ZHONG ZHOU MINING COMPANY LIMITED

BUSINESS PLAN

ON

NICKEL PROCESSING AND SMELTING PROJECT, AT ZAMAHERO VILLAGE, BAHI DISTRICT – DODOMA REGION

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1.0 THE PROJECT

1.1 Introduction of the Company

Zhong Zhou Mining Company Limited is a foreign limited liability company, established on 20th December, 2024 under Certificate of Incorporation No.180607234 and it is licensed to carry out a business in the mining sector. It is a newly established mining company with the aim of processing and smelting of nickel. The company has its headquarters based in Dodoma.

1.2 Location of the Project

The project will be based at Zamahero village, Bahi District – Dodoma region in the Central Tanzania. Bahi District is one of the seven districts of the Dodoma Region of Tanzania. Bahi District is bordered to the north by Chemba District, to the east by Dodoma District and Chamwino District, and to the west by Singida Region. Its administrative seat is the town of Bahi. The area is accessible through tarmac road. Paved trunk from Morogoro to the Rwandan border passes through the district. The central railway of Tanzania passes through Bahi District as well and there is a train station in Bahi town. The new Standard Gauge Railway has a station at Bahi under construction since early 2023

2.0 INVESTMENT OBJECTIVE, SECTOR AND PRODUCTS

2.1 The Investment Objective

The objective of this project is to establish a plant for processing and smelting Nickel at Zamahero Village of Bahi district, in Dodoma Region. The company decided to establish such project following the high demand of Nickel in the

domestic and the external market coupled with the presence of nickel ore at Zamahero village of Bahi district in Dodoma region.

2.2 Investment Sector

The interested sector of Investment is Mining sector. The company decided to invest in Mining because Tanzania's mineral sector has experienced a boom that coincided with high and stable economic growth. The mineral sector expanded rapidly following the mineral policy reforms of 1997.

The mining sector in Tanzania is among dependable sources of foreign exchange earnings, employment and revenue for the nation. For instance, mineral export earnings have been increasing gradually and remarkably from an average of 1% of total export in 1997 to 52% in 2023.

According to the National Bureau of Statistics (NBS) Economic Survey Report of 2022, the value of Tanzania's total mineral exports in 2022 was $3,395.3 million, equivalent to 47.0% of the total value of the nation's exports for the year, up from $3,116.4 million in 2021 (46.1% of the total value of exports). Therefore investing in mining sector is promising and will increase the country's export earnings.

2.3 The Product

The product of choice for investment is nickel. Tanzania is an investor friendly East African country, which is also highly endowed with prospective geology. In addition to other incentives, the recently ongoing exploration work on nickel has resulted in discovery of resources in excess of about 209 million tonnes of nickel. The other reasons to the choice of investing in nickel are:

- Investing in Nickel presents several potential benefits, making it an attractive option for long-term investors. Firstly, nickel is a crucial

component in the manufacturing of stainless steel, a material widely used in construction and various industries.

- Nickel's role in the energy transition. Its ability to withstand high temperature and resist corrosion makes it indispensable in many low-carbon technologies, from solar panels and wind turbines to nuclear plants and carbon capture systems. Nickel's most important role, however, is expected to be in battery production
- It is crucial in green energy movement. Investing in nickel is very potential due to its critical role in the transition to clean energy, particularly in electric vehicle (EV) batteries. As EV production increases, nickel demand is expected to rise. Making it promising for investors
- Looking ahead, nickel-based chemistries are expected to dominate, capturing 85% of battery cell production capacity outside China by 2030. High-nickel chemistries will play a growing role as EV technology advances. Benchmark forecasts that over 50% of nickel demand growth by 2030 will come from batteries

3.0 INVESTMENT COSTS AND SOURCES OF FINANCES

3.1. Investment Costs

The project cost is estimated at **US$ 34,500,000** which will be contributed by shareholders. The investment breakdown will be as allocated below

S/N	Type of Asset	Amount of Investment in USD
1	Land and Building	10,050,000
2.	Plant and Machinery	21,200,000
2	Vehicles	900,000
3	Furniture and Fittings	500,000
4	Pre-Expenses	100,000
5	Others	750,000
5	Working capital	1,000,000
	Total	**34,500,000**

3.2 Sources of Finance

To finance the project the shareholders/promoters propose to finance the above investment costs on foreign equity basis in the following phases:

Phases	Source	US$
Phase I (6 Months)	Foreign Equity	2,500,000
Phase II (6 Months)	Foreign Equity	12,000,000
Phase III (6 Months)	Foreign Equity	20,000,000
TOTAL INVESTMENT		**34,500,000**

