS PLAN FOR CHANG METAL  
INTERNATIONAL MINING RESOURCES  
COMPANY TANZANIA LIMITED WITH  
RESPECT TO MINING BUSINESS AT  
KWAHEMU AREA, CHAMWINO  
DISTRICT,DODOMA CITY**

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## **1.0: EXECUTIVE SUMMARY**

The Business Plan for Chang Metal international Mining Resources Company Tanzania Limited addresses important business aspects of the company covering a period of three years which is 2022 through 2025. Besides exposing forecasted business activities, the Business plan is aimed among others at soliciting sound creditors to extend financial assistance in the form of credit line and government relief to help the company meet the rising and forecasted working capital requirements. The plan is divided into fifteen (15) main sections namely: Introduction part which comprises of Background of the company, ownership matters, and historical financial position and profitability. The second part deals with technical aspects of the business which details on business or/and site location, available infrastructures including economical and transport infrastructures, technology, operational plans, timing and phasing of the business and SWOT analysis with respect to the business.

The third part addresses justification for a government relief on fuel purchases and credit line facility with the bank while the fourth part is about marketing aspects which consist of main products, pricing and sales plan, and target markets. The legal environment section and personnel sections make the fifth and sixth part respectively of this business plan. The seventh part is Environmental aspects which addresses various issues of environment. The other parts include management and organization, Analysis of Projected financial statements and Economic and Social Aspects of the business.

Furthermore, the plan consists of Risk analysis and management, Collateral security with respect to the requested credit line facility, conclusion and finally is the Reference section.

## 2.0 INTRODUCTION

### 2.1 Background

Chang metal International Mining Resources Company Limited is a registered company under the Companies Act (Act # 12, 2002) with a Certificate of incorporation no 99975 on 11<sup>th</sup> June, 2013. It is also registered with Tanzania Revenue Authority (TRA) as a tax payer and assigned **TIN 121-110-822** effectively 17<sup>th</sup> June 2013. The company has its head office located at plot # 816, Block No.86 Old Bagamoyo Road, KFC-Mikocheni area in Dar Es Salaam, with mineral site located at Kwahemu area, Chamwino District -Dodoma City.

Chang Metal International Mining Resources Company Tanzania Limited is currently licensed to carry on the business of searching for, mining, digging, milling, processing, refining, transporting, using and or marketing of Nickel or Other Minerals found to occur in association with the Nickel. The copies of respective certificates and licenses are attached herewith and referred to as **Annexure A**.

The company acquired a prospecting dealer license no DL/020/DOM/2021/2022 from Ministry of Minerals for prospecting minerals at Kwahelu area. Immediately thereafter the company started exploration activities around Kwahelu area and consequently exploration efforts has identified sufficient Nickel minerals for a potential medium scale Nickel mine in Kwahelu area, Kongwa District, Dodoma region. Due to such remarkable discoveries of Nickel reserves, the company applied for mining license which is under process.

The granting of the licenses allows the company to carry on mining operations at Kwahelu village with a combined area of approximately 143 square km. It has been established that the Kwahelu Mine has an expected mine life of between 15 to 20 years. It is envisaged that exploration activities at Kwahelu area will continue subsequent to commencing of the mining operations at Kwahelu processing plant scheduled at end of June 2025.

In understanding of the need for smooth business operations, Chang Limited is considering the importance of having adequate cash resources as well as available government reliefs in order to provide adequate working capital in the event of financial shortfalls particularly expected to happen during initial years of operations. For that case the company has been triggered to seek financial assistance in the form of credit line from the preferred financial institutions or bank (the lender) as well as government available reliefs/incentives. The company's objectives are consistent with the agenda of poverty eradication which in turn is in line with the National Strategy for Growth and Poverty Eradication policy whose Kiswahili acronym is MKUKUTA. The company's objective among others is to provide employment opportunities to Tanzanians (about 3000 jobs will be created) and provide economic linkages to other

sectors of the economy. In view of the above policies, the Chang Company Limited is planning to commence Nickel mining operations at its mining sites located around Kwahemu area, in Konga District at end of the month of June 2023. In spite of the main objective of maximizing shareholders value, it is envisaged that the business will stand as a gateway to poverty eradication as it will provide a reliable source of income to the employees both skilled and casuals, contractors, and others and on the other hand the central and local governments will obtain income in the form of corporate income tax, local government levy, payroll taxes and value added taxes which will be paid by the company in the normal course of business. In addition, Changa Company Limited has made substantial contribution to the local community through construction of social and economic infrastructures including but not limited to construction of schools, hospitals, roads, and provision of clean water and donations to support communities in various ways. The company is committed to continue with its corporate social responsibility through many ways.

## **2.2: Ownership:**

The company is privately owned with 100% of its shares held by foreign nationals. The management of the business is vested with the board of directors. The board of directors consists of the following members with their shareholding percentages:

- a) Song Yong, LI 70%.
- b) Luo Min 30%

All the directors have substantial and extensive business experience which can be counted on in driving the company's business forward.

## **2.3: Financial position & Profitability:**

Since its incorporation, Chang Company Limited has achieved a remarkable success and reputation in the acquisition, exploration and development of high-class Nickel mine with potential for commercial value Nickel. The financial statements presented below cover a period of three years for which the company has been actively involved in Nickel exploration activities. For the period under review the company's total assets stood at TZS 5.4 billion comprised of mainly Exploration and evaluation assets and Property, Plant and equipments which combined constituted approximately 60% of the total assets base while Advances to Suppliers constituted approximately 36% of total assets. While the financial Statements for the year 2021 have not been audited the tentative financial statement reflects an approximately 72% growth in total assets which is consistent with the 92% increase in intercompany borrowings hence suggesting that the growth in assets have been financed by intercompany borrowings.

