

SHIMABU MINING LIMITED

Registered Office: Plot No. 299B Mapanza Road Kafue District



Draft No. 2

JUNE 2026

ENVIRONMENTAL & SOCIAL IMPACT STATEMENT

**FOR THE PROPOSED LARGE-SCALE MINING LICENSE No.22912-HQ-LEL
IN CHIEF CHIPEPO'S CHIEFDOM IN GWEMBE DISTRICT SOUTHERN
PROVINCE**

Prepared by

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EXECUTIVE SUMMARY

Project Overview

Southern Province is currently the only coal producing province in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzinze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coalfield within the Zambezi Valley includes Mulungwa, Siankondobo, Chisanga and Siambabala.

Southern Province has over the years seen increased mining activities. The status of the province has shifted from being predominantly agriculture to include mining. From the time of the liberalized economy in 1991 and the implementation of the 1995 Mining Policy through to the current Mineral Resources Development Policy of 2013, the Province has continued to experience increased participation in the mining sector with players in mineral exploration and exploitation.

In the recent years, the need to exploit mineral resource for the use of energy generation has become eminent following the climatic changes that have affected the long-time hydropower generation schemes in Zambia. Coal worldwide has been used as an alternative source of energy for many sectors of manufacturing industry including generation of electricity. Given this background, Shimabu Mining Limited (SML) envisages to exploit coal mineral resources in Gwembe district with the eventual goal of establishing a viable mine.

The project proponent

Shimabu Mining Limited (SML) is a Zambian company registered under PACRA on 13th March 2018 (PACRA No. 120180002053) with interests in coal mining. SML is a holder of a large-Scale Prospecting License No 22912-HQ-LEL which was offered by the Ministry of Mines with respect of Coal mineral in the Gwembe District of the Southern Province.

Following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in the project area. The large-scale mining license area which spans an area of 3652.597Ha is located in Gwembe Districts in the Southern Province of Zambia. Shimabu Mining Limited and its directors have years of experience in the management of mining related projects in Zambia.

Particulars of shareholders and directors

Shareholders and directors					
NAME	NATIONALITY	ID No.	DESIGNATION	SHARES	%
Juliet Sichobo Bushe	Zambian	169574/11/1	Shareholder	5,000	50
Marshal Makundano Hosea Bushe	Zimbabwean	946574/11/2	Shareholder	5,000	50
Floating shares				5,000	
Total shares				15,000	100

The proposed coal mining project

The proposed project SML intends to establish and operate a large-scale coal mine and in the long run provide jobs for the local people and infrastructure development to the project area. The developer intends to establish an operation office in Gwembe District for ease of operations, create project ownership for the local people and for implementation purposes. Shimabu Mining Limited intends to undertake the large-scale mining of coal in license No. 22912-HQ-LEL following the completion of the exploration activities. The project under review is a greenfield project from previously used mine site with coal stockpiles. The license area is surrounded by other existing exploration licenses that other companies are interested to explore.

SML's project will be an Open Pit Mining type of project primarily for coal. The open pit mining project will be an excavation or cut made at the surface of the ground for the purpose of extracting Coal and which is open to the surface for the duration of the mine's life. To expose or mine the ore, it will be generally necessary to move large quantities of overburden material which include soil and waste rock amounting to 1.6 billion tons over the period of the project. The proposed large-scale Mine project will include the following main components:

- ✓ Open pit,
- ✓ Workshop and operations offices -5000m²
- ✓ Overburden Dumps – 10Ha land
- ✓ Ore storage pads and loading facilities – 2500m²
- ✓ Ore crushing plant – 2400m²
- ✓ Wastewater management ponds (2) – 10, 000 m³
- ✓ Storm water management facilities,
- ✓ Power transmission lines routes and associated substation locations
- ✓ Sanitation facilities for project workforce, 100m²
- ✓ Access road.

Project Lifespan and production capacity

The Major project activities will include Coal mining and crushing. The project flow regime will undertake the project implementation in a four (04) phases approach as detailed below:

- ✓ Phase 1: Mine Planning, Site preparations, construction and pre-production (Year 0-1);
- ✓ Phase 2: Mine production at the open pit site exploiting of 2,400 tonnes of coal reserve per year and washing (Year 1 – Year 25 with a possibility of an operation extension).
- ✓ Phase 3: (Year 25 – Year 50 Mining extension)
- ✓ Phase 4: Decommissioning and closure.

Project Investment

Shimabu Mining Limited envisages undertaking the project in a phased approach using a 5-year implementation plan commencing in the 4th Quarter of 2026. SML intends to invest a total of **USD 930,000.00** in the project which will in turn create over 200 permanent jobs to the local and other people. The total project investment budgeted for the development, implementation and operation of the project. The project will be implemented using a phased approach with initial construction and operation works to commence in the 4th Quarter of 2026 upon obtaining approval from relevant regulatory authorities including the grant of the Mining License. Specific project implementation components of the investment cost include Open Pit mining activities, creation of explosive magazine, Waste Dump Rock, construction of administrative office block, Staff housing and support facilities, Maintenance yard and Coal stock pile platform.

Project Rationale and Justification

Southern Province houses a very high-grade coal belt which has been previously mined by existing coal mining companies in the area. There are other existing mines in the district that include Feder investment company limited. The proposed project will help Zambia meet the demand for finished coal as well as help reduce meet the demand for coal for copper mines and cement industry and power generation around Zambia. The mined coal will also help reduce the energy deficit the country is currently facing.

Shimabu mining limited intends to apply to the Ministry of Mines and Minerals Development for the grant of a Large-scale Underground Coal Mining License in Siamuluwa area in Sompani village Gwembe District under open cast mining license No. 22912-HQ-LEL. The proposed mine area is located in Gwembe Chiefdom in Gwembe District in Southern Province area and has rich coal mineral deposits that SML intends to exploit using Underground Mining Method.

Following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in the project area. The large-scale mining license area which spans an area of 3652.597Ha is located in Gwembe Districts in the Southern Province of Zambia. Shimabu Mining Limited and its directors have years of experience in the management of mining related projects in Zambia.

Having conducted exploration activities in the license area, SML envisages undertaking the large-scale underground coal mining activities to exploit the mineral reserves therein. SML management and its directors have years of experience in the management of mining related projects in Zambia. The prospective mining activity will be undertaken by seasoned experts who have previously worked from the coal belt areas in Zambia.

Location

The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chipepos chieftdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license. The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD). The license can be accessed using T1 road (Kafue Road). From Lusaka to chisekesi, a distance of 207km approximately then Join the D375 road to Gwembe from chisekesi, for about 47.9km to the Junction between D375 and D500. Continuing in D375, move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area.

The coal deposit in the project area lies within the 3652.597Ha (License No. 22912-HQ-LEL. This is the major part of the license that will be developed into the mine encompassing the mine pits and associated support infrastructure. The site boundary coordinates are indicated in the table below;

Shimabu Mining limited Proposed Site Coordinates

No	LATTITUDE	LONGITUDE
1	16°40'42.00"S	27°44'48.00"E
2	16°40'42.00"S	27°46'18.00"E
3	16°40'48.00"S	27°46'18.00"E
4	16°40'48.00"S	27°46'30.00"E
5	16°40'54.00"S	27°46'30.00"E
6	16°40'54.00"S	27°46'36.00"E
7	16°40'60.00"S	27°46'36.00"E
8	16°40'60.00"S	27°46'42.00"E
9	16°41'18.00"S	27°46'42.00"E
10	16°41'18.00"S	27°46'36.00"E
11	16°41'30.00"S	27°46'36.00"E
12	16°41'30.00"S	27°46'30.00"E
13	16°41'36.00"S	27°46'30.00"E
14	16°41'36.00"S	27°46'24.00"E
15	16°41'48.00"S	27°46'24.00"E
16	16°41'48.00"S	27°46'18.00"E
17	16°41'60.00"S	27°46'18.00"E
18	16°41'60.00"S	27°46'12.00"E
19	16°42'06.00"S	27°46'12.00"E

20	16°42'06.00"S	27°46'06.00"E
21	16°42'18.00"S	27°46'06.00"E
22	16°42'18.00"S	27°46'00.00"E
23	16°42'30.00"S	27°46'00.00"E
24	16°42'30.00"S	27°45'54.00"E
25	16°42'36.00"S	27°45'54.00"E
26	16°42'36.00"S	27°45'48.00"E
27	16°42'48.00"S	27°45'48.00"E
28	16°42'48.00"S	27°45'42.00"E
29	16°43'00.00"S	27°45'42.00"E
30	16°43'00.00"S	27°45'24.00"E
31	16°45'54.00"S	27°45'24.00"E
32	16°45'54.00"S	27°42'30.00"E
33	16°44'06.00"S	27°42'30.00"E
34	16°44'06.00"S	27°43'36.00"E
35	16°42'30.00"S	27°43'36.00"E
36	16°42'30.00"S	27°44'48.00"E

ESIA Study methodology

The study approach and methodology to be adopted shall include screening to determine the extent of the project and desktop data search and analysis for the baseline bio-physical and social environmental parameters of the project area. In addition, the consultant will consult with the project design group and will be briefed and obtain design reports which will make an input in the EIA process.

Public consultation process will include local interviews, household social and environmental surveys. Based on these findings and expert judgment, the consultant will compile the projected social and environmental impacts (positive and negative) likely to emanate from proposed project activities and also the Environmental and Social Mitigation and Management Plan (ESMMP) which details how adverse impacts will be reduced or eliminated and by whom. In addition, the consultant would draft an Environmental and Social Monitoring Plan (ESMP) to be implemented during construction and after project completion to evaluate and review actual impacts as they happen and the effectiveness/appropriateness of mitigation measures proposed.

In the event that exploration and mining operations cease, Shimabu mining Limited will implement the decommissioning and closure plan which will be part of the Environmental and Social Impact Statement of this proposed project.

Regulatory Framework

The Environmental Impact Statement (EIS) has been prepared in accordance with the legal framework on Environmental Management enshrined in the Environmental Management (Amendment) Act No. 8 of 2023 of the Laws of Zambia, read together with the Environmental Impact Assessment Regulations S.I. No. 3 of 2026. First Schedule (Regulations 5 and 7) Class

III Section A and subsection (a) mining of an area between 11km² to 20km². This type of project requires a full ESIA

The proposed project is outlined in the Environmental Impact Assessment Regulations S.I. No. 3 of 2026.

Therefore, the proposed project qualifies for a full Environmental and Social Impact Assessment (ESIA). Relevant legislation to be adhered to in the ESIA process and subsequent project implementation will include but not limited to the below legislation;

- ✓ Environmental Management (Amendment) Act No. 8 of 2023
- ✓ The Environmental Impact Assessment Regulations, SI No. 3 of 2026
- ✓ Environmental Management Licensing Regulations SI No. 112 of 2013
- ✓ Workers Compensation Act No. 10 of 1999
- ✓ The Investment, Trade and Business Development Act No. 18 of 2022
- ✓ The Minerals Regulation Commission Act, 2024 (Act No. 14 of 2024)
- ✓ Occupational Health and Safety Act No. 36 of 2010
- ✓ Pneumoconiosis Act No. 13 of 1994
- ✓ National Council for Construction Act No.10 of 2020
- ✓ Employment Code Act No. 3 of 2019
- ✓ Solid Waste Regulation and Management Act of 2018
- ✓ The Public Health (Infected Areas) (Coronavirus Disease 2019) Regulations – S.I 22 of 2020
- ✓ The Water Supply and Sanitation Act No. 28 of 1997
- ✓ The Roads and Road Traffic Act, Cap 464
- ✓ The Public Health Act Cap 295 of 1995
- ✓ Water Resources Management Act No. 21 of 2011
- ✓ Metrology Act of 2017.
- ✓ The Chiefs Act
- ✓ Energy Regulation Act Cap 436
- ✓ Local Government Act, No. 2 of 2019
- ✓ The Forests Act No. 4 of 2015
- ✓ The Zambia Wildlife Act No. 14 of 2015
- ✓ The Urban and Regional Planning Act No. 3 of 2015
- ✓ Land and Land Acquisition Act of 1995
- ✓ International Agreements and Conventions to which Zambia is a party.

Project Description

project under review is a greenfield project as no coal mining activities have been undertaken in the area although License No. 22912-HQ-LEL is surrounded by other exploration licenses that other companies are interested to explore. Though greenfield, several companies have held the exploration rights in the surrounding area outside of the extent of this license. Prior

to the interests of SML, the site remains idle since no mineralization potential drilling was undertaken.

Shimabu Mining Limited proposes to implement phase 1 of the coal mining project utilizing 200.00Ha for the mine pit and support structures installations within the limits of the 3652.597Ha License area 22912-HQ-LEL in Sompani village located on the southern part of the license area. Exploration activities are a going concern in the license area.

SML has completed prospecting (or exploration) activities in parcels of land within the area to determine the economic viability of the mineral deposits within the tenement. Sampling points 1,2,3 and 4 including the one along Kalama River at coordinate (16°45'15.24"S 27°43'16.08"E) have revealed available coal reserve for the mining activities to be undertaken in the license area. The geological investigations' objectives were to provide details of the mineralization, extent and shape of the deposit and consequently the reserves for eventual mining. The exploration results were satisfactory indicating low to medium grade of coal deposit and now the developer would like to implement the coal mining project.

The proposed project involves the large-scale open pit coal mining. The mining will be conducted using the hydraulic excavators to mine the coal reserve. Where the rocks are hard, the rocks will be drilled and blasted. The mined coal will then be transported from the open pit to the mineral processing plant where it will be crushed into required sizes ready for stock piling with the eventual goal of sale.

Project development Schedule

The Major project activities will include Coal mining and crushing. The project flow regime will undertake the project implementation in a four (04) phases approach as detailed below:

- ✓ Phase 1: Site preparations and pre-production will take place within a year once approval is given. This phase will also entail completion of the remainder of the exploration activities being undertaken on the site. SML will also ensure the preliminary land use approvals, EIA and agreements with the Project affected Persons are made on issues to do with relocation and compensation in phase 1.
- ✓ Phase 2: Mine production at the open pit site exploiting coal reserve. This phase will be ongoing for 25-30 years. Once the mine site is cleared and approved, SML will undertake the mining activities using open pit mining methods using mechanized means of mining to ensure systematic management of resources and sustainable environmental considerations.
- ✓ Phase 3: Future expansion to start the exploiting of deep situated coal Reserve and extending the mine pit boundary.
- ✓ Phase 4: Decommissioning and closure
At the end of mine lifespan projected at over 25 years of full-scale operation, SML will consider the decommissioning of the Mine Site with progressive rehabilitation of the excavated pits. SML will also as part of the Mining regulations contribute to the

Environmental Protection Fund (EPF) which administers environmental management of mining impacts at closure of the mines. As a company, SML will undertake strict environmental management measures to ensure protection of the Mine sites once operations cease.

Raw materials

The main raw material in the operation of the mine is the coal that exist in the license area. The mineral resource will be exploited and mined through the mine lifespan project at 25-30 years from now. Shimabu mining Limited has only one source of the mining material, which is from the material that will be mined from the discovered ore body within License No. 22912-HQ-LEL. No other options have, therefore, been considered in terms of sources of processing materials. Shimabu Mining Limited will continue with the exploration and mining activities, within the license, during the operations stage to possibly increase the ore reserves and potentially the life of the mine.