3.3 The Promoters/Shareholders

The promoters/shareholders of Zhong Zhou Mining Company Limited are as follows:

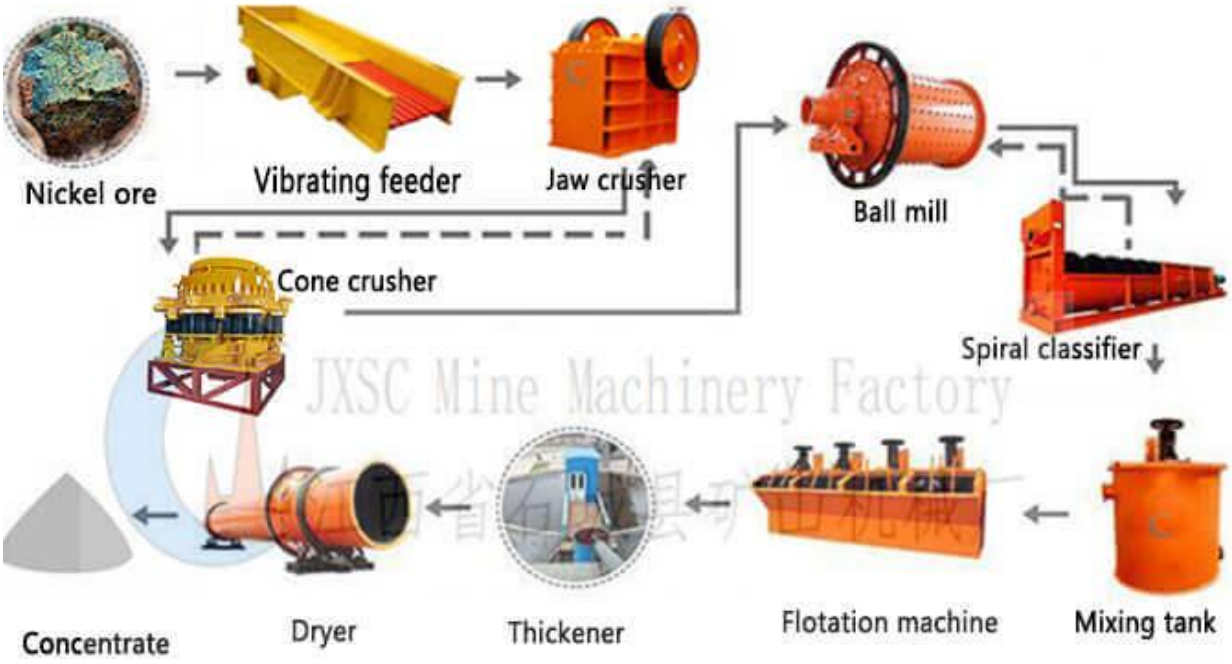
Full name	Nationality	Shareholding (%)
Li Sanhong	Chinese	60%
Chen Haiqiao	Chinese	20%
Wang Nengyi	Chinese	20%

4.0 SOURCES OF SUPPLY OF INPUTS

Most of the inputs used in processing and smelting nickel will be imported from outside the country except the nickel ore which will be secured from local miners. The main crushing and screening equipment for nickel are: crusher, screening machine, belt conveyor and ore feeding bin. In terms of Nickel Crusher, there is Jaw crusher and cone crusher. In the first stage of crushing jaw crusher is used, and the second and third stages of crushing are cone crushers. All these inputs will be imported from abroad, particularly China.

Some common types of mining equipment include: Crushers: These machines take large rocks and turn them into everything from smaller rocks to dust. Wheel loaders: Filling a crucial role, these tools often work at the face of the mine to dig through the material and securely lift and transport it. These equipment too will be imported from China.

Nickel ores mainly include copper-nickel sulfide ore and nickel oxide ore (laterite nickel ore). The most important is the nickel ore flotation process; magnetic separation and gravity separation are usually auxiliary beneficiation methods.



Picture 1: Nickel Ore Processing Plant

5.0 THE MARKET

Analysis of the demand of Nickel in Tanzania and worldwide has revealed that there is a need to invest in mining sector, especially in nickel mining and smelting due to high demand of nickel. Nickel is highly ductile, corrosion and oxidation resistant and 100 percent recyclable. These characteristics make it essential for building infrastructure, chemical production, communications, energy supply, environmental protection and food preparation. In addition to that, Nickel has outstanding physical and chemical properties, which make it essential in hundreds of thousands of products. Its biggest use is in alloying – particularly with chromium and other metals to produce stainless and heat – resisting steels.