The following are the Audited Financial Statements of Chang Company Limited for Year 2020

M/S Changa Company Limited  
Statement of Comprehensive Income (12 months)  
For the Year ended

**Table 2.3.1**

		<b>31.12.2021 (Unaudited)</b>
		<b>TZS '000</b>
Revenue		-
General & Administration expenses		-
Operating Profit before financing cost		<b>300</b>
Finance Expenses		<b>162</b>
Profit before taxation		-
Taxation		-
Loss for the period		<b>462</b>
Other comprehensive income	-	
Total comprehensive loss for the period		<b>462</b>

Source: Unaudited Financial statement 2021- Chang Company Limited

M/S Chang Company Limited  
Statement of Financial Position as at 31<sup>st</sup> December,

**Table 2.3.2**

		<b>2021 (Unaudited)</b>
		<b>TZS '000</b>
<b>NON-CURRENT ASSETS</b>		
Exploration & evaluation assets		
Property, Plant, and Equipment		70,244
Property-Mine Resources		
<b>CURRENT ASSETS</b>		
Inventory		
Receivables		6,715
Cash & Cash equivalents		8,830
Tax account		2,030
<b>TOTAL ASSETS</b>		<b>87,821</b>
<b>EQUITY</b>		
<b>Equity attributable to equity holders</b>		
Share capital		205,000

Retained Earnings		(187,702)
<b>LIABILITIES</b>		
<b>Non Current Liabilities</b>		
Intercompany borrowings		
<b>Current Liabilities</b>		
Payables		70,523
<b>Total Liabilities</b>		<b>70,523</b>
<b>TOTAL EQUITIES &amp; LIABILITIES</b>		<b>87,821</b>

Source: Unaudited Financial Statements 2021-Chang Company Limited

### 3.0: TECHNICAL ASPECTS

#### 3.1: Business location

##### 3.1.1: Site Location:

The Chang Company Limited is in the process of setting a Nickel processing facility/plant around Kwahemu area in Kongwa District which is located at 50 km eastern of Kongwa town and approximately 120 km eastern of Dodoma. The property can be accessed through Dar-Mwanza highway road by public transport and charter flights from Dar es salaam directly to Dodoma, or through Dodoma-Kongwa – Turiani tarmac road then through earth road heading east to Kwahemu villages some 50 km from town of Kongwa town.

#### LICENSE AREA GEOGRAPHICAL LOCATIONS

PI 0695DOM/2018

<b>Latitude</b>	<b>Longitude</b>
01 deg 48 min, 35 sec	33 deg 37 min 15 sec
01 deg 49 min 28 sec	33 deg 37 min 15 sec
01 deg 49 min 28 sec	33 deg 37 min 30 sec
01 deg 50 min 10 sec	33 deg 37 min 30sec
01 deg 50 min 10 sec	33 deg 33min 26 sec
01 deg 48 min 35 sec	33 deg 33 min 36 sec

(Put geographical positions here)

##### 3.1.2: Available infrastructures

The site comprises of one residential dormitory for employees and other site residents, a kitchen, and cafeteria buildings. In addition, well equipped geological department offices are available in the site. There are two generators 500 & 400 KVA diesel generator which supplies electricity to the processing plant, buildings and to the security system. The latter is laden with cameras installed in the production line, site borders and other areas of the site. On the other hand, equipment include among others; excavators, caterpillar, bulldozers, graders and loaders. Others include water trucks, dump trucks, water boozers motor vehicles and a number of machineries

The above facilities, equipments and machineries are purchased locally and/or imported from overseas. Locally available materials are purchased and used for construction of buildings while those equipments that are not readily available in the local market (within the country) the company imports them from overseas markets.

Besides machineries and motor vehicles the company has built a water pipeline which pumps and transport water from the water source to the processing plant. The water

drawn from the source is ultimately stored in fresh water pumping and storage facilities/pool located in the site which subsequently supplies water for use in mining operations. There is also a warehouse built for storage of Nickel concentrates. The warehouse is reinforced with strong and enhanced security system to safeguard Nickel concentrates. In addition to the existing above facilities the following supporting Operations facilities will be constructed in the next two years namely;

- Office administration block
- Analytical laboratory for process flow sheet monitoring and mine sampling
- Technical services infrastructure dealing with grade control, short term and long term mine planning and safety health and environmental matters (SHE)
- Engineering (repair and maintenance) workshops
- Tailings dam facilities operation
- Staff residential units and recreational areas

To ensure company assets are safe guarded, Chang Company Limited has put in place a strong security system which consists of foreign company security guard, a local security company, Security guard, Maasai guards and pump station watchmen. The latter are dedicated to guard water pump stations along the pipe line. The company will continue to reinforce security measures in line with expansion of mining activities.

### ***3.1.3: Economical and Transport Infrastructure***

Other available economic and transport infrastructures include roads, communication network and energy. Roads are easily passable, during the dry season while some are impassable in rainy season. Kongwa district has a total of 875 km of earth roads and their condition is relatively good and passable all year round. They are well maintained and rehabilitated. The mining area is served by three mobile phone companies namely Vodacom, Tigo and Airtel.

Furthermore, the nearby Kongwa town serves as district center for financial institutions which serve people around the district and nearby areas. The financial institutions available include NMB, NBC, CRDB and Equity Bank. For the case of energy availability electricity from the national grid line provides source of electricity to Kongwa district and nearby areas close to the mining area.

### **3.2: Technology**

The business is planning to have a capacity to process an average of 3000 tons of Nickel ore per day and will be planned to expand the capacity to around 4000 tons of Nickel ore per day in the next two years of operations. The company employs open pit method of production to mine Nickel ores and the Gravity separation processing technology to extract Nickel from Nickel ores. The company currently owns two 30 tons/hour capacity separators and one is in reserve and expected to be installed at a

later stage after commencement of the mining operations. Essentially the technology can be described as hereunder:

The Nickel ores are mined from the open pits and transported to the processing plant. There after the waste free ore is crushed by means of heavy crushing equipments. After the ore are crushed the crushed materials are taken for milling processing in the ball mill where they are grounded into smaller particles followed by the gravity separator and lastly refined further by using an ITOMAK machine which is a Russian made centrifuge machine. The smallest particles of extracted Nickel are called Nickel concentrates. The ITOMAK can extract 75% of Nickel from the centrifugal concentrators. The remaining 25% is kept in the tails for further processing.

### **3.2.1: Operational Plan**

Based on the planned current capacity of the processing plant, Mineral Company Limited plans to produce 1,095,000 tons of Nickel ore per annum. It is expected that the production will increase by 20% in the second year of operations which will make possible production of 1,314,000 tons of Nickel ore. Similarly, the production is envisaged to be increased by 20% in the third year of operation culminating to production of a total of 1,576,800 tons of Nickel ore per year.