Project alternatives

The proposed implementation of the project may be undertaken considering other viable options such as but not limited to site location, availability of the mineral resource (Coal) in the project area and the sustainable mining methods proposed for the mining of the ore. The study team and SML will investigate a number of project alternatives for all the project components for the SML Coal Mine Project. A variety of alternatives will be identified for the mining methods, waste rock dumps, accommodation for employees, and the no project option. Location of the various mine components will be limited due to the location of the ore deposit and the presence of existing site infrastructure. Therefore, design of the mine site will consider economic feasibility and physical location of the mine components.

Site alternatives

Shimabu mining Limited holds exploration License No. 22912-HQ-LEL issued in 2023 with a validity of 4 years, it is the only site available for mining to SML. No alternative site within and outside the district in coal belt region has been granted to SML. The license area as surveyed and allocated by the MMMD and results from exploration works indicate the presence of coal mineral deposit that can mined economically.

This option will therefore not be considered as the license area has the desired minerals (Coal) deposits in sufficient quantities to be mined economically.

Mining Methods

Options were considered as alternatives for mining the Coal at the 22912-HQ-LEL site where current exploration works have been undertaken. These options are indicated below:

- ✓ Options 1 was sinking the mine shaft then develop drives or haulages to access the orebody.
- ✓ Option 2 was to develop a portal or ramp from the box cut then develop haulages and access to reach the orebody.

✓ Option 3 was to mine the ore by developing an open pit.

Primary consideration upon evaluation of a mineable and economic mineral resource and the competence of the ground or ground condition is established is to determine the mining method. The competence of the ground and prevailing geotechnical conditions at the site and the evaluated mineral resource favours open pit mining method.

Options 1 & 2, construction of a Portal and shaft for underground workings were evaluated and not chosen because of the depth and the need to exploit the Coal belt near the surface.

The mining method chosen for the project is open pit mining. However, extraction of ore can also be achieved by underground mining methods too. Underground mining has the positive environmental aspect of minimal surface disturbance. However, underground mining compared to open pit mining would be significantly more expensive at this mine due to the low grade of mineralisation, ore dilution, lower recovery, cost of mine fill and higher mine development costs. Above all, the orebody geometry i.e., shallow depth and dip, and resulting low stripping ratio are conducive to open pit mining.

Therefore, mining ore at this mine by open pit method is by far a better method in terms of economics and safety aspects as well as for the factor that the impact can be mitigated.

Waste Management Alternatives

A: Septic Tank

The method involves directing the sewage waste mainly generated from toilets and washing during operation to a Septic tank. The septic tanks once full will be re-emptied using a ZEMA approved contractor for transportation of sewer waste to approved disposal site. This was the preferred option due as it is cost effective and has little potential to contaminate the environmental if properly handled.

B: Septic Tank and sucker way System

This method involves having a septic tank that retains solid mass of the sewerage waste connected to the sucker way where the liquid part goes and eventually seeps into the ground. This option was not chosen due to the environmental concerns associated with allowing constituents of sewerage waste into the ground and the potential to contaminate ground water which is the major source of drinking water in the nearby villages.

C: Overburden and Mine waste Rocks

Overburden rocks are wastes which will be required to be removed from the top layer in order to access the target coal on the ground. Waste rocks will be disposed off in a designated disposal areas which will later be used to backfill in the open pits which will remain after the mining is done.

D: Connecting to the Southern Water and Sewerage Company (SWSC) line

This would entail connecting to the nearest line available. The project area and its surrounding are a significant distance from the nearest SWSC sewage network system. It would therefore entail higher installation cost if connecting to the sewage network was to be done. The water that will be used within the mine will be subjected to monthly testing to ensure that it is safe to use.

Option A is therefore preferred for economic and environmental reasons and the fact that it is the only practical, environmentally safe and an easy to monitor and mitigate option, considering the distance to the sewerage network.

Power Alternatives

The principal source of electricity during the construction phase of the project will be the diesel-powered generator, since hydro-power energy from ZESCO main is a significant distance from the proposed mining site.

No project alternative

The No project alternative will entail the abandonment of the Mining activity on the proposed site and therefore the benefits to be derived from the project will not be realized. The Mining activity will be the source of income for local community and Zambia as a country. This option will not be considered as the benefits of undertaking the project are significant compared to not carrying out the project.

Environmental Baseline

Mineral occurrences

Southern Province is currently the only coal producing province in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzinze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coalfield within the Zambezi Valley includes Mulungwa, Siankondobo and Siambabala. These areas provide huge investment potential in exploration and exploitation of coal even through partnerships where there are existing Exploration Licences.

Climate

The Southern Province has a tropical climate with three distinct seasons: the warm-wet, cold and hot season. for Gwembe's coldest month is July at 14.8°C on average and the hottest dry season is experienced during the months of September and October, with October being the hottest month of the year with an average of 23.7°C and the annual average temperature of 20.0°C. The annual averages rainfall for Gwembe 840mm, most of which falls in the months of December to February. The driest month is July.

Rains in Southern Province like the rest of the country are caused by the convergence of the North-east and South-east Trades that form the Inter-Tropical Convergence Zone (ITCZ). The

rainy season of the province is relatively long and the mean annual rainfall is relatively high. The average length of the rainy season is just over five months with the December, January and February period experiencing greatest rainfall while November and March have less.

Southern Province Temperatures

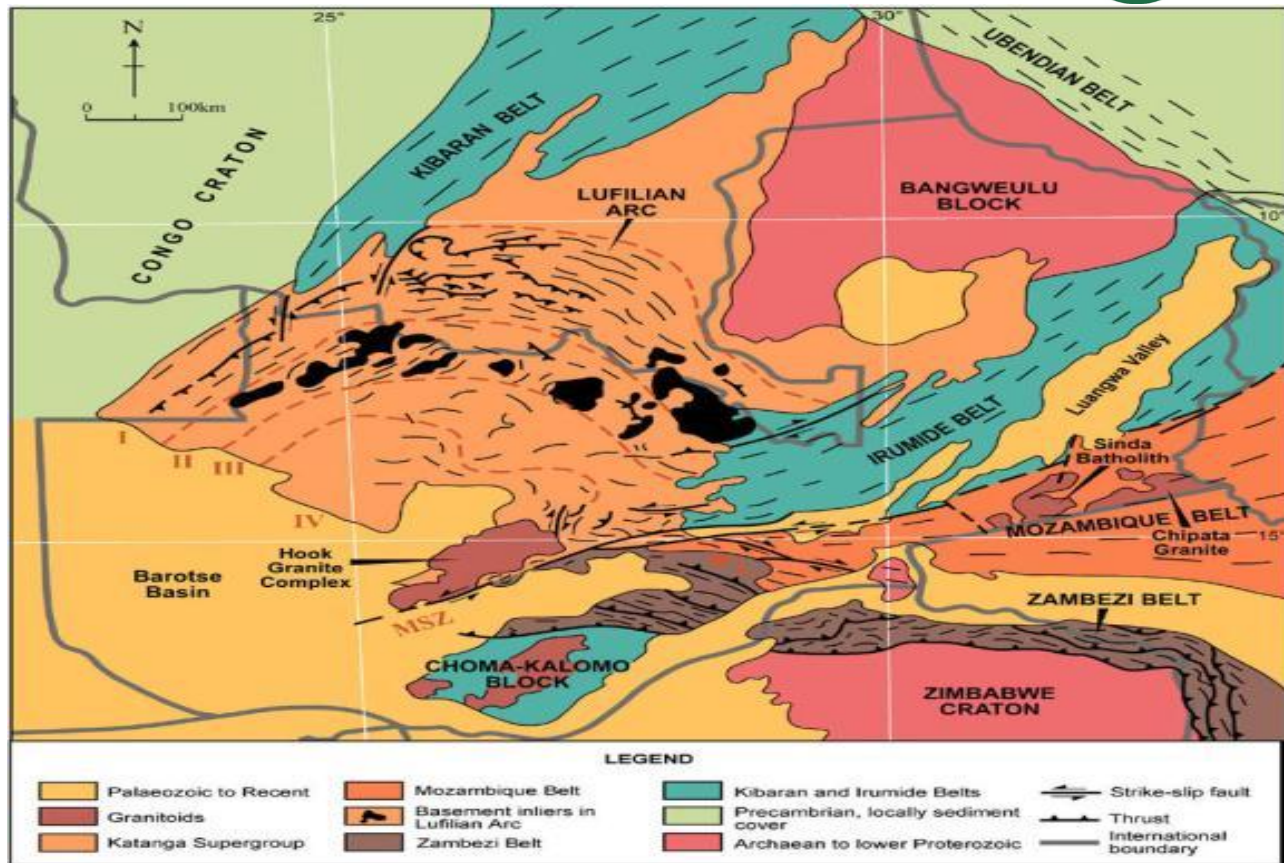
SEASON	MONTHS	Min Temperature{°C}	Max Temperature{°C}
Cool dry season	May to July	8	21
Hot dry season	August to October	21	32
Hot wet season	November to April	16	24

Relative Humidity

Relative humidity varies throughout the year, reaching peak in the wet season. Wet season humidity levels are about 83%, dry season humidity levels are 41%, with mean relative humidity of the area recorded as an average of 65.0%. of the Gwembe climatic conditions. The annual relative humidity of the area is 65%, while the average monthly relative humidity ranges from 40.9% in September to 83% in February.

Geology

The geology of the Southern Provinces is of a complex nature. The Karoo Supergroup outcropst in the mid-Zambezi Valley, southern Zambia. It is underlain by the Sinakumbe Group of Ordovician to Devonian age. The Lower Karoo Group consists of the basal Siankondobo Sandstone Formation, which comprises three facies, overlain by the Gwembe Coal Formation with its economically important coal deposits, in turn overlain by the Madumabisa Mudstone Formation which consists of lacustrine mudstone, calcilutite, sandstone, and concretionary calcareous beds. The Upper Karoo Group is sub-divided into the coarsely arenaceous Escarpment Grit, overlain by the fining upwards Interbedded Sandstone and Mudstone, Red Sandstone; and Batoka Basalt Formations. Palynomorph assemblages suggest that the Siankondobo Sandstone Formation is Late Carboniferous to Early Permian in age, the Gwembe Coal Formation Early Permian, the Madumabisa Mudstone Late Permian, and the Interbedded Sandstone and Mudstone Early or Middle Triassic. The marked quantitative variations in the assemblages are due partly to age differences, but they also reflect vegetational differences resulting from different paleoclimates and different facies. The low thermal maturity of the formations suggests that the rocks are oil prone. Gas may have been generated, particularly in the coal seams of the Gwembe Coal Formation, that are more deeply buried



General Geological Map of Project Area

Topography

Southern Province and Gwembe District are situated at an average elevation of about 1200m above sea level. The area forms a gently undulating plateau rising to low hills of about 1400m in Kafue – Mazabuka and dropping area to about 1,130m to the south. The plateau is broken by isolated low ranges of granite or quartzite hills rising to heights of 100m above the general level of the plateau. A widely occurring and very noticeable characteristic of the greater part and one arising from a combination of topography and hydrology are the flood plains and dambos. The headwater dambos are a very common feature occurring on all gently sloping valleys. The headwater dambos are significant for the hydrology of the project area. The area has steep sided valley of high relief and represents the topographic boundaries between the plateau and the Zambezi Rift valley. The plateau area has elevations ranging from 1000m and 1100m above sea level.

Land tenure and land use

All land in the country is vested in the hands of the president who holds it on behalf of the citizens. The Commissioner of Lands administers land on behalf of the president of the republic of Zambia.

There are two main forms of land tenure in the district, which are Trust and Traditional Land tenure systems. Trust Land is state land under the control of the President through the Commissioner of Lands, leased to various establishments. The Traditional Land tenure is the dominant system in the district where Chiefs allocate occupancy and use rights. However, since all land is vested in the President, this land can still be converted to state land through consultations with the Chiefs. Mountains dominate the land so much that land for settlement is only found in isolated pockets. However, most of the habitable land is used for agriculture. Traditionally, men control most of the land. They decide on the use of the land.

While women have limited say over what to do with the land. Land uses include mining, individual/residential, industrial and commercial, parks and open spaces and urban agriculture.

The above-mentioned land uses, with the exception of reserve land, can be leased to individuals for a period of ninety-nine years. The president reserves the right to allocate and withdraw rights to own land in the country. The license area falls within Chief Chipepo's chieftdom and is currently under customary tenure.

Built Environment

The proposed project site consists of virgin land with minimal anthropogenic disturbance and therefore has built structures are found within the periphery of the license area.

Soils

The preliminary data analysis on the soils at the project site and surrounding areas indicate that the land is generally flat with some loamy and alluvial sand deposits. The soils on the project proposed area are characterized by a combination of black and alluvial sand deposits, black cotton soils as well as dark grey colours in the top 30cm of the profile.

The sandy soils consist of coarse sand, as the underlying parent rock is decomposing gneiss with a high quartz and clay content of excellent drainage properties.

These soils are chromic haplic luvisols – dark grey acidic soils with fine sand grains in surface horizons, which are usually compacted. This gives rise to low permeability and water logging. Extensive soil studies were undertaken during the ESIA assessment to determine soil type and suitability in terms of physical characteristics such as porosity, water retention, stability for the construction of the mine infrastructure.

Flora

The project site is surrounded by a small open woodland with a discontinuous canopy whose composition is variable, but which particularly includes Muputu (*Brachystegia spiciformis*), Ordeal Tree (*Erythrophloeum africanum*), and Mubuta (*Brachystegia longifolia*). Grass species Hyperrhenia (*Elephant Grass*) is predominant near the stream. The flora assessments

will be undertaken during the ESIA study to determine species, population, age, spatial distribution and the identification of rare and endangered species will be undertaken.

Fauna

There is no established Game Management Area or National Park within the license area. however, fauna species of significant value have so far not been identified nor visualized in the project area owing to the anthropogenic activities relating to subsistence farming and rearing of animals by the local people. The high level of anthropogenic agricultural activities and settlements in the area has led to negative alterations of wildlife habitats. Fauna habitats generally consist of disturbed and highly modified units reflecting changes in vegetation structure and composition due to historical land use practices, associated with the farming activities.

Hydrogeology

Surface and Ground Water

The project area has one river which runs in the west part of the license (kalama river) which is non-perennial. The main source of water for the area has been the wells. The project area mainly drains towards the east into lake Kariba.

Drainage

The The project area is immediately drained by tributaries to the Lake Kariba in the East and South. The lake Kariba is the main and ultimate drainage of the project area and its surrounding.

Groundwater in the project area occurs in secondary developed features such as weathered zones, joints, fractures, faults or solution features within consolidated hard rocks. The weathered zones usually form shallow aquifers which are shallower than 30m in depth. Fracture zones have been developed under weathered zones and usually extend to around 30m to 40m in depth and often extend to more than 90m. The thickness and permeability of aquifers are closely related to the original rock type. The site has no existing borehole. Hydrological and hydrogeological studies as well as water quality assessments was undertaken in the project area during the ESIA study.

Socio-economic Assessment

Ethnic Tribal Groupings: The major tribe found in Gwembe district is Tonga. Tonga is the main language spoken. English in some sectors of the project area is used as second language.

Education: Within Gwembe District, educational facilities exist but inadequate forcing some people to walk long distances especially that most of the secondary schools. Staffing in the rural schools in the districts is generally low as many teachers, especially female teachers, shun rural areas and prefer to work in urban areas. The proposed licenses area does not have any school. The nearest school outside the license area is Sompani primary school. A survey conducted in the area during the EIA process showed that the education level the project

affected persons revealed that 50% of the population has attended Basic Education whereas 26 % have a high school education with only 1 % with a tertiary education.