Apart from that, Nickel – containing stainless steel and other nickel alloys provide the visual appeal, durability and hygienic properties that make them ideal for use in

domestic settings and consumer products. These include kitchen appliances, pots and pans, sinks, taps, cutlery and utensils.

Following these uses, the demand for nickel is very high domestically and in the external market, thus executing the project will increase both domestic and foreign exchange earnings. The mining sector in Tanzania is among dependable sources of foreign exchange earnings, employment and revenue for the nation.

According to Mining Sector Investor's Guide 2024, mineral export earnings have been increasing gradually and remarkably from an average of 1% of total export in 1997 to 52% in 2023. According to the National Bureau of Statistics (NBS) Economic Survey Report of 2022, the value of Tanzania's total mineral exports in 2022 was $3,395.3 million, equivalent to 47.0% of the total value of the nation's exports for the year, up from $3,116.4 million in 2021 (46.1% of the total value of exports). The rising mineral export earnings will likely to soar when this project will be executed.

Russia's invasion of Ukraine has caused the price of Russian nickel to soar, and Tanzania is positioning itself to meet the global demand and expand its share of the nickel market. Analysts say that Russia accounted for about 15% of global Class 1 nickel production in 2021. The invasion of Ukraine triggered a price shock, at one point doubling the price to a record high.

The need for more nickel is fueled by the global automotive industry's gradual transition to electric vehicles. Class 1 nickel, is used in the lithium-ion batteries needed for electric cars.

Despite the fact that there are other nickel projects in Tanzania, some are at advanced stages like Kabanga Nickel project, Dutwa Nickel project; Ngwena

Nickel to mention few the demands for nickel is very high. So executing this project will place Tanzania in better position in the region and Africa as well as high producer of nickel.

China was the world's leading nickel ore importing country based on value in 2021, with imports amounting to 2.36 billion U.S. dollars. The second-largest nickel ore importer that year was Canada, with a distant 402 million U.S. dollars' worth of imports. Following this fact the market for nickel is readily available for domestic consumers and the foreign markets as well

6.0 PROJECT IMPLEMENTATION

6.1 Project Implementation Schedule

The Project is expected to commence on 1st, March, 2025 and will be implemented in five years in three phases as analyzed below;

Phase 1: Pre-operation Phase

In this phase the following activities will be carried out:

- Land Acquisition
- Site Leveling
- Building Construction
- Plant and Machinery Installation

Phase 2: Operation Phase

Nickel ore preparation involves a series of processes to prepare the ore for further processing, including crushing, grinding, and classification. These steps help to

reduce the ore size, increase the surface area for chemical reactions, and separate the valuable nickel minerals from the gangue (unwanted material).

- **Crushing**

The first step in nickel ore preparation is crushing the mined ore to a smaller size. This is typically done using jaw crushers, cone crushers, or impact crushers. The ore is broken into smaller pieces, reducing the particle size for subsequent processing. Crushing is essential to facilitate efficient grinding and improve the liberation of nickel minerals from the surrounding rock.

- **Grinding**

After the ore is crushed, it undergoes grinding to further reduce its particle size. Grinding is typically performed in ball mills, which are rotating cylinders filled with steel balls. The ore and the steel balls are tumbled inside the mill, breaking the ore particles into finer fragments. The aim of grinding is to achieve the desired liberation of valuable minerals, including nickel-bearing minerals, from the gangue material.

- **Classification**

Following grinding, the ore slurry is usually classified to separate particles of different sizes. Classification is achieved using techniques such as hydrocyclones or vibrating screens. Hydrocyclones use centrifugal force to separate particles based on size, while vibrating screens use mesh or perforated plates to separate particles by size. The classified ore is then further processed based on its size distribution.

- **Beneficiation Techniques**

In some cases, nickel ore may undergo beneficiation processes to improve its quality and increase the concentration of nickel. Beneficiation methods can vary depending on the characteristics of the ore and may include techniques such as gravity separation, magnetic separation, or flotation.

Gravity separation: This method utilizes the differences in density between nickel minerals and gangue minerals. Techniques such as jigging, shaking tables, or spirals are used to separate the heavy nickel-bearing particles from the lighter gangue material.

Magnetic separation: Magnetic separation is used to separate nickel minerals that are magnetic from non-magnetic gangue minerals. Magnetic separators apply a magnetic field to attract and separate magnetic particles from the ore.

Flotation: Flotation is a widely used beneficiation technique for nickel ores. In this process, chemicals called collectors are added to the ore slurry to selectively attach to and float the valuable nickel minerals, while the gangue material sinks. Frothers are also added to create a stable froth that can be skimmed off to separate the nickel concentrate.