Production operations will include routine unit operations for the open pit mining method which include

Drilling and blasting of rock for both waste and ore. A surface drill rig will be used to drill blast holes using a rig mounted crawler drill model ROC D3, Atlas Copco. The following will be major production operations;

- ***Loading and haulage of waste and ore.*** Excavators will be used to undertake loading of the broken materials in the open pit benches while wheel loaders will be used to complement the loading of the loose material on easy digging conditions. When ore has been mined at the open pit it will be transported to the ore stockpile near the crushing plant. At the crusher either direct dumping by the truck or feeding with a wheel loader will be undertaken to load the bunker with materials. The apron feeder underneath the bunker will feed the crusher evenly. To reduce dust at the crusher water sprays will be installed to minimize dust generation resulting from the crushing operation.
- **The crushed ore will be conveyed to the two parallel twin ball mills**, where the -30 mm material will be grounded to the ore liberation sizes. The grounded materials will be slurred to the required slurry density of between 35% - 50% by weight on agitation tanks and sent to a series of pumps. These pumps will provide feed to the 1<sup>st</sup> stage concentration tables with model SKO-15 for Nickel concentration. The tailings developed after gravitation through the concentration tables are directed by the pumps to the hydro clones. The

underflow is directed to the Itomak gravitation engine (2<sup>nd</sup> Stage Concentration) and overflow is sent to the tailings dump.

- **Concentrates from Itomak centrifugal engine (2<sup>nd</sup> stage concentration)** is mixed with those coming from the shaking tables (gravitation tables concentrates) and stored as final Nickel concentrates.
- **Waste dumping in waste rock dumps and ore stockpiling near the processing plant.** Bulldozers will often be used in leveling waste dumps to a gentle sloping angle that will be flatter than the angle of repose to allow planting of vegetation on these waste dumps. This will prevent silting and erosion of the exposed loose material while gradual reclamation works on the dumps continues. The mining operation will also utilize several rear dump trucks for transportation of the ore and waste. Several dump trucks with capacities ranging from 20 to 30 tonnes will be purchased to manage the ore and waste haulage in the Seka open pits.
- **Processing of the ore to obtain Nickel using Ore beneficiation method.** This is a process by which valuable constituents of an ore are concentrated by means of a physical separation process. As one of the initial steps of extractive metallurgy, the main purpose is to prepare the ore prior to downstream purification process. The processes include sample preparation, comminuting, size classification, and concentration. Key parameters for the design of Nickel beneficiation plant include low capital cost, minimal environmental impacts and maximum returns to investors
- **Crushing and Grinding:** This incorporates grinding and crushing of the ore whose first stage is the reduction of the ore particles down to a size given liberation size of the Nickel /mineral particle prior to gravity concentration stage
- **Gravity Concentration:** This is recovery of Nickel by gravity. It is the most effective and environmentally friendly method available and by far the oldest method

### ***Principal Raw material and Quality Control***

The principal raw material in production is Nickel ore which is processed to generate the final product which is Nickel concentrates. The Chang Company Nickel Limited ensures quality production through strict control measures. The company makes use of qualified Geologists who check quality of ore in the mining in addition to the Process and quality engineers who systematically check the processing of the Nickel ore in the processing plant.

### **3.2.2: Timing and Phasing of Business**

The Chang Company Limited is planning to commence the mining operations at Kwahemu sites at end of June 2023. The company is currently completing final touches on the processing facility to be ready for actual production at end of June 2023.

#### *Existence of nearby similar mining facilities*

There is no nearby similar mining plant. However, there are small scales mining sites operated by small scale miners who operate near the mining area.

### **3.3: SWOT ANALYSIS**

Chang Company Limited has identified strengths, weaknesses, Opportunities and threats/challenges that are at its disposal in respect of the proposed projects as follows;

#### **3.3.1: Strengths**

The company boasts of the following strength namely:

- Possession of a well trained, experienced, industrious and committed management team, with a track record of success.
- Possession of committed shareholders with strong financial position to support the company in the event of financial shortfalls.
- The company has a track record of good financial position. This is supported by good banking history with its bankers as evidenced by bank records.

#### **3.3.2: Weaknesses**

- The company lacks sufficient financial resources to meet the working capital requirements for the business to keep with the new phase of mining operations scheduled to commence at beginning July 2023.

#### **3.3.3: Opportunities**

- There is an opportunity for increased demand in future for Nickel following economic growth currently experienced worldwide.
- With Nickel prices dropping in the world commodity market, it is expected that small scale miners will not be able to withstand financial losses that will be associated with dwindling incomes. As a result, it is expected most of them

will close down paving a room for big miners such as Minera Limited to take up relatively cheaply the skilled labour expected to be laid off by defunct small miners. Employment of such relatively cheaper skilled labour will help boost profitability level of bigger miners such as Chang Company Limited.

#### **3.3.4: Challenges/Threats:**

- Persistent inflation hitting the country's economy may affect prices of local inputs and other imported materials, coupled with this phenomenon is depreciation of Tanzania Shillings against major foreign currencies which leads to increased costs with respect to those inputs which are imported thereby raising local prices of the inputs and consequently the cost of production is increased.
- Increased fuel prices influenced by unfavorable world market oil prices always impact negatively on cost of purchasing fuel in the country. Since the company uses a sizable amount of fuel to run its diesel generators which supply electricity to the mining site, the cost of such input has a lot of bearing to the cost of mining operations. The company is in the process of negotiation with the government to be exempted from duties and taxes for its oil inputs which is expected to be 5,853,600 liters per annum

#### **4.0: JUSTIFICATION FOR FUEL EXEMPTION AND OTHER EQUIPMENT AND MACHINERY**

Chang Company Limited is seeking a fuel tax relief-mainly diesel arrangement with Ministry of Finance amounting to 5,853,600 liters annually worth TZS 12,292,560,000 and relief on heavy equipment and machinery to enable the company import and liquidate its current liabilities in the course of mining operations for a period of three years. It therefore deems that the timely availability of the exemption line/facility will help address the working capital deficits in order to ensure smooth operations of the mining business as described in the Operational Plan subsection of the Technical Aspects section. It is envisaged that the relief line facility will avail extra funds to the company which in turn will be utilized as follows;

- To provide cash that will help defray the costs of mining operating (production) activities as well as administrative costs necessary for smooth carrying out of the business.