Built Environment: The proposed project site consists of semi used farm lands in areas of flat terrain while some areas are virgin land with minimal anthropogenic disturbance and therefore has a number of built structures within the periphery of the license area. Notable infrastructure within the exploration sites.

Population: The project area falls within Sompani ward of Gwembe Constituency. Based on the 2022 Census of Population and Housing, the total population of Gwembe District (which contains Sompani Ward) is 79,338 people. The population of Sompani ward is 6928 people, respectively.

The proposed Mine License area encompasses 6 villages within the proposed for the development of the mine. The area has a number of Households spatially settled within the 6 villages outlined in the license area with spatial settlement patterns with a trend of one HH extending number of dwellings within the same village.

Local economy – Livelihoods

Farming activities

Most of the households in the license area practice subsistence farming of crops and animal rearing of animals as their main economic activity. The majority of households practice subsistence crop farming involving maize, cassava, cotton and groundnuts. Some farmers also plant and harvest soya beans on a small-scale basis. Most of the inputs used by the local farmers is accessed through the farmer support input program (FISP) of the Zambian government. During harvest, excess produce is sold to the local FRA.

Small businesses

Since the locals live in a rural setting, there is a thriving trading business dealing in various commodities such as groceries, beverages, household goods, and fishing items.

Many retail shops can be seen along the main road at Munyumbwe Central. Additionally, some locals have tailoring skills and mend clothes for others to earn an income.

The shops' trade-in items were mainly obtained from Monze and Lusaka. Roadside trading in agricultural input supplies and produce, especially in vegetables was also observed. The trading industry is also flourishing due to its proximity to Lusaka, the country's capital city. The hospitality industry is equally thriving and there are a number of lodges and guest houses in Munyumbwe especially around the main township. However, there are no lodges within the license area.

General Positive Impacts and enactment measures

- ✓ Increase in the demand for local suppliers e.g., transporting of coal to Copperbelt and Lusaka;
- ✓ SML will contribute to enhancing the nation's economy through various taxes and levies payable to the local and central government.
- ✓ General supply of PPE supply, machinery parts etc by local and international suppliers;
- ✓ Contribute to local and national economic development by remitting revenue to Gwembe District Council and Central Government;
- ✓ Employment Opportunities – generate potential temporary and permanent employment opportunities for skilled and unskilled staff during.
- ✓ Local communities in the project will be given preference during recruitment, since the majority of these will be unskilled workers. Skills transfer will also benefit the local people with mining knowledge.

Negative Impacts and mitigation measures

- ✓ Land/soil/groundwater – local contamination may occur from the slurry mine wastewater, hydrocarbons; The impacts on will be reduced by progressive re-vegetation and rehabilitation of affected areas as well as having control and monitoring of nearby water bodies.
- ✓ Surface water – local contamination may occur, during the rainy season, due to runoff from project areas; The impacts on will be reduced by progressive re-vegetation and rehabilitation of affected areas as well as having control and monitoring of nearby water bodies.
- ✓ Air – local contamination may occur from dust generated during construction and haulage of coal; Dust suppression will be conducted during operations.
- ✓ Safety – inadvertent entry of unauthorised people may pose danger to the workers and the community. OSH measures will be put in place to protect both human health and environment.

Other impacts of the project addressed in the Environmental and Social Management Plan include impacts of or on:

- ✓ Noise and Vibration;
- ✓ Air Quality;
- ✓ Biodiversity;
- ✓ Water Resources;
- ✓ Socio-economic;
- ✓ Soils and geology;
- ✓ Land Use Impacts;
- ✓ Landscape and visual amenity;
- ✓ Electrical and magnetic field;

- ✓ Aviation and communication;
- ✓ Archaeology and Cultural Heritage;
- ✓ The affected people are to be compensated in monetary form. The villages with project affected people include: Lufutuko, Kalisalile, Siamulunda, Siamuluwa, Malungo and Kaumba villages.

Mitigation and Enhancement Measures

- ✓ Promoting of local businesses, Time contribution of the taxes and continuous stakeholders' engagement to help the communities.
- ✓ Site control measured such as pollution control dam and continuous environmental monitoring.
- ✓ Control of effluent from the mining and processing operations area into the waterbodies;
- ✓ Provision of appropriate PPE for the employees and controlled clearance of vegetation barriers;
- ✓ Control of erosion.
- ✓ Proper waste management and disposal practices of site.
- ✓ Installation of proper waste water network and septic tanks to sewerage waste
- ✓ No servicing of equipment's, machinery and vehicles will be done on site. Oil and Hydrocarbon spill kits will be placed in strategic places throughout the mine for easier redial response in case of an emergency.
- ✓ The mine design, installation of mining infrastructure and drainage will be done in a way poses very minimal disturbance to the natural Drainage
- ✓ Areas already cleared by the local settlers will be utilised for building mining support structures. In addition, only areas where the mine pit and infrastructure will be planted will be cleared.
- ✓ Chemicals will be stored and handled by qualified handlers in designed room, expired chemicals and empty chemical bottles will be disposed of by a licensed Hazardous waste collector.
- ✓ Fire extinguishers and sand buckets will be placed in strategic places throughout the plant. In addition, employees will be trained in emergency exit procedures to the designated fire assembly points. A dedicated firefighting team will be trained and shall be headed by a qualified fire marshal.
- ✓ Selective clearing of flora will be practiced and only areas where mining infrastructure will be implanted will be cleared. In addition, as part of mine revegetation program, only indigenous species will be planted.
- ✓ The mine will be fenced to prevent authorized entry to the site and Blasting of the rocks will be controlled and undertaken during the day with maximum safety caution and warning to the employees and the public.

Environmental Management Plan

The Environmental and Social Management Plan (ESMP) has been developed to ensure compliance with the requirements of the Zambian regulatory requirements as well as IFC Environmental and Social Sustainability policies, guidelines, standards and other requirements.

The plan has incorporated mitigation measures, which have been defined in line with the predicted potential environmental and social impacts and risks. This has been done in order to avoid or minimize potential adverse environmental and social impacts and risks, and to enhance benefits arising from project development phases.

Shimabu Mining Limited with regard to implementation of the ESMP, will have senior management commitment to ensure that the level of environmental and social performance identified in the ESMP for the proposed project is achieved while the appointed contractors will ensure that the level of performance required during construction phase are attained. The ESMP includes commitments for capacity building and technology transfer to ensure consistent and acceptable environmental and social performance during the development and construction phases of the Project.

Project decommissioning

The project design life is expected to extend for at least 25-30 years, after which it will be decommissioned.

Project recommendations

In line with the EIA process, the public consultative meetings and the discussions with the local communities indicates that the socio-economic benefits of the project to the communities in the project area of influence outweigh the “no-development” options and also the negative impacts that the project may bring. The project is therefore being recommended for implementation assuming the incorporation of the recommended mitigating measures and implementation of the Impact Mitigation Plan and Environmental Monitoring Plan.

A handwritten signature in black ink, appearing to read "Juliet", is positioned above a solid red horizontal line.

Juliet Sichobo Bushe

Director

Shimabu Mining Limited

NON-TECHNICAL SUMMARY

Southern Province has significant occurrences of Coal and the highest coal belts in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzenze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coal field within the Zambezi Valley include Mulungwa, Siankondobo, Chisanga and Siambabala.

Major economic activities in the southern province have shifted from predominantly agriculture to include mining with the development of new mines resulting from coal discoveries. Due to the implementation of the 1995 Mining Policy and Mineral Resources Development Policy of 2013, the Province has continued to experience increased participation in the mining sector with players in mineral exploration and exploitation.

Shimabu Mining Limited (SML) is a Zambian registered company with interests in coal mining. The company was registered by the government of Zambia as a limited liability company on 13th March, 2018. SML is a holder of a large-Scale Prospecting License No 22912-HQ-LEL which was offered by the Ministry of Mines with respect to Coal mining in Gwembe District of the Southern Province.

The company undertook exploration activities in the license area as given by the Ministry of Mines and Minerals Development and discovered coal deposits in the license area to enable them start large scale mining activities. The license area is 3652.597Ha and is located in Siamuluwa area (Sompani village) of Gwembe District of Southern Province. Shimabu mining Limited has experience in operating Mines and exploration activities.

The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chipepos chieftdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license. The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD).

The license can be accessed using T1 road (Kafue Road). From Lusaka to chisekesi, a distance of 207km approximately. Then Join the D375 road to Gwembe from chisekesi, for about 47.9km. to the Junction between D375 and D500. Continuing in D375, move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area.

The coal deposit in the project area lies within the 3652.597Ha (License No. 22912-HQ-LEL. This is the major part of the license that will be developed into the mine encompassing the mine pits and associated support infrastructure. The site boundary coordinates are indicated in the table below;

Shimabu mining License No. 22912-HQ-LEL Coordinates

No	LATTITUDE	LONGITUDE
1	16°40'42.00"S	27°44'48.00"E
2	16°40'42.00"S	27°46'18.00"E
3	16°40'48.00"S	27°46'18.00"E
4	16°40'48.00"S	27°46'30.00"E
5	16°40'54.00"S	27°46'30.00"E
6	16°40'54.00"S	27°46'36.00"E
7	16°40'60.00"S	27°46'36.00"E
8	16°40'60.00"S	27°46'42.00"E
9	16°41'18.00"S	27°46'42.00"E
10	16°41'18.00"S	27°46'36.00"E
11	16°41'30.00"S	27°46'36.00"E
12	16°41'30.00"S	27°46'30.00"E
13	16°41'36.00"S	27°46'30.00"E
14	16°41'36.00"S	27°46'24.00"E
15	16°41'48.00"S	27°46'24.00"E
16	16°41'48.00"S	27°46'18.00"E
17	16°41'60.00"S	27°46'18.00"E
18	16°41'60.00"S	27°46'12.00"E
19	16°42'06.00"S	27°46'12.00"E
20	16°42'06.00"S	27°46'06.00"E
21	16°42'18.00"S	27°46'06.00"E
22	16°42'18.00"S	27°46'00.00"E
23	16°42'30.00"S	27°46'00.00"E
24	16°42'30.00"S	27°45'54.00"E
25	16°42'36.00"S	27°45'54.00"E
26	16°42'36.00"S	27°45'48.00"E
27	16°42'48.00"S	27°45'48.00"E
28	16°42'48.00"S	27°45'42.00"E
29	16°43'00.00"S	27°45'42.00"E
30	16°43'00.00"S	27°45'24.00"E
31	16°45'54.00"S	27°45'24.00"E
32	16°45'54.00"S	27°42'30.00"E
33	16°44'06.00"S	27°42'30.00"E
34	16°44'06.00"S	27°43'36.00"E
35	16°42'30.00"S	27°43'36.00"E
36	16°42'30.00"S	27°44'48.00"E

The proposed project intends to establish and operate a large-scale coal mine and in the long run provide jobs for the local people and infrastructure development to the project area. The developer intends to establish an operation office in Gwembe District for ease of operations, create project ownership for the local people and for implementation purposes.

Shimabu mining Limited intends to undertake the large-scale mining of coal in license No. 22912-HQ-LEL following the completion of the exploration activities. The project under review is a greenfield and no mining activities have been found. The license area is surrounded by other existing exploration licenses that other companies are interested to explore.

In order to undertake the proposed mining activities, Shimabu mining Limited is required to obtain a mining License Ministry of Mines and approval from the Zambia Environmental Management Agency (ZEMA) through an Environmental and Social Impact Study to determine the positive and negative impacts of the proposed mining activities on the environment and the social setup of the project area in Gwembe District. The Environmental Impact Assessment study has been completed and the report has been generated in accordance with the requirement of the following regulations for consideration by the Zambia Environmental Management Agency (ZEMA);

- ✓ Environmental Management (Amendment) Act No. 8 of 2023
- ✓ The Environmental Impact Assessment Regulations, SI No. 3 of 2026
- ✓ Environmental Management Licensing Regulations SI No. 112 of 2013
- ✓ Workers Compensation Act No. 10 of 1999
- ✓ The Investment, Trade and Business Development Act No. 18 of 2022
- ✓ The Minerals Regulation Commission Act, 2024 (Act No. 14 of 2024)
- ✓ Occupational Health and Safety Act No. 36 of 2010
- ✓ Pneumoconiosis Act No. 13 of 1994
- ✓ National Council for Construction Act No.10 of 2020
- ✓ Employment Code Act No. 3 of 2019
- ✓ Solid Waste Regulation and Management Act of 2018
- ✓ The Public Health (Infected Areas) (Coronavirus Disease 2019) Regulations – S.I 22 of 2020
- ✓ The Water Supply and Sanitation Act No. 28 of 1997
- ✓ The Roads and Road Traffic Act, Cap 464
- ✓ The Public Health Act Cap 295 of 1995
- ✓ Water Resources Management Act No. 21 of 2011
- ✓ Metrology Act of 2017.
- ✓ The Chiefs Act
- ✓ Energy Regulation Act Cap 436
- ✓ Local Government Act, No. 2 of 2019
- ✓ The Forests Act No. 4 of 2015
- ✓ The Zambia Wildlife Act No. 14 of 2015

- ✓ The Urban and Regional Planning Act No. 3 of 2015
- ✓ Land and Land Acquisition Act of 1995
- ✓ International Agreements and Conventions to which Zambia is a party.

Shimabubu mining Limited intends to undertake the coal mining project following the discovery of coal deposits in the license area No. 22912-HQ-LEL. The company proposes to undertake open pit mining. The coal belt in the area extends from the mid to western part of the license. The project will include the below activities:

- ✓ Phase 1: Site preparations and pre-production (Year 0-1);
- ✓ Phase 2: Mine production at the open pit site exploiting Coal reserve (Year 1 –Year 30).
- ✓ Phase 3: Future expansion to start the exploiting of deep situated Coal Reserve and extending the mine pit boundary for expanded mining activities.
- ✓ Phase 4: Decommissioning and closure.

Being a greenfield project, construction and commissioning of the project will involve the clearing of the site in preparation for the construction activities to be conducted in new areas of the mine site. The proposed mine site facilities in phase 1 will include;

- ✓ Open pit Mining area with proposed benched open pit areas covering 90Ha of mine license area.
- ✓ Waste rock ROM pad for the storage of overburden material of approximately 10Ha.
- ✓ Proposed site for the construction of mine support infrastructure such as administration offices, Workers quarters, plant utilities such water treatment and storage plant to cover approximately 30Ha.
- ✓ Engineering workshop to cater for both heavy and light vehicle repairs at the mine site, store rooms, security checkpoint to control and monitor activities at the mine site, weigh bridge, change house, and fuel storage facility to cover 30Ha.
- ✓ A fire break around the camp site will be maintained
- ✓ Construction of bathing shelters and Toilets
- ✓ Setting up of a Sample Storage Area
- ✓ Setting up alternative power for basic night lighting during new mine site construction.

Other infrastructure to be constructed will include piped water facilities connected to the water mains.

The large-scale mining of coal will involve mining, sorting and stock piling of the mineral resource on the mine site. The mine will utilize surface mining which is essentially classified as open-pit mining and will include quarrying, strip mining, contour mining, dredging, and hydraulic mining of the mineral resource within the mining License area. Like any other mineral ore, the mineral deposits will be blasted by explosives to fragment the insitu rock prior to excavation. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The

material will then be excavated using Loaders into trucks. The trucks will transport the mined minerals directly to the Primary stockpile area.