By preparing the nickel ore through crushing, grinding, and classification, the ore is effectively processed to a suitable size and condition for subsequent extraction processes. The prepared ore is then ready for further processing, such as nickel extraction through pyro-metallurgical or hydrometallurgical methods, as well as refining and purification stages.

Phase 3: Full Operation Phase

In this phase, the quantity and quality of nickel in the site will be known and thus mining, smelting and selling of nickel will proceed as planned. The project implementation schedule is summarized in the Gantt chat below.

Activity name	Year 1(Months)												Year 2	Year 3	Year 4	Year 5
Phase 1: Pre-operation Phase	1	2	3	4	5	6	7	8	9	10	11	12				
Land Acquisition																
Site Leveling																
Building Construction																
Plant and Machinery Installation																
Phase 2: Operation Phase																
Crushing																
Grinding																
Classification																
Beneficiation Process																
Extraction																
Phase 3: Full operation Phase																
Processing and Smelting																

6.2 Capacity of the Project

At full operation the project will produce 4000 tonnes of nickel per annum.

6.3 Environmental Aspect

Generally, Tanzania has environmental regulations governing the operation of mining sectors as stipulated on National Environmental Management Council (NEMC). Nevertheless, the company will take precautions to ensure that during project implementation the issue of environmental protection will be taken into consideration.

6.4 Social and Economic Impact

The proposed project will result into the following social and economic impacts:

- Employment creation. In Phase I and II the project will provide employment to about 100 people. In Phase III about 200 people will be employed
- The project will foster domestic manufacturing industry as it will provide raw materials for those engaging in the sector
- The project will attract other investors who depend on nickel as their raw material
- The project will foster economic development as nickel is highly needed for various uses but the most crucial use is to make coins. It is used in making wires. It is used in gas turbines and rocket engines as it has the capability to resist corrosion even at high temperatures. It is used to make a variety of alloys which are further used to make armour plating, nails, or pipes.
- The government and other agencies will benefit from various taxes, fees and commissions that will be paid to the Treasury

7.0 FINANCIAL PROJECTION OF THE PROJECT

Following the global trend on the demand of nickel, investing in nickel ideal in the near future. The financial projections of the project is as indicated in the table below,

Financial Projections (USD)

Details	**Values**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Production per annum (tons): = A	4,000	4000	4000	4000	4000	4000
Price per ton (usd) = B	15,259	16,784.35	18,462.79	20,309.06	22,339.97	24,573.97
Sales per annum A*B	61,034,000	67,137,400.0	73,851,140.0	81,236,254.0	89,359,879.40	98,295,867.34
Costs of production = D	44,000,000	48,400,000.0	53,240,000.0	58,564,000.0	64,420,400.0	70,862,440.0
Gross Profit E = C-D	17,034,000	18,737,400.0	20,611,140.0	22,672,254.0	24,939,479.40	27,433,427.34
Operating Costs = F	9,000,000	9,900,000.0	10,890,000.0	11,979,000.0	13,176,900.00	14,494,590.00
Earnings Before Interest and Tax G=E-F	8,034,000	8,837,400.0	9,721,140.0	10,693,254.0	11,762,579.40	12,938,837.34
Tax H = 30%*G	2,410,200	2,651,220.0	2,916,342.0	3,207,976.2	3,528,773.82	3,881,651.20
Earning Before Dividends I = G-H	5,623,800	6,186,180.0	6,804,798.0	7,485,277.8	8,233,805.58	9,057,186.14

8.0 ECONOMIC DEVELOPMENT CONSIDERATION

- **Employment Creation:** The project will create approximately 100 employments in Phase I and II of the project and about 158 people in Phase III additional jobs will with created as the project expands.
- **Government revenue**: The government and other agencies will benefit from various taxes, fees and commissions that will paid to the Treasury.
- **Social and Economic Impact**: The proposed project will result into the Increase the provision of high-quality services in the distribution of industrial and agricultural products in the country. It will also Increase the availability of quality distribution and marketing products alongside competitive prices of these products will result in increased healthy competition among all trading and manufacturing companies
- **Economies of Scale**: The presence of the project will not only benefit the people directly employed by the company but also the people around the Zamahero village and Bahi district as well will benefit indirectly through the influx of people from other areas who will be attracted by the presence of the factory

9.0 CONCLUSION AND RECOMMENDATIONS

The brief financial analysis indicates that the proposed project will be financially and economic viable. The project will generate significantly to the social and economic progress by way of increasing the provision of employment. Therefore, it is strongly recommended that the investors of Zhong Zhou Mining Company Limited be availed with the required institutional assistance so as to enable them to implement the intended nickel processing and smelting project