#### **5.0: MARKETING ASPECTS**

##### **5.1: Main products**

The main product of Changa Company Limited is Nickel mineral. The Nickel is produced out of Nickel ores and on average one ton of Nickel ore produces 3.4 grams of Nickel.

## 5.2: Pricing and Sales Plan

The following table illustrates production, and revenue projections that are based on projected Nickel sales volume and prices in the world markets in the first year of operation. The prices represent average market price prevailing in the world market based on a recent market survey carried out by Chang Company Limited in May 2022. Due to the fluctuating nature of Nickel prices at the world market, the company has applied the average price at the world market to project revenue for the purpose of this business plan

### REVENUE PROJECTIONS FOR INITIAL 12 MONTHS BASED ON PROJECTED SALES VOLUME

Month	Tons of Nickel ore to be produced	Units of Nickel to be produced per ton of ore	Units of Nickel to be sold ( in gm)	Average Price per gm (in USD)	Sales Value (in USD)
Jul-23	20,000	3.4 gm	68,000	45	3.060,000
Aug-23	20000	3.4 gm	68,000	45	3.060,000
Sep-23	20,000	3.4 gm	68,000	45	3.060,000
Oct-23	20,000	3.4 gm	68,000	45	3.060,000
Nov-23	20,000	3.4 gm	68,000	45	3.060,000
Dec-23	20,000	3.4 gm	68,000	45	3.060,000
Jan-24	20,000	3.4 gm	68,000	45	3.060,000
Feb-24	20,000	3.4 gm	68,000	45	3.060,000
Mar-24	20,000	3.4 gm	68,000	45	3.060,000
Apr-24	20,000	3.4 gm	68,000	45	3.060,000
May-24	20,000	3.4 gm	68,000	45	3.060,000
Jun-24	20,000	3.4 gm	68,000	45	3.060,000
			<b>816,000</b>		<b>36,720,000</b>

Source: Chang Company Limited production & marketing plan May 2022

In understanding of the volatility nature of the world market prices of Nickel, selling prices have been projected to remain same (USD 45 per gm) throughout the planning period (refer to the financial projections annexed hereto as Annexure D)

## 5.3 MARKETING ACTIVITIES

### *Target Markets*

Business Plan-Chang Metal International Mining Resources Company Tanzania Limited 2022

Chang Company Limited will trade Nickel at international market on daily basis. It will export Nickel concentrates from its mine site to its head that will be established outside the country. It is from the head Office that the Nickel will be sold to buyers in the international market and the cash proceeds will be remitted to the company by the head Office. A recent market survey carried out by Chang Company Limited indicates the company has an unlimited market share in Nickel business and does not perceive any competition in the market that may affect its financial performance significantly since it will operate in the world market with numerous buyers. The only concern is a declining trend in Nickel price currently experienced in the world market which may only reduce the profit margins without impacting loss to the business.

## 6.0: Legal environment

Since Chang Company Limited has a valid registration number, TIN, VRN, valid business license (hereto annexed as Annexure A) and so far, there are no registered complaints from the public. For that case it is beyond reasonable doubts that the company is in good standing with all relevant authorities and will strive to be in good standing with all relevant regulatory authorities by observing and keeping vigil on all applicable laws and regulations within and without the country.

## 7.0: Personnel

A personnel profile of the Chang Company Limited will consist of the following staff;

Department	Head Count		Expatriates	Type of Labor
	Existing	Planned		
Head Office -Dar	5	8		Geologist, Reception, Procurement Officer, Accountant, HR Manager, lawyer, etc
Administration	1	10	2	economist, budget specialists, HR officers, procurement etc
Open Pit	1	14	4	Engineer, Operators,
Production	3	42	4	Millers, Crushers, Operators
Pre-Production		20		Operators, feeders,
Energy Supply		10	1	Engineer, Feeders, electricians,
Mechanical		12		welders, engineers
Geology	7	7	2	Geologists, technician
Marksheyder	1	1		Mining Surveyor
Laboratory	1	10	1	Officer, technician
Security	3	6	3	Officers
Cafeteria	6	8	1	Cooks, cleaners

Warehouse	2	4		Officer, Clerk
Total	30	152	17	

The above personnel profile excludes consultants who include among others geologists, mining surveyors and mining engineers as well as security contractors and who have separate agreements with the company. In addition, the profile also excludes existing members of the management team. The company will continue to hire available consultants locally and from overseas, service providers/contractors and casuals as need arises. However, a priority will be given to local/Country residents.

## **8.0: ENVIRONMENTAL ASPECTS**

According to the environmental impact statement report dated December 2012 the following were indentified to be existing environmental baseline conditions

Little seasonal variation in forest area but the eastern sections average only 75-100 mm of rain. Rainfall starts in December every year and stops in May. Kwahemu receives a general rainfall of 900 mm per year which falls between six and seven months. Heavy rains fall in April and May and lesser in November and December. It is usually coldest and driest from May to October.

Wind speed at Kwahemu which is the closest station from the mineral deposit is at maximum of 61.5 knots with a mean of 7.32 knots over a 24 hr period and minimum wind speed is 0 knots.

Dust concentration around the area of Kwahemu (prospective mining license area) is below the max permissible concentration with respect to Tanzania Standards for mining industries. (EIA Repost Aug 2011)

### **Agro-ecological zones**

The two major agro-ecological zones covering the District of Kongwa i.e Lowlands (altitude of 1000 to 1200 meters above sea) level occupy about 0-15 km from Makutupora and midlands. The zone receives short and long rains and is characterized by sandy-to-sandy loam soils. The rains are unreliable with an average of 800 mm per annum. Farming and livestock rearing are the main activities of the people around the area.

### **Flora**

Different types of vegetation species are found around the area namely bushed grassland and degraded woodland at the top of hills and acacia in the lowlands it is rare to meet natural vegetation (thickets) since covered by farms for cash or food crops such as maize, cotton, sisal, bananas, tobacco sugarcane, sorghum, millet and root crops (cassava) .. 15 different types of species can be found including acacia

species and the combretum species to mention a few. Also substantial species of *Hyperthella rufa*, and *Sporobolus spicatus*. Other types of plant include woody vegetation of savanna woodland species and herbaceous vegetation.