Shimabu mining Limited intends to undertake the mining activities in phases with an estimated total operating year of 25-30. The company will close the mining operations after 25-30 years after which the mine will be decommissioned.

The company plans to invest a total of eight hundred thousand United States Dollars (**USD 930,000.00**) in the project which will in turn create over 30 permanent jobs to the local and other people.

The projects anticipated positive and negative Impacts include;

Positive Impacts

- ✓ Improvement of Local business opportunities,
- ✓ Increase in the contribution to taxes to the government and council and employment opportunities for the local people
- ✓ Improved employment opportunities in the area
- ✓ Improved social service through the company's corporate social responsibility program.

Negative Impacts

- ✓ Potential pollution of water or Contamination of water bodies in the project vicinity areas,
- ✓ Noise and dust pollution within the project vicinity areas;
- ✓ Soil Erosion in the project cleared with the potential to cause siltation,
- ✓ Waste generation from construction and operations areas.
- ✓ Waste water generation
- ✓ Hazardous waste generation
- ✓ Potential pollution soils and ground water from Oils and hydrocarbon spills
- ✓ Potential threat of modifying the natural drainage pattern
- ✓ Land degradation
- ✓ Chemical storage and disposal
- ✓ Risk of fire
- ✓ Ecological disturbance
- ✓ Public safety

Mitigation and Enhancement Measures

- ✓ Promoting of local businesses, Time contribution of the taxes and continuous stakeholders' engagement to help the communities.
- ✓ Site control measures such as pollution control dam and continuous environmental monitoring.
- ✓ Control of effluent from the mining and processing operations area into the waterbodies;
- ✓ Provision of appropriate PPE for the employees and controlled clearance of vegetation barriers;
- ✓ Control of erosion.
- ✓ Proper waste management and disposal practices of site.

- ✓ Installation of proper waste water network and septic tanks to sewerage waste
- ✓ No servicing of equipment's, machinery and vehicles will be done on site. Oil and Hydrocarbon spill kits will be placed in strategic places throughout the mine for easier redial response in case of an emergency.
- ✓ The mine design, installation of mining infrastructure and drainage will be done in a way poses very minimal disturbance to the natural Drainage
- ✓ Areas already cleared by the local settlers will be utilised for building mining support structures. In addition, only areas where the mine pit and infrastructure will be planted will be cleared.
- ✓ Chemicals will be stored and handled by qualified handlers in designed room, expired chemicals and empty chemical bottles will be disposed of by a licensed Hazardous waste collector.

In order to mine the coal and result in lower environmental impacts, the company has developed and will implement an Environmental Management Plant (EMP) to manage the negative impacts and enhance the positive impacts of the mining activities. Shimabu mining Limited with regard to implementation of the ESMP, will have senior management commitment to ensure that the level of environmental and social performance identified in the EMP for the proposed project is achieved while the appointed contractors will ensure that the level of performance required during construction phase are attained. The EMP includes commitments for capacity building and technology transfer to ensure consistent and acceptable environmental and social performance during the development and construction phases of the Project.

NON-TECHNICAL SUMMARY (TONGA)

BUPANDULUZI MUBUFWAAFWI

Cooko cakumusanza mucisi ca Zambia Cilijisi masena manji-manji mwalo mukonzya kujanwa mpansya zyamunyika zyiindene-indene mbuli malasyabbwe (coal) alimwi azimwi-zimwi. eezi mpasya zilajanika mucibanda amalundu mwiinda mulonga wa zambezi. Mweelwe wabun ji bwamalasyabbwe (coal) aakajanika ookuya ku maini yaku Maamba ulasika kutuulunzuma tutaleli kumataani aali mwaanda omwe amakumi cisambomwe acisaambomwe (166 million tonnes) ookuya kumasena aategwa ku Izuma alimwi akukanzinze.

Kwaceecino ciindi milimo yakumaini yakufwumba malasyabbwe(coal) ilacitika ookuya ku Izuma aba kkampani ya ba Maamba Collieries Limited (MCL). Alimwi akookuya ku Nkandabbwe aba kkampani ya Colum Coal Mine Industry Limited.Kunze kwaboobo, masena aambi mujanwa malashabbwe nkookuya ku Mulungwa, kwa Syaankodobbo, kucisanga alimwi akwa syaambabala.

Bunji bwamilimo iileta buvwubi bwacisi mucooko cakumusanza, iyaabuleka kuzwa buyo kubulimi bulikke, kuyaabuzyalwa milimo iimbi mbuli yakusya mpasya zyamunyika mbuli malashabbwe (coal) alimwi aminsamu iimbi iijanwa kungsi anyika. lino akaambo kazizuminano zijatikizya mamaini zyamumwaka wa 1995 alimwi amumwaka wa 2013, cooko cakumusanza cazumanana kutola lubazu mukufwumba lubulo ampasya zimwi ziindene-indene zyalo zizwa kungsi anyika.

Ikkampani ya Shimabu Mining Limited (SML), eeyi ni Kkampani iilembedwe mucisi Ca Zambia mumulimo wa kufwumba naa kusya malashabbwe. Eeyi Kkampani yakalembwa amfwulumende yacisi ca Zambia kuti kaileta buvwubi lyoonse mucisi mubuzuba bwa mu 13 March 2018.Eeyi Nkampani yakalembwa alaisensi namba 22912-HQ-LEL Yalo yakapegwa amutabi uulanganya zyamamaini mucisi ca Zambia kweendelanya abubelesi bwamamaini mucilikiti ca Gwembe mucooko cakumusanza mucisi ca Zambia.

Eeyi Kka pani yakeendeenda mucooko eeci kwiinda mukuzumizigwa amutabi uulanganya zyamamaini mucisi ca Zambia kuyaabulanganya kuti sena mpasya zyakungsi aanyika inga zyajanika ,aboobo yakajana kuti kuli malashabbwe manji loko mubusena oobu calo ciyakupa kuti kukabe kubeleka milimo mipati yakufwumba mpasya eezi mubusena oobu.Oobu busena bwakapegwa alaisensi mbupati,mahekele alasika ku3652597Ha alimwi oobu busena mbwakookuya kwa Siamuluwa,mumunzi mwa Simpani mucilikiti caku Gwembe mucooko caku musanza wa Zambia.Eeyi Nkampani ya Shimabu Limited ilijisi luziyibo lunji kapati mumulimo wakufwumba mpasya kungsi anyika alimwi amukuyandaula mpasya zyijanwa kungsi aanyika.

Ibusena buyeeyelwa kuti inga kwaakubambwa maini bulikookuya kwa siamuluwa mumunzi mwa Sompani mucisi camwami Chipepo.Oobu busena buli mucilikiti ca Gwembe bupati bwambubo bujisi mahekele aasika nku 3652.5970Ha, oobu mbobusena bwakazumizigwa alaisensi yakapegwa. Oobu busena bujanwa musinzo uulampa kusika ku 260km kuzwa ku Lusaka kusikja kumusanza nkabela bulalampa musinzo uusika ku 53 km kuya kumusanza jwe kuzwa ku Gwembe.

Oobu busena inga muntu wasika kuti wabelesya mugwagwa wa T1 (Kafue road) kuzwa ku Lusaka kusika ku Chisekesi ooyu musinzo uuyeeyelwa kuti inga walampa musinzo uusika kuma kilomitaazi aasika ku 207km. Kuzwa waaweo nkokuti nkunjila mugwagwa wa D375 kuunka ku Gwembe kuzwa ku Chisekesi musinzo uuyeeyelwa kuti inga walampa kusika ku 49.9km kusika kuciswaanganino yamigwagwa yobile ya D375 alimwi a D500. Kuzumanana mumugwagwa wa D375, weelede kweenda musinzo uusika ku 8km kuyoosika kuciswaanganino camugwagwa wa D375 Kwalo nkouswaanganina amugwagwa uutazyiziyilwe (uutauzikidwe zyina mu maapu). Ooyu mugwagwa ulalampa ma kilomitaazi aatraleli ku 3.5km kusika kubusena bwamaini eeyi.

Busena buyeeyelwa kuti malashbbwe inga ajanika mubusena boonse bwakapegwa alaisensi bulakomena kusika ku mahekele aataleli ku 3652.597Ha. Oobu nmbobusena bwa maini buyoobelekewawo akuyaka zyintu zyoonse zyelede kuyakwa zyamaini alimwi amadindi mwalo munoosigwa mamaini. Minyinda mboobu mboyaapawidwe:

Muzeezo mupati uuliko ngwakupanga maini mpati kapati mwalo munoofwumbwa malashabbwe manji kapati calo eeci ciyakupa nkuti bantu banji mubusena oomu bakajane milimo alimwi kukayakwe zyintu zynji zyiindene-indene mubusena mbubwena oobu. Basyaazibwene balombozwa kuti bakabambe maopesi mumonya oomu mucilikiti ca Gwembe kutegwa bubelesi bukaube-ube alimwi bukeende kabotu. zyoonse eezi ziyakuleta bulumbu kubanamaleya bakkkala mubusena oobu.

Eeyi Nkampani ya Shimabu Mining Limited ilombozwa kubamba maini mpati yalo iijisi laisensi namba eeyi; 22912-HQ-LEL Kweendelanya abuvwuntauzi bwakaba kale mubusena oobu. Kwaceecino ciindi, oobu busena buzwide buyo masamu alimwi abwizu nkaambo kunyina bubelesi bwamamaini bwakacididwe kale aawa. Kunze kwaboobvo, oobu busena bulizungulukidwe kale amakkampani aayanda kujula mamaini aabo abalo.

Lino kutegwa zyintu eezi zyoonse zicitwe, Inkampani ya Shimabuileelede kubweza cipepa cizumizya kutri ibeleke (laisensi) kuzwa kumutabi wamfwulumende uulanganya zyamamaini walo wakazumizigwa acibeela cilanganya masena mucisi ca Zambia (Zambia Environmental Management Agency) naa ZEMA Walo uulanganya bulumbo bukonzya kucitika naanka mbubotu nokuba kuti mbi, kutri mamaini azumizigwa kuti abeleke oomu mmucilikiti ca Gwembe. Bunsengwe-nsegwe bwa masena bwakalanganizigwa kale abupanduluzi bwakapegwa kale kweendelanya aazyandika kucita kwiinda mukuzuminana aba ZEMA kwiinda mumilawo eeyi iitobela;

- ✓ Bweendelezi bwamasena (Environmental Management Act No. 8 of 2023)
- ✓ Milawo ilanganya zyazikonzya kucitika kubusena bwabeleseghwa (Environmental Impact Assessment Regulation No. 3 of 2026)
- ✓ Mulawo uulanganya zyamigodi (The Mines and Minerals Development Act no:11 of 2015)
- ✓ Mulawo uulanganya bukwabilizi bwazintu zyacisi (The National Heritage Conservation Commission Act of 1989)

- ✓ Mulawo uulanganya tudanda miti (The explosives Act no:10 of 1974)
- ✓ Mulawo uulanganya zyameenda (The water Resources Management Act of 2011)
- ✓ Mulawo uulanganya bukkale bwabantu mucisi (The Local Government act no:2 of 2019)
- ✓ Mulawo uulanganya basikunjizigwa milimo (The Employment code Act No.3 of 2019)
- ✓ Bukwabilizi bwababelesi balanganya zya nseba (The Occupational Health and Safety Act no: 36 of 2010)
- ✓ Mulawo ulanganya zyakusowa matombe (The Solid Waste Regulation Act no:20 of 2018)
- ✓ Mulawo ulanganya bulongwe bwa masi
- ✓ Bulumbu bwabubelesi bwababelesi (The Workers Compensation Act No:10 of 1999)
- ✓ Mulawo ulanganya nseba zyaabana maleya (The Public Health Act of 1996)
- ✓ Milawo iilanganya zyamingwimba (The Petroleum Act and Energy Regulation Act of 436)
- ✓ Milawo iilanganya zyamumigwagwa (The Road Traffic Act no:11 of 2002)
- ✓ Milawo iilanganya zyamakwebo (The Investment Act No:385 of 1993)
- ✓ Milawo iilanganya zyamayake alimwi amakkanso mucisi (The National Council Construction Act no:13 of 2003)
- ✓ Milawo iijatikizya zyaabamamami (The Chiefs Act)

Ikkampani ya Shimabu Limited ijisi makanze aakufwumba mpasya yabbwemalasha kweendelanya namboyatakajana kuti busena oobu bulijisi nmabwemalasha manji kapati mubusena bujisi naa buklembedwe alaisensi namba eeyi 22912HQ-LEL.Eeyi Kkampani inikusya mabwemalasha kwiinda mukubelesya dindi pati likwazeme (open pit mining). Mubusena oobu, ibuisena bujisi mabwemalasha bulazwa aakati kusikila kumbo mubusena oobu bwakalembwa alaisensi; Nzeezi ziumwi zintu ziyakucitika mubusena oobu;

- Mulimo wakutaanguna;nkubamba busena boonse ,eeci ciyakucitwa mumwaka omwe
- Mulimo wabili:nkusya mabwemalasha kwiinda mukubelesya dindi likwazeme ,eeci ciyoocitwa mumyaka iili makumi otatwe
- Mulimo watatu:nkukomezya busena bwamaini bwamazuba aaciza kumbele
- Mulimo wane:nkuleka akujala maini

Akaambo kakuti mubusena oobu kuli masamu alimwi asokwe linji kapati, cintu ciyakuyandika nkubona ncobeni kuti busena boonse oob u lutaanzi kwasalazigwa kutegwa milimo yoonse yabubelesi bwamaini ikeende kabotu; lino mboobu milimo mboiya kutobelana;

- ✓ Nkusya dindi pati likwazeme mwalo munoofwumbwa mabwemalasha mubusena oobu bukomena kusika kuma hekele aali makumifwuka (90Ha).
- ✓ Kubamba busena byumukapati bwamabwe alo anikubambilwa zintu zilema kapati,oobu busena bunookomena kwama hekele aali kkumi (10Ha)
- ✓ Kubamba mayake munikubelekelwa milimo yoonse yakumaini,mbuli maopesi,mukkalila babelesi,mwakubambila meenda azyakubambila zintu zyiindene-indene zyakubelesya mumaini eeyi.Oobu busena bunooli bupati kusika kuma hekele aali makumi otatwe (30Ha)
- ✓ Kubamba busena aanikubambilwa zibelesyo zyamagotokala amyoota, alimwi atumyootokala, nkokuti zibelesyozyamyootra iilema aitailemi., bubambe bwabukwabilizi,

bbiliji lyazintu zilema kapati,maanda aakucincila,agenda lytakubambila naa kusunbga mingwimba,zyoonse ezi ziytakutola busena busika kuma hekele aali makumi otatwe (30Ha)

- ✓ Zyakuzimya mulilo azyalo zinooliko munkambe
- ✓ Zisambilo azimbuzi azyalo ziyooyakwa
- ✓ Kubambwa zibelesyo zyakuletya mumuni ciindi camasiku

Kunze kwazeezi zimwi zintu ziyoobambwa ndipaipi linikuleta meenda kumaini kuzwa kumilonga. Lino mbubwena mbulimabwe aamunyika woonse buyo, alkyalo bbwelasha (coal ore) eeli liyakupwaigwa atudandamiti kutegwa likaposooke kalitaninga gusigwa kuzwa munyika, kwaakumana mabwe aaya anikubwezegwa kuzwa munyika akubikkwa mumatulaki, aalo matulaki anikususa kutola mabwe aaya aabusena bomwe mpaani kulundikilwa.