## **Fauna**

The removal of *Haplochromis* however may have contributed to the increasing frequency of alga; blooms which in turn may be responsible for mass fish kills. Mammals found in the area or nearby areas to the mining plant include fox, hyenas, swala, blue monkey, bush hare and rats. Others include cattle, goats. No known endangered, threatened or endemic animal species in the project area. A variety of birds, snakes, lizards, butterflies are also found.

## **Threatened Biodiversity**

The loss of habitat in the area is largely linked to growing human population putting pressure to agricultural land to grow food grazing land for livestock and engagement in mining activities as alternative source of income. These then cause fewer breeding sites and less food and water for wild life. However, the study indicated that there are no endangered animals.

Furthermore, the following are potential environmental impacts associated with the mining activities that will be carried out by Chang Metal International Mining Resources Limited

*Air pollution (dust, noise, noxious gases) from moving equipment and machinery:*

## **Mitigation Measures**

The company always conducts adequate training and constant follow up on the use of personal protective equipments (PPE) to workers by emphasizing the use and provision of dust masks and ear plugs to employees and ensuring enforcement of strict safety code. The company ensures and will continue to ensure that equipment which emit dusts and noxious gases are fitted with cyclonic dust removal systems, similarly all access earth roads to the mines are watered to keep dust levels to a minimum. Incorporating current industry standards noise reduction systems, noise shielding e. ore stockpiles between noise –generating equipment (e.g crushing and milling circuit) and nearby dwellings. It is within the plan of Chang Company Limited to ensure continued observance and enforcement of strict safety codes and provision of relevant trainings with regard to air pollution.

**Draw down of the water table in the area:**

## **Mitigation Measures**

To mitigate pressures on water supply around the area the company has laid a 6 km pipe line from Lake Victoria for mining operations to reduce drawing down of water table in the area.

**On Pollution of surface and ground water:**

**Mitigation Measures**

Laboratory chemicals and other hazardous materials are securely stored and employees training and protective clothing and equipment are provided in order to mitigate surface and water pollution

**Regarding hydro carbons, leaching of hazardous chemicals:**

**Mitigation Measures**

Tailings and process water spillage is pumped to tailing storage ponds. Positioning of the distribution pipeline along the tailing storage embankment so as to ensure that any spillage from either the spigots or the pipeline drains into the tailing's storage. The pipelines between the processing plant and the tailings storage are regularly inspected for signs of leakages or spillage. Recording and investigation of any fauna fatalities within the tailing's storage is done. There is a Tailings management Contingency Plan detailing procedures to be undertaken in the event of: a failure of tailings pipelines or return water pipeline, failure of the main embankment and the need to release water from the tailing storage under extreme rainfall conditions.

**Increased sediments load due to erosion**

**Mitigation Measures**

In order to reduce sediments loads caused by erosion, sedimentation controls have been constructed downstream of mines and are maintained constantly all year round. The company will continue to maintain the sedimentation control in line with increased mining operations.

**Destruction of property from vibrations (rock blasting).**

**Mitigation Measures**

The company has put in place a program that provides education to local communities about the blasting process, it has also in place procedures to collect views about blasting from members of the community. Blasting is carried out only during daylight hours. Blasting schedule is such that one or two times is set for scheduled blasts at the same time each day though occasional blasts take place. Further measure is such as an audible warning is given before any blast occurs, continuous monitoring of vibrations and wall displacement to the pit to ensure that the loose rocks or slopes are fixed to reduce the chances of catastrophic failures of the pit walls or the shafts/decline. Other measures include efficient use of safety facilities such as communication system managed through radio calls or any form of

communication which is fast, proper logbook of blasting activities and results which is kept for purpose of internal and external auditing.

In addition to the above mitigation measures, the company compiles a photographic record of the pre-existing structural condition of dwellings in the vicinity of the pits or shafts/decline. Holes are designed with sufficient burden so that flyrock and airblast are minimized at the face of the blast and the quantity of explosives loaded into a hole are limited so that the flyrock generation on the top of a blast is minimized. Also, the hole above the explosive column is filled with an inert material to reduce air blast. The company will continue to observe and improve mitigation measures to ensure a zero loss of properties due to rock blasts around the mining areas during the mining operations phase expected to commence at end of June 2023.

### **Health and Safety hazards on workers Mitigation Measures**

To ensure safety and health of its workers, Chang Company Limited has prepared safety procedures manual for transportation, handling and storage of hazardous material. It also does conduct trainings in safe work practices for all personnel associated with handling and storage of hazardous materials, Access to the mine site is restricted to mine personnel and authorized visitors. Use of protective clothing and equipments by employees when handling hazardous materials or working in production and maintenance areas. Incidence response procedures are developed to identify report and respond to environmental incidents and near misses. Further, various personnel trainings in identifying, reporting and responding to environmental incidents are regularly carried out. The Chang Company Limited will continue to practice same measures to keep in line with mining operations.