Eyi nkampani ya iyanda kuyakubelaka milimo yakufwumba mabwemalasha kwaciindi citaleli kumyaka iisika ku 25 naanka 30,nkokuti yaakumana myaka eeyi,ayalo kkampani eeyi iyakuleka kufwumba malashabwe mubusena oobu eelyo maini yoonse iyakujalwa amilimo iyakulesegwa.kutegwa woonse makanze aaya akazwidilile,nkokuti kuyeeyelwa kuti mali aayakubelesegwa ayakusika kumweelwe wa USD 930,000.00 Calo eeci ciyakubamba milimo iitugwa muncili iitaleli kumakumi otatwe kubantu buyo bamubusena oobu abantu bazwa mumasena aaindene-indene.lino mumilimo yoonse eeyi,nkokuti kuli bubotu alimwi abubi buyeeyelwa kuti inga bwaakujanika.

- ❖ Bubotu buyeeyelwa mboobu;
 - ✓ Makwebo aabantu mubusena oobu nayakusumpuka
 - ✓ Mfwulumende iyakujana mali kwiinda mukutelesya bantu abantu bayakujana milimo ku kkanso
 - ✓ Bantu bayakujana milimo yakubeleka
 - ✓ Bukkale abubelesi bwabantu buyakusumpuka
- ❖ Bubi bulangilwa kuyakujanika mboobu;
 - ✓ Meenda muzitanbgtazyiba amumilonga ayakunyonganisigwa akubija
 - ✓ Coongo alimwi alusuko
 - ✓ Nyika iyakutolwa ameenda manji ayenda
 - ✓ Kulundana kwameenda manji mabi aabusena bomwe
 - ✓ Kuzwa kwameenda mabi manji
 - ✓ Tombe linji lijisi zyilijazyo linikuzwa
 - ✓ Maanzi aakunsi anyika alimwi anyika lwayo ziyakunyonganiosigwa
 - ✓ Nyika iyakusampuka akubula mbolezi
 - ✓ Busena buyakuzingulukwa aaminsamu iikola
 - ✓ Kubbomoka kwamililo
 - ✓ Maumi manji aabantu ayakuba mucilijazyo
- ❖ Sena ncinzi ciyakucitwa kukwabilila ntenda eezi zyakananwa aatala aawo;
 - ✓ Mpindu zyantutu ziyookwabililwa abalo bantu bayakupa mitelo kweendelanya amulawo

- ✓ Kuyakubambwa cisowelo catombe
- ✓ Kubona ncobeni kuti bulondo bukalanganisigwe kapati
- ✓ Meenda aazwa mumaini taayelede kunikweenda ceendeende
- ✓ Nyika iyakukwabililwa kuti itakatolwi ameenda aayenda manji
- ✓ Zilivwunyo kuntenda mbuli mulilo ziyakubikkwa aatuba kutegwa citakasyupi kuzibelelesya naaa ntenda yagemuka
- ✓ Myootokala inoobambilwa mumasena mweelede
- ✓ Abulikke busena buyakugonkwa mbobuyakubelesesegwa mumilimo yamaini
- ✓ Minsamu iikola iytakubikkilwa maanu abasyaabupampu beelede bakaiya milimo eeyo

Ikutegwa milimo yakufwumba bbwemalasya ikazwidilile, ikkampani iyakulanganya zyoonse zyelede kucitwa mubusena oobu nkutegwa kukabule manyongwe antenda zyinji ciindi milimo yaakutalika. eeyi kkampani iyakubikkila maanu kulanganya bubotu alimwi abubi bukonzya kuletwa aaku cita milimo yamaini mubusena oobu akuzyiba mapenzi aanga aletwa mbwaakonzya kumanizigwa.

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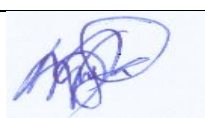
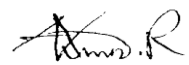
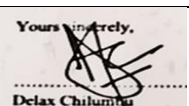
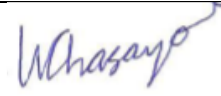
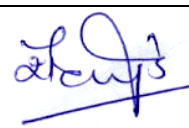
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ACRONYMS AND ABBREVIATIONS

AIDS	-	Acquired Immune Deficiency Syndrome
ASL	-	Above Sea Level
SML	-	Shimabubu mining Limited
CBD	-	Central Business District
DNPW	-	Department of National Parks and Wildlife
ECZ	-	Environmental Council of Zambia
EIA	-	Environmental Impact Assessment
EIS	-	Environmental Impact Statement
EMA	-	Environmental Management Act
EMP	-	Environmental Management Plan
EPB	-	Environmental Project Brief
EPPCA	-	Environmental Protection and Pollution Control Act
ESMP	-	Environmental and Social Management Plan
ESIS	-	Environmental and Social Impact Statement
GMA	-	Game Management Area
GRZ	-	Government of the Republic of Zambia
GTC	-	Gwembe Town Council
Ha	-	Hectares
HIV	-	Human Immune Virus
IAP	-	Interested and Affected Parties
Mt	-	Metric tonnes
MMDA	-	Mines and Minerals Development Act
MMMD	-	Ministry of Mines and Minerals Development
N/A	-	Not applicable
NCS	-	National Conservation Strategy
NEAP	-	National Environmental Action Plan
RAP	-	Resettlement Action Plan
RHC	-	Rural Health Centre
SI	-	Statutory Instrument
SMP	-	Social Management Plan
TORs	-	Terms of Reference
WARMA	-	Water Resources Management Authority
ZEMA	-	Zambia Environmental Management Agency
CSR	-	Corporate Social Responsibilities

Names and Signatures of Participating Team Members:

The undersigned, declare that the information contained in this report is true and correct to the best of our knowledge for and on behalf of Shimabu Mining Limited.

Name	Specialization/role	Signature
Gillan Simfukwe	Team leader, EIA advisor, Public Consultation, Impact Characterization, Impact Identification and analysis, Drawing Up the EMP. Description of the mining	
Mubanga Mwansa	Mining environmental Impact Analysis, Characterization of Waste streams, project EMP, Socio-Economic baseline, social management plan. Public consultations. Air quality, dust and noise measurement studies in the project area	
Anthony Kunda	Analysis of coal mining impacts of the project, Impact characterization. Metallurgical processes advisory and formulation of mitigation measures associated with mining and excavations of the ore pits.	
Delax Chilumbu	Analysis of Acid base Impacts of the mining operations including acid base accounting based on the open pit operation plan of the mine.	 Yours sincerely, Delax Chilumbu
Wisdom Chasaya	Socio-Economic baseline, social management plan. Public consultations and stakeholder engagement. Socio-Economic baseline, social management plan. Public consultations. Coordination of the RAP activities in collaboration with the DMMU regional coordinator in Southern Province and Department of Social Welfare and in accordance with the National Resettlement Policy.	
Philip Chikasa	Water Resources Mgt Plan, Planning, designing, supervision of water resources quality assessment and monitoring activities at the project. Mine dewatering and underground water resources utilisation study and Water quality evaluation.	
Shaitan Singh Chouhan	- Managing a team of Geologists in greenfield and brownfield project. - Coordinating all geological activities, budgets, contractor services & plans relating to the maturation of upstream exploration & new growth projects. - Providing geologically based interpretation, analysis & exploration recommendations. - Ensure that the exploration geological database is up-to-date, accurate & appropriate for all geological and mining needs. - Liaising with various Government regulating body for statutory compliance in India & overseas assignment. Technical evaluation & commercial negotiation of all contracts related to exploration & mining activities.	



STATEMENT OF AUTHENTICITY

Shimabu mining Limited hereby affirms that the information presented in this ESIS report is correct to the best of the company's knowledge and that all sources have been cited accordingly.

A handwritten signature in black ink, appearing to read "Juliet", is positioned above a horizontal line.

Juliet Sichobo Bushe
Director
Shimabu Mining Limited

1.0 INTRODUCTION

Shimabu Mining Limited (SML) is a Zambian registered company with interests in coal mining. The company was registered by the government of Zambia as a limited liability company on 13th March, 2018. SML is a holder of a large-Scale Prospecting License No 22912-HQ-LEL which was offered by the Ministry of Mines with respect to Coal mining in Gwembe District of the Southern Province.

Following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in the project area. The large-scale mining license area which spans an area of 3652.597Ha is located in Gwembe District in the Southern Province of Zambia. Shimabu mining Limited and its directors have years of experience in the management of mining related projects in Zambia. The prospective mining activity will be undertaken by seasoned employees who have previously worked from the coal belt areas in Maamba, Sinazongwe and Maamba.

SML intends to establish and operate a large-scale Coal mine and in the long run provide jobs for the local people and infrastructure development to the project area. The developer intends to establish an operation office in Gwembe District for ease of operations, create project ownership for the local people and for implementation purposes. Shimabu Mining Limited Has undertaken exploration activities in the license area and the evaluated ore in the initial stage indicates high quality coal reserves. Follow up geological works will be carried out to explore other high grade coal rich reserves within the license area.

In view of the above, the project proponent commissioned *Greenline Environmental Solutions Limited* to conduct an Environmental and Social Impact Assessment and develop an Environmental Impact Statement (EIS) as required by the Environmental Management (Amendment) Act of 2023 read together with the Environmental Impact Assessment Regulations of SI No. 28 of 1997. The process of conducting an environmental impact assessment cannot commence unless Terms of Reference have been submitted to the Zambia Environmental Management Agency (ZEMA) and approved.

This In line with these provisions, the consulting team identified relevant stakeholders in the project area, organized consultative meetings to get the views from the affected and interested parties District. Project consultative meetings were held which local stakeholder meeting and project scoping meeting at Sompani Primary School which is located within the License Area on Wednesday 6th November 2025 and the EIA scoping meeting was held on 19th November 2025 at Sompani Primary School.

The contributions that were obtained from the identified stakeholders consultative and scoping meetings have been included in the Terms of Reference (sections 7.0 and the minutes of the two meetings under section 13). The issues/ concerns raised during these meeting including many other issues identified by the developer/ consulting team and comments to be raised by the stakeholders and Zambia Environmental Management Agency will form part of the Terms of Reference (TOR) that will guide the consulting team in the carrying out of the ESIA of the proposed project.

Project consultative meetings were held with interested and affected stakeholders as indicated in the table below.

Table 1: Stakeholder consultative meetings

Meeting date	Meeting details	Venue & Total attendance
6 th November 2025	SML Management Meeting with HRH Chief Chipepo and Chief Representative and local headmen to discuss the proposed project and the details, rationale and agreements as regards the company CSR and mitigation measures for the anticipated impacts of the project undertaking.	Sompani Primary School. A total of 23 stakeholders attended the meeting
19 th November 2025	ESIA stakeholders scoping meeting to discuss the proposed development of SML large scale coal mine, the area to be covered by the proposed mining activities, project benefits and impacts of the project on the local people. Land acquisition and ownership issues as well as Resettlement preliminary activities that form part of the scope of the ESIA.	Sompani Primary School: Sompani primary School.59 stakeholders attended the scoping meeting and diverse views were exchanged during the meeting.
9 th April, 2026	ESIA stakeholders' disclosure meeting held to disclose the findings from the field study on 9 th April, 2026	Sompani Primary School: Sompani primary School.71 stakeholders attended the disclosure meeting and diverse views were exchanged during the meeting.



Scoping meeting as part of the ESIA study and stakeholder engagement



SUNDAY MAIL, November 16, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) **SCOPING MEETING**

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

IN LINE WITH THE ENVIRONMENTAL MANAGEMENT (AMENDMENT) ACT NO. 8 OF 2023, READ TOGETHER WITH THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION OF 1997, SHIMABU MINING LIMITED INTENDS TO UNDERTAKE THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY FOR THE PROPOSED PROJECT AS PER REQUIREMENT.

IN VIEW OF THE ABOVE, SHIMABU MINING LIMITED HEREBY INVITES YOU TO THE PROJECT EIA SCOPING MEETING FOR THE PROPOSED PROJECT TO OBTAIN INCLUSIVE VIEWS AND CONCERNS FROM ALL STAKEHOLDERS.

DATE: WEDNESDAY 19TH NOVEMBER 2025

TIME: 09:00HRS

VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED

Office line: +260 211 222 029 Mobile Line : +260 966 656 697 and +260 979 609484

Email : environmentalgreenline@gmail.com

RSO398322/16.18.11

5
ZAMBIA DAILY MAIL, Tuesday, November 18, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) SCOPING MEETING

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

IN LINE WITH THE ENVIRONMENTAL MANAGEMENT (AMENDMENT) ACT NO. 8 OF 2023, READ TOGETHER WITH THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION OF 1997, SHIMABU MINING LIMITED INTENDS TO UNDERTAKE THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY FOR THE PROPOSED PROJECT AS PER REQUIREMENT.

IN VIEW OF THE ABOVE, SHIMABU MINING LIMITED HEREBY INVITES YOU TO THE PROJECT **EIA SCOPING MEETING** FOR THE PROPOSED PROJECT TO OBTAIN INCLUSIVE VIEWS AND CONCERNS FROM ALL STAKEHOLDERS.

DATE: WEDNESDAY 19TH NOVEMBER 2025

TIME: 09:00HRS

VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

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Email : environmentalgreenline@gmail.com

Scoping meeting advert for proposed meeting on 19th November, 2026 with all stakeholders.

1.1 Background of the Project

The background to the proposed undertaking of coal mining activities in the area emanates from the results of the exploration works that have been undertaken in the project area after the grant of the exploration license by the Ministry of Mines and Minerals Development to Shimabu mining Limited (No. 22912-HQ-LEL) for a tenement in Gwembe District of Southern Province. The licence was issued in accordance with the Mines and Minerals Act on 21st June 2018 and is valid for four (4) years up to 21st June 2022.

Shimabu Mining Limited intends to setup a large-scale coal mine within the boundaries of the license area. Being a greenfield, SML intends to make this project a going concern with projected mining and infrastructure development in new areas of the license that will involve land clearing in preparation for the construction activities to be conducted in new areas of the mine site. The clearing will involve the removal of vegetation to pave way for the construction of project facilities new areas. The proposed mine site facilities in will include;

- ✓ Open pit Mining area with proposed benched open pit areas covering 110Ha of mine license area.
- ✓ Waste rock ROM pad for the storage of overburden material of approximately 80Ha.
- ✓ Proposed site for the construction of mine support infrastructure such as administration offices, Workers quarters, plant utilities such water treatment and storage plant to cover approximately 10Ha.
- ✓ Engineering workshop to carter for both heavy and light vehicle repairs at the mine site, store rooms, security checkpoint to control and monitor activities at the mine site, weigh bridge, change house, and fuel storage facility to cover 10Ha.

The company further plans to undertake the safety measures by erecting a security/perimeter fencing around the mining pits and restrict access by the local public in the area and alternative access routes for the local settlers residing on the other side of the proposed mine site. Other developments during this phase will include:

- ✓ A fire break around the camp site will be maintained
- ✓ Construction of bathing shelters and Toilets
- ✓ Setting up of a Sample Storage Area
- ✓ Demarcation of and digging of a Waste Disposal Pit
- ✓ Setting up alternative power for basic night lighting during new mine site construction
- ✓ Setting up of Radios for communication
- ✓ Maintain fire-extinguishers at the camp site

In light of the foregoing and as per EIA regulation, SML undertook the Environmental Impact Assessment Study for the proposed coal mining operations and planned activities as part of the requirements to be granted a mining License.

In view of the above, SML, following the completion of the Environmental and Social Impact Assessment study as required by the Environmental Management Act of 2011 read together with the environmental impact assessment regulations of SI No. 28 of 1997 hereby present the Environmental Impact Statement.

1.2 Summary Description of the Project Including Project Rationale

Gwembe in southern province houses a very high-grade coal belt which have been previously mined by existing mining companies in the area. There is one other existing mine in the district that include Fedar investments company limited.

Shimabu mining Limited intends to apply to the Ministry of Mines and Minerals Development for the grant of a large-scale coal Mining License in Siamuluwa area of Gwembe District under exploration license No. 22912-HQ-LEL which is 3652.597Ha in extent. The proposed mine area is within Senior Chief Chipeco's area and has rich in coal mineral deposits that SML intends to exploit.

In view of the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the license area, SML envisages to undertake the large-scale coal mining activities in Siamuluwa area in Chief Chipeco 's Chiefdom of Gwembe district which has yielded adequate coal potential to warranty mining activities. The SML large scale mine will utilize part of 3652.5970Ha of the License area, for the mine pit and mine support infrastructure installations located in in the initial development phase in Siamuluwa.

Shimabu Mining Limited and its directors have years of experience in the management of mining related projects in Zambia. The prospective mining activity will be undertaken by seasoned employees who have worked previously from the coal mining projects.

1.3 Objectives of the Project

The main objective of the project is to exploit coal in License No. 22912-HQ-LEL using open cast mining methods and subsequent establishment of an open pit mine and crushing plant for crushing the mined coal ore. The proposed project aims at mining and recovery of the ore contained in the geological environment of Siamuluwa area in Gwembe District. Support objectives will include;

- ✓ Explore the natural resource in the project area and develop, mine and manage the existing Coal ore deposit within the license area.
- ✓ To create wealth for the shareholders and the workers
- ✓ To improve the welfare of the local community
- ✓ To generate income for the local and central government through the payment of taxes and royalties and the revenue generated through the coal sales.
- ✓ Opening up the new open pit for accessing the orebody using the mining machinery and materials (excavators, loaders, bull dozers, explosives etc.).
- ✓ Construct and manage mine site infrastructure to support the mining activities in the project area. SML will construct other support facilities such as Waste rock dumping area, Maintenance workshops, Offices, Accommodation housing for the workers.

1.4 Brief Description of the Location

The The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chipeco's chiefdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license.

The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD). The license can be accessed using T1 road (Kafue Road). From Lusaka to chisekesi, a distance of 207km approximately. Then Join the D375 road to Gwembe from chisekesi, for about 47.9km. to the Junction between D375 and D500. Continuing in D375, move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area.

The coal deposit in the project area lies within the 3652.597Ha (License No. 22912-HQ-LEL. This is the major part of the license that will be developed into the mine encompassing the mine pits and associated support infrastructure.

Table 2: Shimabu Mining License No. 22912-HQ-LEL Coordinates

No	LATTITUDE	LONGITUDE
1	16°40'42.00"S	27°44'48.00"E
2	16°40'42.00"S	27°46'18.00"E
3	16°40'48.00"S	27°46'18.00"E
4	16°40'48.00"S	27°46'30.00"E
5	16°40'54.00"S	27°46'30.00"E
6	16°40'54.00"S	27°46'36.00"E
7	16°40'60.00"S	27°46'36.00"E
8	16°40'60.00"S	27°46'42.00"E
9	16°41'18.00"S	27°46'42.00"E
10	16°41'18.00"S	27°46'36.00"E
11	16°41'30.00"S	27°46'36.00"E
12	16°41'30.00"S	27°46'30.00"E
13	16°41'36.00"S	27°46'30.00"E
14	16°41'36.00"S	27°46'24.00"E
15	16°41'48.00"S	27°46'24.00"E
16	16°41'48.00"S	27°46'18.00"E
17	16°41'60.00"S	27°46'18.00"E
18	16°41'60.00"S	27°46'12.00"E
19	16°42'06.00"S	27°46'12.00"E
20	16°42'06.00"S	27°46'06.00"E
21	16°42'18.00"S	27°46'06.00"E
22	16°42'18.00"S	27°46'00.00"E
23	16°42'30.00"S	27°46'00.00"E
24	16°42'30.00"S	27°45'54.00"E
25	16°42'36.00"S	27°45'54.00"E
26	16°42'36.00"S	27°45'48.00"E
27	16°42'48.00"S	27°45'48.00"E
28	16°42'48.00"S	27°45'42.00"E
29	16°43'00.00"S	27°45'42.00"E

30	16°43'00.00"S	27°45'24.00"E
31	16°45'54.00"S	27°45'24.00"E
32	16°45'54.00"S	27°42'30.00"E
33	16°44'06.00"S	27°42'30.00"E
34	16°44'06.00"S	27°43'36.00"E
35	16°42'30.00"S	27°43'36.00"E
36	16°42'30.00"S	27°44'48.00"E



Landmarks leading to the license area in Gwembe District

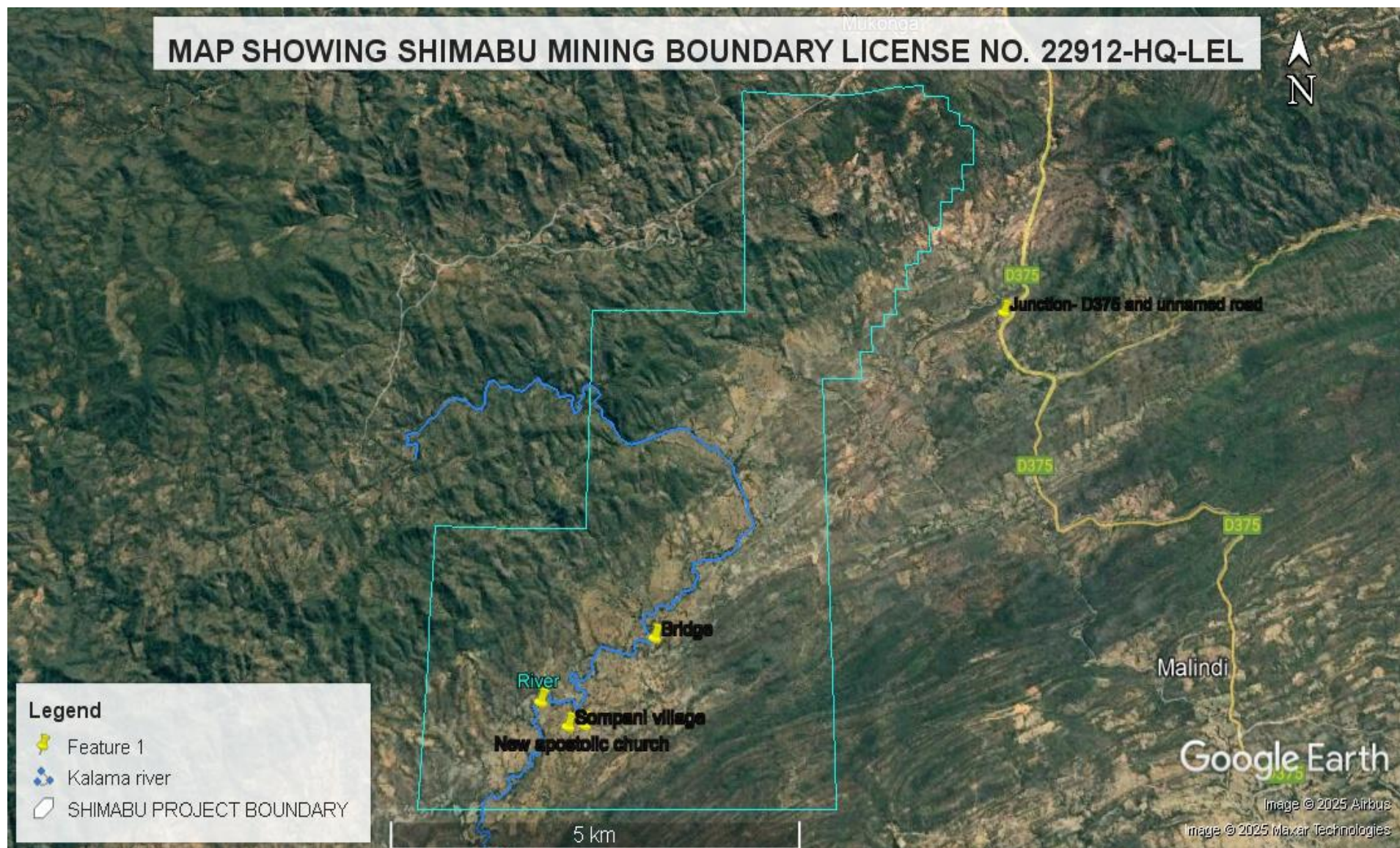


Figure 1: Project Site Boundary Map for License No. 22912-HQ-LEL

1.5 The developer's physical address and contact person

Table 3: Contact Details of the Developer

Proponent	Shimabu Mining Limited
Contact person	Juliet Sichobo Bushe
Designation	Director
Mobile	Cell: +260977493455
Email	shimabumininglimited@gmail.com
Physical Address	Plot No.299B Mapanza Road Kafue District

1.6 Particulars of Shareholders/Directors

Table 4: Particulars of Shareholders and Directors

Shareholders and directors					
NAME	NATIONALITY	ID No.	DESIGNATION	SHARES	%
Juliet Sichobo Bushe	Zambian	169574/11/1	Shareholder	5,000	50
Marshal Makundano Hosea Bushe	Zimbabwean	946574/11/2	Shareholder	5,000	50
Floating shares				5,000	
Total shares				15,000	100

1.7 Track Record/Previous Experience of Enterprise Elsewhere

Shimabu Mining Limited (SML) is a Zambian registered company with interests in coal mining. The company was registered by the government of Zambia as a limited liability company on 23rd March, 2018. SML is a holder of a Large-scale exploration License No.22912-HQ-LEL which was offered by the Ministry of Mines with respect to Coal mining in Gwembe District.

In Zambia, Shimabu mining Limited has no other exploration licenses. Further, the prospective mining activities will be undertaken by seasoned employees who have previously worked from the coal belt areas in Maamba and Sinazongwe.

1.8 Total Project Investment

Shimabu Mining Limited envisages undertaking the project in a phased approach using a 5-year implementation plan commencing in the 4th Quarter of 2026. SML intends to invest a total of **USD 930,000.00** in the project which will in turn create over 200 permanent jobs to the local and other people. The total project investment budgeted for the development, implementation and operation of the project. The project will be implemented using a phased approach with initial construction and operation works to commence in the 4th Quarter of 2026 upon obtaining approval from relevant regulatory authorities including the grant of the Mining License. Specific project implementation components of the investment cost include Open Pit mining activities, creation of explosive magazine, Waste Dump Rock, construction of administrative office block, Staff housing and support facilities, Maintenance yard and Coal stock pile platform.

1.9 Proposed Project Implementation schedule

The implementation of the project is expected to be almost immediately after the approval of this EIS by ZEMA and granting of the Mining License by the Ministry of Mines and Minerals Development in

consultation with other regulatory authorities. SML intends to start with the construction of the mining support infrastructure on site after which it will commence the mining activities at Open pit sites alongside implementation of the compensation Plan for the people that will be affected by the proposed mining activity in the license area as the mine area will be declared a scheduled area once operations commence.

Table 5: Mining implementation plan (25-30 year strategic plan)

S/No.	Planned activity	Duration	Start	Finish
1	Preconstruction phase	6 Months	20 th June, 2026	28th December, 2026
2.	Preparation Phase	3 Months	28 th January, 2027	28th April, 2027
3.	Operation Phase	25 Years	30 th May, 2027	30th May, 2055
4.	Decommissioning/Closure Phase	12 Months	30th June, 2056	31st June, 2057

1.10 Approach and methodology of the study

This EIA study was undertaken through desk review of the relevant literature and specialized study of the various components of the project i.e. water, air, soil, noise, ecology, flora, fauna, climate and geology. Other studies included socio-economic and cultural related studies. The baseline field surveys of the area of direct land take by the proposed Project and of immediate surrounding areas were conducted. The baseline surveys were used to collect current site-specific data and to supplement secondary data gathered during desk study of the on-going mining activities. Communities likely to be potentially affected were consulted. The field surveys provided an updated understanding of the prevailing baseline environmental and social conditions of the Mine project area. The baseline data was used to assess the potential impacts on the physical, biological, human and wider environment, within the project's area of influence.

Desk study of the project included review of available background information about the project proponent, the project operation and its nature, environmental and legislation information. Literature review concerning the project site, collection of secondary data and analysis of survey plans was also undertaken coupled with stakeholder meetings (*project scoping, RAP stakeholder consultative meetings and disclosure meeting*) and interviews with concerned and affected people within the project area.

2.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

This section outlines the legal framework and international requirements within which the Project will be implemented. It outlines the applicable national environmental and social legislation and permitting requirements and international standards. The planned development and operation of the proposed mining activities will be undertaken under the guidance of the relevant pieces of legislation applicable to environmental management related to mining in Zambia and other international best practices. Shimabu mining Limited will adhere to the cited regulations below in the development of the mining project.

History of the Environmental regulatory framework in Zambia

Due to the need for balancing environmental requirements, economic activities and social needs, the Government of the Republic of Zambia (GRZ) adopted the National Conservation Strategy (NCS) in 1985. This was upgraded to the National Environmental Action Plan (NEAP) in 1992 with the same aim of fostering sustainable development. The NCS and NEAP are the foundation pillars of environmental laws in Zambia.

2.1 POLICY AND INSTITUTIONAL FRAMEWORK

2.1.1 The Environmental Management (Amendment) Act No. 8 of 2023

The Environmental Management (Amendment) Act No. 8 of 2023 is an Act to amend the Environmental Management Act of 2011 and primarily to strengthen regulatory oversight and align national laws with international climate protocols; provide for the prevention and control of pollution and environmental degradation.

Applicable Regulations under the Environmental Management Act No. 8 of 2023 are described below.

- a) Extended Producer Responsibility Regulation (Statutory Instrument No. 65 of 2019);
- b) Statutory Instrument No.112 of 2013–Environmental Management (Licensing) Regulations.
- c) Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, Statutory Instrument No. 3 of 2026.

Relevance: The Project will generate air pollution in terms of Particulate matter and fumes from machinery on site during construction and operation of the mine.

Compliance thereof: An air emission license will be required and conditions attached adhered to. Thus, this legislation is important to the project because SML to operate will need to keep dust emission monitored and supervised by the regulatory agency ZEMA.

2.1.2 Environmental Impact Assessment Regulations, SI No. 3 of 2026

These Regulations provides the main framework under which ESIA's are conducted, submitted to ZEMA and considered for either approval or rejection. Requirements for conducting an ESIA are all stipulated under these regulations. The ESIA regulations also provide a guideline as to how much review fee will be paid to ZEMA for purposes of reviewing the ESIA for the proposed project and that development shall not be undertaken by a developer without an approval letter from ZEMA.

Relevance: This regulation will guide SML implementation of the project.

Compliance thereof: SML shall ensure compliance at every stage and will not implement the project until approval is obtained from ZEMA.

2.1.3 Minerals Regulations Commission Act No. 14 of 2024.

The Zambian Regulation applicable to the development of a mine is the Minerals Regulations Commission Act No. 14 of 2024. An Act to regulate and monitor the development and management of mineral resources in the Republic; establish the Minerals Regulation Commission and provide for its functions; establish the Mining Appeals Tribunal; repeal and replace the Mines and Minerals Development Act, 2015; and provide for matters connected with, or incidental to, the foregoing.