## **9.0: MANAGEMENT AND ORGANIZATION**

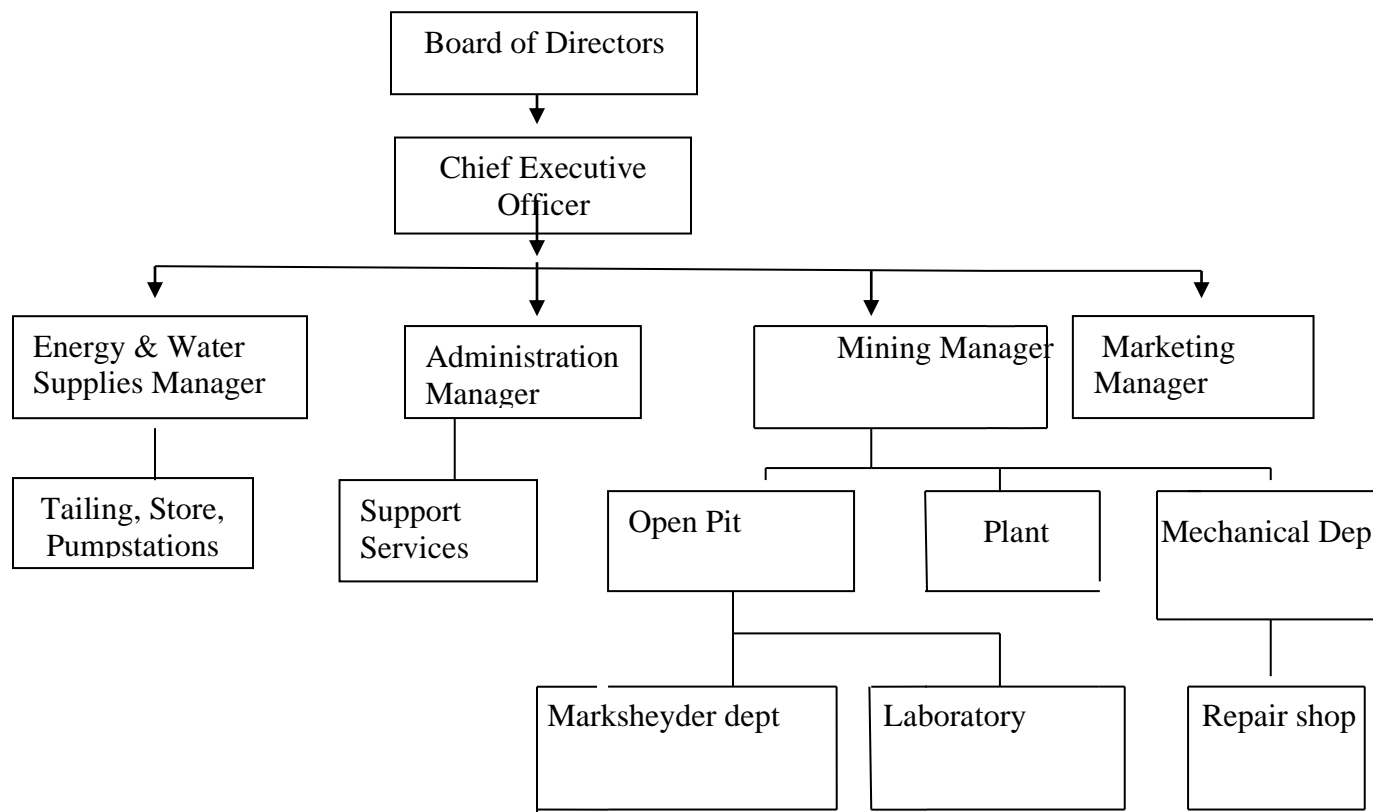
### **9.1: Management**

The management of the company is vested with the board of directors. The Chief Executive Officer serves as the executive officer in charge of daily business operations and reports to the Board of directors. The Key management team consists of the following members:

- (a) Chief Executive Officer, Mr. Song Yong L.I
- (b) Chief Financial Officer, Mr. Clever S Mlay
- © Mining Manager, Luo Min
- (d) Administrative Manager, Mr Harutyun Abrahamyan
- (e) Chief Geologist, Mr Tumbo Isuto.

## 9.2: Organization Chart

The following is the organization chart of the Chang Metal International Mining Resourced Company Limited



### Organizational Policies

The company has put in place internal controls and policies such as accounting policies, procurement policies, human resource policies and other organizational policies in order to ensure good corporate governance and effective business controls. In supporting above objectives, the company has developed accounting manuals, and employee hand books among others and the company is committed to develop more policy manuals in immediate future. All employees are constantly reminded to access and familiarize themselves with various organizational policies.

## **10.0: ANALYSIS OF PROJECTED FINANCIAL STATEMENTS**

The purpose of the analysis of the projected financial statements is to compute financial ratios, perform trend analysis and other yardsticks that help determine whether the project/business is commercially/financially and economically viable in terms of liquidity, profitability, solvency and assets utilization.

### **10.1: KEY ASSUMPTIONS OF THE FINANCIAL PLAN**

- The plan horizon is three years, (Year 2022/2023 -2025/2026) with month One to Month Twelve representing month July 2023- June 2024 (Year One), July 2024-June 2025 (Year Two) and July 2025 –June 2026 (Year Three)
- Depreciation and of fixed assets are computed on straight line basis using appropriate economic useful lives while Property-Mine Resources are amortized for remaining 9 years of the mining license life.
- Number of production days in a year is 300 which is equivalent to 25 days in a month and have been applied in computing production costs in other case 365 days a year have been applied
- Annual growth of operating expenses and salaries and wages is 4% (at USD currency) in line with inflation rate for Non-Food items.
- Selling price per gm of Nickel is projected at USD 45 throughout the planning horizon i.e Year One through Year Three.
- Volume of production in the first year is 240,000 tons of Nickel or equivalent to 20,000 tons per month yielding 68,000 gm of Nickel per month at 3.4 gm per 1 ton of Nickel ore. This is equivalent to 816,000 gm of Nickel per year.
- Nickel Production is assumed to grow at 20% per annum and all units produced will be sold
- Currency Exchange rate is USD 1/TZS 2299
- Corporate tax is 30% of profit before tax, NSSF expense is 10% of gross earnings, and SDL is 4% of gross earnings
- Pre operating expenses USD 2.031 Million are capitalized and amortized for three years which covers audited operating expenses for year 2011, operating expenses for year 2012 (unaudited) and those from extracts of management accounts for first quarter of year 2013 plus reasonable estimates for the second quarter 2013.