It also states that a person shall not explore for minerals or carry on mining operations, mineral processing operations or gold panning, except under the authority of a mining right, mineral processing licence or gold panning certificate granted under this Act.

A person shall not undertake exploration, mining or mineral processing activities without obtaining the prior approval of the environmental impact assessment relating to the exploration, mining or mineral processing operations from the Zambia Environmental Management Agency in accordance with the Environmental Management Act, 2011.

Relevance: The Act is relevant in ensuring the project activities are in line with the required standards as prescribed by the Zambian Law and possession of relevant licenses and requirements before running exploration and mining activities.

Compliance there of: The SML Mine Manager will subsequently appoint competent persons or supervisors in charge of various functions to ensure compliance to issues related to safe working procedures and use of proper Personal Protective Equipment by workers. SML will also ensure all relevant documents are in place before any activities would commence.

2.1.4 The Forests Act No. 4 of 2015

provide for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity; establish the Forest Development Fund; provide for the implementation of the United Nations Framework Convention on Climate Change, Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance, especially as Water Fowl Habitat, the Convention on Biological Diversity, the Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa and any other relevant international agreement to which Zambia is a party; provide for matters connected with, or incidental to, the foregoing.”

Relevance: The Act is relevant in that the proposed mine area has flora that may be impacted during clearing for the establishment of mine pits and related mine infrastructure within the license area, thus this Act is vital in ensuring protection of the flora species in the project area.

Compliance there of: SML will endeavor to act within the provisions of this law in the implementation of the project to protect forest resources within the project area.

2.1.5 The Zambia Wildlife Act No. 14 of 2015

Provide for the establishment, control and management of National Parks, bird and wildlife sanctuaries and for the conservation and enhancement of wildlife eco-systems, biological diversity and objects of aesthetic, pre-historic, historical, geological, archaeological and scientific interest in National Parks;

provide for the promotion of opportunities for the equitable and sustainable use of the special qualities of public wildlife estates; provide for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhance the benefits of Game Management Areas to local communities and wildlife; the Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Convention on Biological Diversity, the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora and other international instruments to which Zambia is party; repeal the Zambia Wildlife Act, 1998; and provide for matters connected with, or incidental to, the foregoing.

Relevance: The project site does not fall within a GMA or near a known game Management Area. The proposed site is a greenfield with no major anthropogenic activities except for settlements and farming activities by the local inhabitants. The site may harbour some small fauna species thus the Act is relevant to the project.

Compliance there of: Shimabu Mining Limited will follow the requirements of this Act in order to conserve the animal and bird life within the vicinity of the mine license area.

2.1.6 The National Heritage Conservation Commission (Amendment) Act No. 19 of 2021

The National Heritage Conservation Commission Act No 19 of 2021 stipulates preservation and protection of ancient cultural and natural heritage resources and objects of aesthetic, historical and archaeological value. In this Act, “Ancient Heritage is defined as being among other things, any structure, settlement previously inhabited, land mark, burial place or any other item designated by the commission which is known or believed to have been erected, constructed or used before 1st January 1924. The Act also provides for the formation of the National Heritage and Conservation Commission which is the responsible institution.

Relevance: This act is relevant since bush clearing; construction of mine infrastructure may alter and/or damage heritage sites if there are any.

Compliance there of: This act will guide SML on the reporting, preservation and protection of heritage sites within the proposed mining license area.

2.1.7 Workers Compensation Act No. 10 of 1999

This is a Social Security Act which has provisions for employee compensation in case of injury or death of an employee whilst at work. It is a requirement under this Act that all employers register their employees with the Workers Compensation Fund and make periodic subscriptions for compensation of their employees.

Relevance: Shimabu mining Limited employees risk incurring injuries or death during the discharge of their duties due to occupational accidents at the workplace.

Compliance there of: The company management will contribute to the fund as is legally prescribed and its management will reach a legally binding agreement pertaining to the issue of the compensation fund in case of such eventualities.

2.1.8 The Water Resources Management Act No. 21 of 2011

The Water Resources Management Act No. 21 of 2011 regulates the use of surface and ground water for any of the following purposes; environmental, training and research, municipal, agriculture, industrial, hydro-electric, mining, navigation and any other activity that may be specified by the water resources management board.

Activities under these purposes may include but not limited to the following;

- a) Use water for purposes specified under section sixty, other than for domestic purposes specified under section seventy of the Water Resource Management Act No. 21 of 2011;
- b) Construct, acquire any water works, impound, supply or distribute water from any water or borehole to any other person;
- c) De-water any mine, quarry or water works;
- d) Drain any swamp, marsh, dambo, wetland, re-charge area or other land;
- e) Construct or acquire any water works for the purpose of draining into, conserving or utilizing, in any manner whatsoever, water from a water resource;
- f) Construct water works necessary to restore the course of a water resource that has changed its course;
- g) Conduct any operation that would interfere with the bank or course of a watercourse;
- h) Sink, deepen or alter any borehole for any purpose in a water shortage area; or
- i) Carry any activity in relation to a water resource as may be prescribed.

Relevance: The project license area has the Kalama River in the west part of the proposed mine site. The relevance of this act is that it will regulate how SML will utilise the surface water resources and to protect both surface and ground water from contamination.

Compliance thereof: SML will put in place measures to ensure protection against pollution and conservation of water resources when found within the site. A borehole permit will be required for the water sources that will be drilled within the mine license area.

2.1.9 The Water Supply and Sanitation Act No. 28 of 1997

The Water Supply and Sanitation Act provide for the regulation and standards applied in the provision of public water and sanitation services. It also provides for permitting of water supply and sanitation service provision.

Relevance: Sanitation of the area will depend on the current management of sewer waste and SML will follow the guidelines and requirements of this act to make sure that the health of the workers and the communities around the project area are safe guarded.

Compliance thereof: The proposed site is not connected to any waste water reticulation system and therefore SML will construct sewer waste management systems for the waste water from the ablution during operation of the Mine.

2.1.10 The Public Health Act of Cap 295 of 1996

The Act empowers the Council (*Gwembe Town Council*) to prevent unhealthy activities at the project site. It provides for the prevention of disease and provision of drainage, latrine and disposal of sewerage and treatment systems.

Relevance: The activities to be undertaken will entail public interaction through workers and other visitors to the project area which is situated in Gwembe District. This will require adequate public health facilities and conditions.

Compliance thereof: The project proponent shall comply with the provisions of the Act in order to safeguard human life. The project shall also ensure that measures to prevent diseases and pollution dangerous to human health and to any water supply on site.

2.1.11 Lands Act Cap 184 of 1995

The An Act to provide for the continuation of Leaseholds and leasehold tenure; to provide for the continued vesting of land in the President and alienation of land by the President; to provide for the statutory recognition and continuation of customary tenure; to provide for the conversion of customary tenure into leasehold tenure; to establish a Land Development Fund and a Lands Tribunal; to repeal the Land (Conversion of Titles) Act; to repeal the Zambia (State Lands and Reserves) Orders, 1928 to 1964, the Zambia (Trust Land) Orders, 1947 to 1964, the Zambia (Gwembe District) Orders, 1959 to 1964, and the Western Province (Land and Miscellaneous Provisions) Act, 1970; and to provide for matters connected with or incidental to the foregoing.

Relevance: The Act is relevant because all land in Zambia is vested in the state and the project site falls within state land.

Compliance thereof: Shimabu mining Limited will utilize the land in accordance with the intended purpose and provisions of this Act. The developer has so far complied with this act and it will strive to comply with any provisions under this act.

2.1.12 Statutory Instrument No. 21: The Public Health (Infected area) (Coronavirus Disease) Regulations 21 and 22 of the Public Health Act Cap 295.

The regulation provides standards and guidelines on public gatherings and associated levels of sanitation and hygiene required amidst the Covid-19 pandemic in Zambia.

In line with the Public Health Act Cap. 295 of the Laws of Zambia, and guided by the two Statutory Instruments, SI 21 of 2020 which designates COVID-19 as a notifiable disease and SI 22 of 2020 which provides additional regulations to facilitate management and control of COVID-19 both issued on March 14th of 2020, mandatory screening and quarantine of international travelers including air travel passengers, truckers, bus operators, and passengers at entry points into Zambia.

Relevance: The regulations are relevant because the nature of the project whose operation will involve interactions of workers in groups hence having potential of exposing the workers to the deadly pandemic.

Compliance thereof: Shimabu mining Limited will ensure that it complies with the provisions of this instrument by restricting gatherings and putting in place sanitation and hygiene facilities at strategic points throughout the project execution areas.

2.1.13 Local Government Act, No. 2 of 2019

An Act to provide for an integrated local government system; give effect to the decentralization of functions, responsibilities and services at all levels of local government; ensure democratic participation

in, and control of, decision making by the people at the local level; revise the functions of local authorities; provide for the review of tariffs, charges and fees within the area of a local authority; provide for the proceedings of the council and committees; provide for the role of traditional leadership in democratic governance and provide for matters connected with, or incidental to, the foregoing

Relevance: SML shall abide by the Bye Laws established by the Local Authorities.

Compliance thereof: Acquisition of Local Authority permits and compliance with other environmental regulations shall be as stipulated therein.

2.1.14 The Petroleum Act Cap 439 and the Energy Regulation Act Cap 436

The Petroleum Act provides for control of conveyance and storage of petroleum products such as kerosene, diesel and petrol. The Act provides further provides for control measures regarding production, transportation, handling, distribution, re-sale and use of energy.

In accordance with this Act, ERB shall, in conjunction with other Government agencies, formulate measures to minimize the environmental impacts of transportation, storage and use of fuels and enforce such measures by attachment of appropriate conditions to licences held by such undertakings.

Relevance: - Mining machines and the generators shall require fuel in large quantities. This fuel shall be obtained from Shimabu mining Limited in a fuel bowser. The company currently has an above ground fuel storage tank on site.

Compliance there of: Shimabu mining Limited has complied with the provisions of the Act in the operation of the current fuel storage facility that is on site.

2.1.15 Investment Act Cap 385 No. 39 of 1993

An Act to revise the law relating to Investment in Zambia so as to provide a comprehensive legal framework for investment in Zambia; the act provides a legal framework for investment in Zambia. The Act relates to environment indirectly by providing incentives for tree planting, soil and water and energy conservation activities. The Act further recognizes the role of other agencies including those responsible for environmental protection in authorizing specific projects.

Relevance: The Act is relevant in that SML will invest a total of USD 930,000.00 thousand in the project undertaking and thus the act is relevant as SML is not a 100% Zambian owned company.

Compliance thereof: SML will ensure all relevant conditions under the ZDA are adhered to during the investments period and operations of the mine.

2.1.16 The Explosives Act No. 10 of 1974

The Act defines explosives and the raw material used for manufacturing of explosives. It further provides guidelines for manufacturing, storage, transportation, distribution and use of all explosives and related products/accessories in Zambia. Safety issues are the most outstanding in this Act.

Relevance: The mining methods adopted require procurement, transportation, storage and use of explosives.

Compliance there of: Shimabu mining Limited will conduct its operations in accordance with provisions of this Explosives Act and also ensure that the regulatory institution (Mines Safety Department) is fully aware.

2.1.17 The Road Traffic Act No. 11 of 2012

An Act to make provision for the care, maintenance and construction of roads in Zambia, for the control of motor traffic, for the licensing of drivers and motor vehicles, for the compulsory third party insurance of motor vehicles, for the licensing and control of public service vehicles and public services, and for other miscellaneous provisions relating to roads and motor traffic.

Relevance: Haulage of mineral ore, deliveries of materials especially for the operation phase will result in a considerable amount of additional traffic on the main access road and other local roads in the area. The Act is relevant to the project as the expected impacts of the project undertaking include increased traffic levels during delivery of materials during operation.

Compliance thereof: SML will erect Signs and directions to control traffic movement to ensure a safe environment both in proximity to and within the site will be put in place. The developer will make sure that there are designated routes to and from and within the site, built to national and international specifications and standards.

2.1.18 The Occupational Health and Safety Act, 2010

Provides for the establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; provide for the duties of manufacturers, importers and suppliers of articles, devices, items and substances for use at work; provide for the protection of persons, other than persons at work, against risks to health or safety arising from, or in connection with, the activities of persons at work; and provide for matters connected with, or incidental to, the foregoing.

Relevance: The project will employ people during its development phases (construction, operation and decommissioning phases). Other persons other than persons at work might be exposed to environment at the project site. The health, safety and welfare of all persons at work places at the mine site should be taken into account. The environment and workers shall be managed based on the Occupational and Health Act.

Compliance thereof: The project shall comply with the provisions of the Act in order to safeguard the health of workers. The project developer shall comply with the Act by ensuring, so far as is reasonably practicable, the health, safety and welfare of all the employees. It shall place and maintain employees in an occupational environment adapted to meet the employees' welfare as required under the Act. SML shall further provide, among other provisions, systems of work that are safe and without any risks to human health as required under the Act.

2.1.19 Pneumoconiosis Act No. 13 of 1994

This Act (No. 13 of 1994) provides for the medical examination and standards of physical fitness to be required of persons exposed or likely to be exposed to the risk of pneumoconiosis. All mine employees that work in scheduled mine and scheduled places will be required to undergo periodical medical examinations to ascertain their fitness to work in areas where humans are likely to be exposed to free silica in respirable dust, with particle sizes less than 5 microns, which become harmful when inhaled for over a long period of time. The Project work places and its immediate surroundings will be in the scheduled mine and scheduled places. Therefore, employees will be subjected to periodic examinations to ensure that they are physically fit to work.

Relevance: Due to the nature of the project workers will be exposed to the risk of pneumoconiosis.

Compliance there of: Shimabu mining Limited will endeavor to act within the provisions of this law in the implementation of the project by ensuring all workers are medically examined every year.

2.1.20 The Urban and Regional Planning Act No. 3 of 2015

provide for a planning framework, guidelines, systems and processes for urban and regional planning for the Republic; establish a democratic, accountable, transparent, participatory and inclusive process for urban and regional planning that allows for involvement of communities, private sector, interest groups and other stakeholders in the planning, implementation and operation of human settlement development; ensure uniformity of law and policy with respect to urban and regional planning;

Relevance: The Act is relevant to the project because the site is located in local authority (state) land of Gwembe District in which planning and building permission must be sought.

Compliance there of: SML will comply with the conditions set by the local authority in the construction and operations of the infrastructure by obtaining building permits and to ensure the area is scheduled as a mine site with restricted entry.

2.1.21 National Council for Construction Act No.10 of 2020

An Act to provide for the promotion, development and regulation of the construction industry so as to promote economic growth and competitiveness and create sustainable employment; continue the existence of the National Council for Construction and provide for its functions; enhance contractor capacity development and technical compliance in the construction industry; collaborate with professional bodies engaged in activities in the construction industry; continue the existence of the Construction School and rename it as the National Construction School; provide for a complaints and appeals procedure; repeal the National Council for Construction Act, 2003; and provide for matters connected with, or incidental to, the foregoing.

Relevance: SML will undertake the construction of the infrastructure and will require to adhere to the construction standards as stipulated in the NCC Act.

Compliance there of: The company will comply with the provisions of this Act through its construction activities of the project.

2.1.22 The Chiefs Act Cap 287

This is an Act to make provision for the recognition, appointment and functions of Chiefs and Deputy Chiefs, for the exclusion of former Chiefs and Deputy Chiefs from specified areas in the interests of public order, for the appointment and functions of Chief's Retainers and for matters incidental to or connected with the foregoing (Chiefs Act CAP 287, n.d.).