- Owner's equity consists of cash, USD 6,627,654 (76.8% of capital) and Credit Line USD 2 Million (23.2% of capital)
- A total of cash USD 2.1 Million is projected to cover working capital requirements in the initial periods of the business of which USD 2Million is projected to be financed from the bank credit line and USD 100,000 from equity of the company. The amount represents beginning cash in the cash flow statements.
- Production Cost is assumed to be USD 17.63 and is determined using process costing method whereby costs are accumulated by departments or stages at which production takes place and summed up for all departments and finally divided by number of units produced as detailed in the table below

**Analysis of Nickel Extraction Cost (based on 240,000 tons of Nickel ore per year)**

<b>Cost Center</b>	<b>Nature of cost</b>	<b>Cost (USD)</b>
Open Pit	Transport, Consultancy	3,441,867
Plant/Production	Plant Cost	1,832,324
Laboratory	Laboratory Cost	280,396
Energy & water supply	Energy Cost	4,384,380
Energy & water Supply	Water Supply	1,235,520
Mechanical	Mechanical costs	83,119
Transport	Transport/Haulage	36,636
Warehouse	Storage & Security cost	670,000
Construction	Construction & Equipments	800,000
Geology	Geological services	1,230,000
Administration	Indirect costs	391,500
<b>Total cost</b>		<b>14,385,741</b>
Number of tons of ore		240,000
<b>Cost of 1 ton of ore</b>		<b>59.94</b>

Number of gm of Nickel per 1 ton of ore		3.4
<b>Cost of 1 gm of Nickel</b>		<b>17.63</b>
Source: Chang Limited 2022		

- Royalties are charged at 4% of sales value of Nickel hence regarded as cost of sale
- Cost of sale includes production costs plus royalties. Annual increase of production cost is 4% in line with inflation rate
- Property and Liability Insurance has been projected at 1% of assets cost while repairs and maintenance for machineries and equipments have been projected at 0.5% of assets cost
- The scale of mining operations has been projected three-fold relative to the existing current scale and consequently operating costs have been projected among others in line with the planned scope of operations
- Intercompany loans were received from company shareholders who additionally committed to continue providing financial assistance in the event of financial shortfall. The loans are not repayable within the business planning horizon hence have been regarded as supplementary capital or long-term financing (sub ordinate debt) which is regarded as equity of the company
- The assumption holds that no accounts receivable or accounts payable as they are insignificant.
- No dividend is distributed within the planning horizon (three years)
- The amount of credit line is assumed to be available on commencement of mining operations
- Investment costs consists of Land USD 2,527, Plant, Machinery and Equipments USD 1,383,446, Buildings and Structures USD 157,916, Motor Vehicles USD 514,329, Computer, electronics and Accessories USD 74,392, Earth Moving equipments USD 1,637,760, Furniture and fittings USD 8,422, Cash USD 2,100,000 and pre operating costs amounting to USD 568,799.00 totaling USD 6,447,591.00
- Assumption holds that no credit sales i.e all sales are for cash.

- No cash is distributed for purposes other than fixed costs, direct costs, salaries & wages and credit line repayment. The residual cash over above disbursements is retained throughout the planning horizon i.e Year One through Year three.
- Credit Line Repayment period is 2 years at interest rate of 8% consequently leading to a monthly payment of USD 90,455
- The business is anticipated to begin at beginning of July 2023.

## **10.2: FINANCIAL ANALYSIS OF PROJECTED FINANCIAL STATEMENTS**

The financial plan (Annexed hereto as **Annexure D**) indicates that in Year 2022/2023 the business will earn a profit amounting to **USD 12.25 Million** attributable to impressive turnover and controlled expenditures.

In Year Two (2024/2025), the Net Profit is projected to grow by 13% over that of previous year to **USD 13.87 Million**. This impressive growth is attributable to increased turnover by 20% over that of previous year 2023/2024. Increased turnover is in turn due to increased Nickel output.

Furthermore, the financial plan forecasts the net profit in Year Three (2025/2026) to increase by 23% over that of Year 2024/2025 to **USD 17.03 Million** due to increased turnover volume by 20%. The increased turnover is in turn due to increased output by 20%.

The Net Profit as percent of sales seems reasonable as it shows an upward trend rising from approximately 31% in Year 2023/2024 to 32% in Year 2025/2026 suggesting gradual increase in the profitability of the business. On the other hand, fixed operating costs depicts declining trend from 4.1% in year one, slightly decreasing to 3.5% in year two and finally to 3% in Year three. The declining trend of fixed costs as percent of turnover/sale is attributable to disproportional increase in turnover relative to fixed operating costs. Similarly, Salaries and Wages as percent of sales shows a declining trend from 3.8% in year one to 2.8% in year three.

The financial projection indicates a health cash position indicating a balance of USD 13.9 Million in Year 2013/2014, USD 28.2 Million in Year 2024/2025 and USD 46.8 Million in Year 2025/2026 which is a very good liquidity position. The above trend is attributable to increased retained cash profits.

The projected Return on Assets in Year 2023/2024 is 59%, descending to 44% in Year 2024/2025 and finally to 35% in Year 2025/2026 attributable to disproportionate growth of total assets relative to net profits which in turn is due to increased cash position. The above trend seems reasonable and suggests the business return on investment is reasonable and impressive. Similarly the projected Return on Equity indicates a declining trend from 63% in year 2023/2024 to 35% in year 2025/2026 attributable to disproportionate increase in equity relative to net profits which in turn is due to increased retained cash profits.

### **Net Present Value**

The Net Present Value of the business for three years indicates a Discounted Net Present Value of USD 65,560,581 while the Undiscounted Net Present value stands at USD 80,257,292. The above performance suggests an impressive and reasonable position.

### **Break Even Analysis**

The financial analysis reveals the company will break even at a level of 149, 293 gram of Nickel which is equivalent to 43,910 tons of Nickel ore processed. On the other the investment evaluation and financial analysis indicates that the business has a Payback period (undiscounted) of approximately One year and 4 months.

## **11.0: ECONOMIC AND SOCIAL ASPECTS**

### **11.1: Economic and Social Benefits**

The following are social and economic benefits that the business has and will contribute to the country and the surrounding communities.

- Chang Metal International Mining Resourced Company Limited has made great strides in the area of Corporate Social Responsibilities as evidenced by a number of agreements which have been entered between the company and the surrounding communities. Examples include the agreement with Seka village in which the company will provide materials for repair of the school village. The company in addition normally makes monthly donations to surrounding communities ranging between TZS 3 million and TZS 4 million which are spent for paying school and college fees for needy children of the nearby villages
- The mine provides water supplies to nearby villages apart from creating a significant number of casual and semi skilled jobs to the qualified nearby village dwellers. Of more important as well is the number of professional and skilled jobs that has been created and will continue to be created by the company to Tanzanians at large.

The company has an arrangement whereby it procures from petty traders of nearby villages a range of agricultural and livestock products such as vegetables, fruits, cows, goats and other related goods. For this case the business provides a ready market to petty traders hence providing a reliable source of income for them and their families.

- The central and local government benefit out of taxes paid by the business in the form of payroll taxes, value added taxes and town levies which find their ways to the central government and local governments' coffers respectively. The central and local government will continue to enjoy even a bigger chunk of the taxes during the mining operations phase.
- The business will generate foreign currency through export of Nickel which in turn will improve the country's balance of payment.

## **11.2: Social and Economic Impacts and the mitigation measures**

Expansion of mining sector for both small- and large-scale company is a pulling factor regarding migration of people into the District of Kongwa, Increase in birth rates that creates an increase of the population size in the district for each passing year. Of recent there has been an influx of a big number of people migrating into the Kongwa district in search of self employment in artisanal mining activities or employment in the newly established Nickel mining ventures. This will lead to highly populated settlements without sufficient social services to cater for the growing population.

The following are particular Social and Economic Impacts that are expected to be derived from the existence of mining operations around Kwahemu area Kongwa-District as a whole. In addition, the mitigation measures of respective impacts are outlined alongside.

***Increased pressure on resources on water, forest, and land:*****Mitigation measures**

To mitigate pressures on water boreholes the company has laid a 6 km pipeline from Lake Victoria to tap water and convey it to the mining site as well to provide water supply to the neighboring communities. Similarly, the company is planning to engaged in vegetation reclamation program in order to reduce depletion of forests and degradation of land resources

***Insecurity of the areas from incoming job seekers/new migrants:*****Mitigation Measures**

To counter insecurity situation, security has been installed using CCTV Cameras, and additionally a number of security companies have been hired. Furthermore, the company has hired Maasai guards and pump station watchmen as community-based security groups. The latter are charged with manning security with respect to water pump stations. Likewise, the company constantly provides social services such as provision of school construction materials, repairs and maintenance of earth roads, participation in construction of medical clinics and provision of clean water to the villages which are located along the water pipeline, hospitals. On top of the above services the company cooperates with Police force as evidenced by the fact that it has contributed to establishment of a nearby police post. To further reinforce security the company has a policy of issuing identity cards to employed workers/casuals in order to improve security around and in the mine site. The company will continue to strive to play its corporate social responsibility role as resources will permit.

***Displacement/Resettlement:*****Mitigation Measures**

Displaced people have been relocated and fairly compensated for their properties through a Resettlement Action Plan. The company plans to adhere to the same principles in future in the event where resettlement and displacement of local people will be inevitable.

***General Community well-being:***

The company honors all signed agreements with the local community in regard to community support in health, education, and poverty alleviation, it employs qualified local people, and provide training. Regularly it meets with local government authorities to discuss project developments, community issues and any complaints thereby reducing antagonistic relationship with local people. It also implements Occupational Safety and Health (OSHA) program, minimizes presence of waterborne diseases vectors. In general, the company makes substantial donations to various

charitable organizations and will continue to do so for the period of its existence in the area.

***Security of the Mine properties:***

**Mitigation Measures**

To mitigate threat of insecurity to the Mine properties Chang Metal International Mining Company Limited implements training programs on security issues, employs qualified locals, involve local security guards and motivate them, discourage unauthorized entry into the mining area, modern security systems CCTV is installed, a qualified security company has been hired which can handle world class crimes. Security monitoring system is in place which screens out incompetent and unfaithful security guards. In addition, an insurance cover with reputable company to hedge against possible thefts of the valuable mining assets is in place. The company will continue to implement and security measures to safeguard mine properties.

***Increased transmission of diseases such as Sexually Transmitted Infections, and HIV infection:***

**Mitigation Measures**

The company is regularly engaged in provision of training and self awareness campaigns against HIV AIDS to company workers and the neighboring communities. The company observes gender balanced employment to empower women to reduce their dependency on males. It is planned that the company will continue to sensitize the employees and local communities on HIV/AIDS mitigation measures as well as observing gender balanced employment policy.

***Unwanted pregnancies due to increased exposure:***

**Mitigation Measures**

The company sources required available supplies for instance beef, vegetables, chicken, fruits etc in the villages to create more secondary activities that creates income to women and men in the areas.

**12.0: RISK ANALYSIS AND MANAGEMENT**

The foreseen major risk is related to the frequent fluctuation of the market prices influenced by the world market prices because Nickel is sold at world market. However, it is envisaged that the price fluctuations may only decrease profit margin without occasioning business loss. Other than the above market risk, the company does not perceive any significant risks associated with technology, operations, human factors, foreign exchange, credit, liquidity and political factors.

**13.0: COLLATERAL SECURITY FOR CREDIT LINE FACILITY**

- Chang Metal International Mining Limited is planning to secure the requested credit line amounting to **USD 2,000,000 (USD Two Million)** by a guarantee of its full assets (tangible and intangible assets) including its Mining License. The company currently owns two primary mining license No 0695DOM and 0694/DOM granted by the government of the United Republic of Tanzania for the right to mine Nickel at around Kwahemu village in Kongwa District, Dodoma region.

In addition, intercompany loans were received from company shareholders who have provided a firm commitment to continue providing financial assistance in the event of financial shortfall. The loans are not repayable within the business planning horizon hence have been treated as supplementary capital or long-term financing (sub ordinate debt) which also has been regarded as equity to the company.

#### **14.0: CONCLUSION**

From the above analysis and observation of the business which includes, technical aspects, project description, marketing, operation, environmental aspects, financial projections and other aspects, the business is viable because it is profitable as it shows a good profit trend, reasonable return on assets as well as reasonable return on equity. There is also adequate cash flow and impressive assets growth, the turnover is also on increase yearly. Furthermore, the Net Present value is positive and adequate.

**15.0: REFERENCES**

1. Market Survey for Nickel metal, Chang Metal International Mining Resources Company Limited, May 2022
2. Environment Impact Assessment Report, Paulsam Geo Engineering Co Ltd, August 2011
3. Audited Financial Statements 2018, 2019 & 2020, Chang Metal International Mining Resources Company Limited
4. Financial Statements (Unaudited) 2021, Chang Metal International Mining Resources Company Limited