Relevance: The chief has customary authority over the land of the project area as provided for under Section 4(a) of the Act which states "area; about a Chief, means the area in Zambia within which recognition is accorded to the Chief under this Act".

Compliance there of: License No. 22912-HQ-LEL lies in Siamuluwa area in Chief Chipepo's Chiefdom of Gwembe District. Shimabu mining Limited has been granted consent from the local Chief to undertake mining activities in the project area.

2.1.23 Ionizing Radiation Protection Act, No. 16 of 2005

An Act to establish the Radiation Protection Authority and to define its functions and powers; to provide for the protection of the public, workers and the environment from hazards arising from the use of devices or materials capable of producing ionizing radiation; to repeal and replace the Ionizing Radiation Act, 1972.

Relevance: Material, equipment producing dangerous ionising radiation for any specified purpose, including use for medical or dental purposes as stipulated in Subsection 26(b) hence the need to be monitored for compliance to the Act.

Compliance thereof: SML will comply with monitoring any materials or equipment as stipulated under the Act.

2.1.24 The Solid Waste Regulation and Management Act, No. 20 of 2018

An Act to provide for the sustainable regulation and management of solid waste; general and self-service solid waste services; the incorporation of solid waste management companies and define their statutory functions; the licensing and functions of solid waste service providers, operators and self-service solid waste providers and provide for their functions; the regulation, operation, maintenance and construction of landfills and other disposal facilities; the setting and approval of tariffs for management of solid waste and provision of solid waste services; and matters connected with, or incidental to, the foregoing.

Relevance: Operations of SML Coal mine will produce solid waste that if not properly handled can disturb public health at the mine and surrounding areas.

Compliance thereof: The developer will store, manage, transport and dispose solid waste in accordance with the guidelines of this act.

2.1.25 The Employment Code Act No. 3 of 2019

This Act provides conditions under which employees should work in Zambia. The Act covers both temporary and permanent employees. Generally, this Act stipulates employee protection and social security requirements. Major provisions include:

- a) Minimum contractual age;
- b) Establishment of employment contracts;
- c) Settlement of disputes arising from such contracts of employment;
- d) The appointment of Labour Officers and other staff for the administration of the Act;
- e) Certain conditions of employment such as ordinary leave, sick leave, maternity, redundancy and welfare of employees.

Relevance: The project will create employment in form of short- and long-term contracts throughout the implementation period.

Compliance thereof: The developer will comply with this act by not employing people under the minimum contractual age by establishing contracts, conditions of service and settling disputes in accordance with this act. The relevance of this Act to the project will serve as guide to equal and formidable employment conditions.

2.1.26 Electricity Act No. 11 of 2019

The Act seeks to regulate the generation, transmission, distribution and supply of electricity so as to enhance the security and reliability of the supply of electricity; provide for the sale and purchase of electricity within and outside the Republic; facilitate the achievement of the efficient, effective, sustainable development and operation of electricity infrastructure; provide roles and responsibilities of various participants in the electricity sector; provide for a multi-year tariff framework; promote transparency in the identification and allocation of risks, costs and revenues within and between participants in the electricity sector; ensure the protection and safety of consumers of electricity and the public; repeal and replace the electricity Act, 1995; and provide for matters connected with, or incidental to, the foregoing. g. The act states that any person, who, without legal right, cuts, injures or interferes with any apparatus for generating, transmitting or distributing or supply electricity, or maliciously extinguishes or damages any lamp or other electric apparatus provided for the convenience of the public, shall be guilty of any offence.

Relevance: The act is relevant for operations that involves the use of machineries that requires electricity in their full operation.

Compliance thereof: Shimabubu mining limited will utilize generators in the mining of coal. SML will also utilise solar power as a source of energy.

2.2 INSTITUTIONAL FRAMEWORK

2.2.1 Water Resources Management Authority

The Water Resources Management Authority functions and powers include; management, development, conservation, protection and preservation of the water resource and its ecosystems; provide for the equitable, reasonable and sustainable utilisation of the water resource; ensuring the right to draw or take water for domestic and non-commercial purposes, and that the poor and vulnerable members of the society have an adequate and sustainable source of water free from any charges; creation of an enabling environment for adaptation to climate change; provision for the constitution, functions and composition of catchment councils, sub-catchment councils and water users associations; provide for international and regional cooperation in, and equitable and sustainable utilisation of, shared water resources;

Relevance: The project is located in an area with surface water availability through the Ganikoongo dam that may be impacted by the project activities at the mine.

Compliance thereof: The developer will comply with the authority by applying for a water abstraction permit from the Water Resources Management Authority if the company intends to use the surface water in the license area. SML will protect all water resources in the license area as per the WARMA requirements.

2.2.2 Zambia Environmental Management Agency

The Zambia Environmental Management Agency (ZEMA)- previously known as the Environmental Council of Zambia (ECZ) was established under the Environmental Management Act of 2011. The role of the Agency is, amongst other things, to: advise on policy formulation and make recommendations for the sustainable management of the environment; ensure the integration of environmental concerns in

overall national planning through coordination with appropriate authorities; review environmental impact assessment (EIA) reports; monitor trends of natural resources, their use and impact on the environment and make necessary recommendations to the appropriate authority; and publicise information on any aspects of the environment and facilitate public access to information on the environment. ZEMA also oversees the activities of all industrial, mining and agricultural. ZEMA requires the development of Environmental Impact Assessments for all new and existing projects.

Relevance: The mining operations by nature pose a lot of environmental concerns that are regulated by ZEMA, including air, soil and ground and surface water pollution as well as effluent and solid waste.

Compliance thereof: The developer will comply with the Agency by ensuring no development takes place on site before ZEMA approves the project. Further the company will seek ZEMA guidance, apply for the relevant licenses and engage ZEMA certified hazardous waste collectors.

2.2.3 Ministry of Mines and Minerals Development

The Zambian Ministry of Mines and Minerals Development (MMMD) is responsible for the management of artisanal, exploration and mining activities through the Cadastre Office. The ministry also has the mines safety department which oversees safety in mining sector.

Relevance: The mining operations by nature pose a lot of occupational health and safety hazards which the ministry regulates.

Compliance thereof: SML will comply with the ministry and ensure adherence to all the requirements from the ministry.

2.2.4 National Heritage Conservation Commission

The National Heritage Conservation Commission is responsible for the identification and conservation of sites of cultural and historical interest. The commission is also responsible for the enforcement of the national heritage conservation Act as such any relics discovered during the proposed project implementation will be reported to the commission.

2.3 RELEVANT POLICIES

2.3.1 The National Resettlement Policy of 2015

Assist Government in creating stable and sustainable human settlements on the principles of equity and growth by facilitating the creation of human settlements which are economically productive, socially just and environmentally sustainable. The Policy also assist to put in place operational instruments to guide resettlement and compensation of Internally Displaced Persons (IDPs) in the country in line with the African Union Convention for the Protection and Assistance of IDPs in Africa (Kampala Convention) which Zambia is Party to.

Relevance: The act is relevant to the project as it provides for the resettlement of the people who may be affected by the project and many need proper relocation.

Compliance thereof: The project site has no people settled there hence there will be no need for the company to provide a resettlement plan. However, there are farms that will be affected by the project that will need to be compensated.

2.3.2 National HIV/AIDS/STI/TB Policy

The aim of the National HIV/AIDS/STI/TB Policy is to attain a society in which the prevalence and impact of HIV/AIDS/STI/TB are significantly reduced to levels where they become manageable socio-economic and public health problems and in which people infected and affected by HIV/AIDS/STI/TB live positively without stigma and discrimination.

2.3.3 Shimabubu mining Limited Environmental Commitment

SML is cognisant of the Environmental Impacts associated with the proposed mining activities in the project area and therefore commits to providing resources and maintaining good environmental stewardship in the management of the mining operations to ensure less pollution and further mitigating adverse impacts resulting from its operations.

2.4 International Conventions

Zambia is a signatory to a number of international conventions. Conventions of significance to the proposed project are briefly described below.

a) Convention on Biological Diversity (Ratified in 1993)

Convention on biological diversity (CBD) is a multilateral treaty whose objectives are “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding”.

Relevance: The Convention on Biological Diversity is relevant to the proposed project. Biological resources of significant conservation value that will be identified will be conserved and protected following the requirements of the Convention.

Compliance thereof: The identification will be carried out with broad consultation of the community on the types and dominant biological species at the project site.

b) African Convention on the Conservation of Nature and Natural Resources (Algiers,1968), (Maputo, 2003): - The objective of the convention is to encourage individual and joint actions for the conservation, utilization and development of soil, water, flora and fauna for the present and future welfare of mankind. This must be done from an economic, nutritional, scientific, educational, cultural and aesthetic point of view.

Relevance: The Conservation of Nature and Natural Resources is relevant to the proposed project. Natural resources of significant conservation value that will be identified will be conserved and protected following the requirements of the Convention.

Compliance thereof: SML will promote sustainable practises that will have minimal to no impact on natural resources including soil, flora and fauna. Incidence of accidents that may cause significant change these natural resources, will be reported to the relevant authorities.

c) Kyoto Protocol to the United Nations Framework Convention on Climate Change: - The aim is to further reduce greenhouse gases by enhancing the national programs of developed countries aimed at this goal and by establishing percentage reduction targets for the developed countries.

Relevance: The protocol is relevant to the proposed project as the company's operations will be contributing to Greenhouse gas emissions.

Compliance thereof: SML will strive to reduce the over dependency on fossil fuel powered equipment and machines and switch to more environmentally friendly and less Greenhouse gas emitting technologies.

d) Basel Convention on the Control of Trans-Boundary Movements of Hazardous Wastes and their Disposal: - The objective is to control import and export of hazardous wastes. It also aims at ensuring that any trans-boundary movement and disposal of hazardous waste, when allowed, is strictly controlled and takes place in an environmentally sound and responsible manner.

Relevance: The convention is relevant to the proposed project as SML operations may utilise chemicals that are hazardous in Nature, which are manufactured from outside Zambia.

Compliance thereof: SML will adhere to this convention when importing these chemicals and disposal of the empty containers.

e) Convention on Migratory Species and the African –Eurasian Water Bird Agreement: - Like other migratory species, water birds cross several international borders during their migration, facing a wide range of threats. Without international cooperation, conservation efforts of one country can be meaningless if these birds are not protected in another country.

Relevance: The Convention is relevant as Migratory Species and the African –Eurasian Water Bird species might migrate to the SML site.

Compliance thereof: SML will protect Migratory Species and the African –Eurasian Water Bird if or when these species migrate to their site and will be reporting to the relevant authorities.

f) Convention Concerning the Protection of World Cultural and Natural Heritage (Ratified in 1972)

The Convention aims at ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage. Zambia is a Party to the Convention and recognises the duty to identify, protect, conserve, present and transmit to future generations its cultural and natural heritage.

Relevance: The site has no known cultural and heritage site, however during construction works for the project cultural and heritage site may be unearthed.

Compliance thereof: Should Any site be identified during construction works for the project, it will be protected and conserved in accordance with the requirements of the Convention and the Zambian legislation on cultural and natural heritage sites

2.5 International Standards

This ESIS makes due reference to internationally recognised standards in order to establish a transparent regulatory framework for the Project which is in line with both national requirements for Zambia and the international lenders requirements. Therefore, whilst complying with national legislations, SML will also comply with additional international requirements (EPs, IFC Performance Standards and EHS Guidelines) in the implementation of the proposed Project. The social and environmental impact assessments that have been carried out for the Project also involved public consultation with interested and affected parties, formulation of environmental and social management plans and mechanisms for redress of grievances

associated with the Project. The IFC Performance Standards and EHS Guidelines relevant to the Project are briefly outlined in the subsections below:

2.5.1 IFC PS 1: Social and Environmental Assessment and Management

Performance Standard 1 underscores the importance of managing social and environmental performance throughout the life of a project (any business activity that is subject to assessment and management). An effective social and environmental management system is a dynamic, continuous process initiated by management and involving communication between the client, its workers, and the local communities directly affected by the project (the affected communities). Shimabu mining Limited will adhere to the below objectives of the PS1;

- ✓ To identify and assess social and environment impacts, both adverse and beneficial, in the project's area of influence.
- ✓ To avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment
- ✓ To ensure that affected communities are appropriately engaged on issues that could potentially affect them
- ✓ To promote improved social and environment performance of companies through the effective use of management systems.

2.5.2 IFC PS 5: Land Acquisition and Involuntary Resettlement

Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or means of livelihood) as a result of project-related land acquisition. Resettlement is considered involuntary when affected individuals or communities do not have the right to refuse land acquisition that results in displacement. Shimabu mining Limited will adhere to the objectives of the PS5 as below;

- ✓ To avoid or at least minimize involuntary resettlement wherever feasible by exploring alternative project designs
- ✓ To mitigate adverse social and economic impacts from land acquisition or restrictions on affected persons' use of land by:
 - i. providing compensation for loss of assets at replacement cost; and
 - ii. Ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.
- ✓ To improve or at least restore the livelihoods and standards of living of displaced persons.
- ✓ To improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.

3.0 PROJECT DESCRIPTION

Project Overview

The project under review is a greenfield project as no mining activities have been undertaken in the area although License No. 22912-HQ-LEL is surrounded by other exploration licenses that other companies are interested to explore.

Shimabu mining Limited plans to undertake the development of the project in a phased approach.

Phase 1 of the project will constitute mining and infrastructure development for the full operation of the coal mine in the license area. The company envisages to progressively developing the 3652.5970Ha of land under the license to a full-scale mining operation in 25-30 years.

Further, exploration activities will continue in other parts of the license area apart from the current site explored where SML has determined that there is sufficient coal resource to support at least 25-30 years of active mining operations. The geological investigations' objectives were to provide details of the mineralization, extent and shape of the deposit and consequently the reserves for eventual mining. The exploration results were satisfactory indicating low to medium grade of coal deposits and now the developer would like to implement the mining project.

The proposed project will involve only open pit mining. The mining will be conducted using the hydraulic excavators to mine the Coal reserve. Where the rocks are hard, the rocks will be drilled and blasting undertaken. The mined minerals will then be transported from the open pit to the mineral storage pads within the license area.

To expose or mine the ore, it will be generally necessary to move large quantities of overburden material which include soil and waste rock amounting to 1.6 billion tons over the period of the project. The proposed large-scale Mine project will include the following main components:

- ✓ Open pit,
- ✓ Workshop and operations offices -5000m²
- ✓ Overburden Dumps – 10Ha land
- ✓ Ore storage pads and loading facilities – 2500m²
- ✓ Ore crushing plant – 2400m²
- ✓ Wastewater management ponds (2) – 10, 000 m³
- ✓ Storm water management facilities,
- ✓ Power transmission lines routes and associated substation locations
- ✓ Sanitation facilities for project workforce, 100m²
- ✓ Access road.

3.1 Location

The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chiipepos chiefdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license. The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD). The license can be accessed using T1 road (Kafue Road). From Lusaka to chisekesi, a distance of 207km approximately. Then Join the D375 road to Gwembe from chisekesi, for about 47.9km. to the Junction between D375 and D500. Continuing in D375,

move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area.

The coal deposit in the project area lies within the 3652.597Ha (License No. 22912-HQ-LEL. This is the major part of the license that will be developed into the mine encompassing the mine pits and associated support infrastructure.

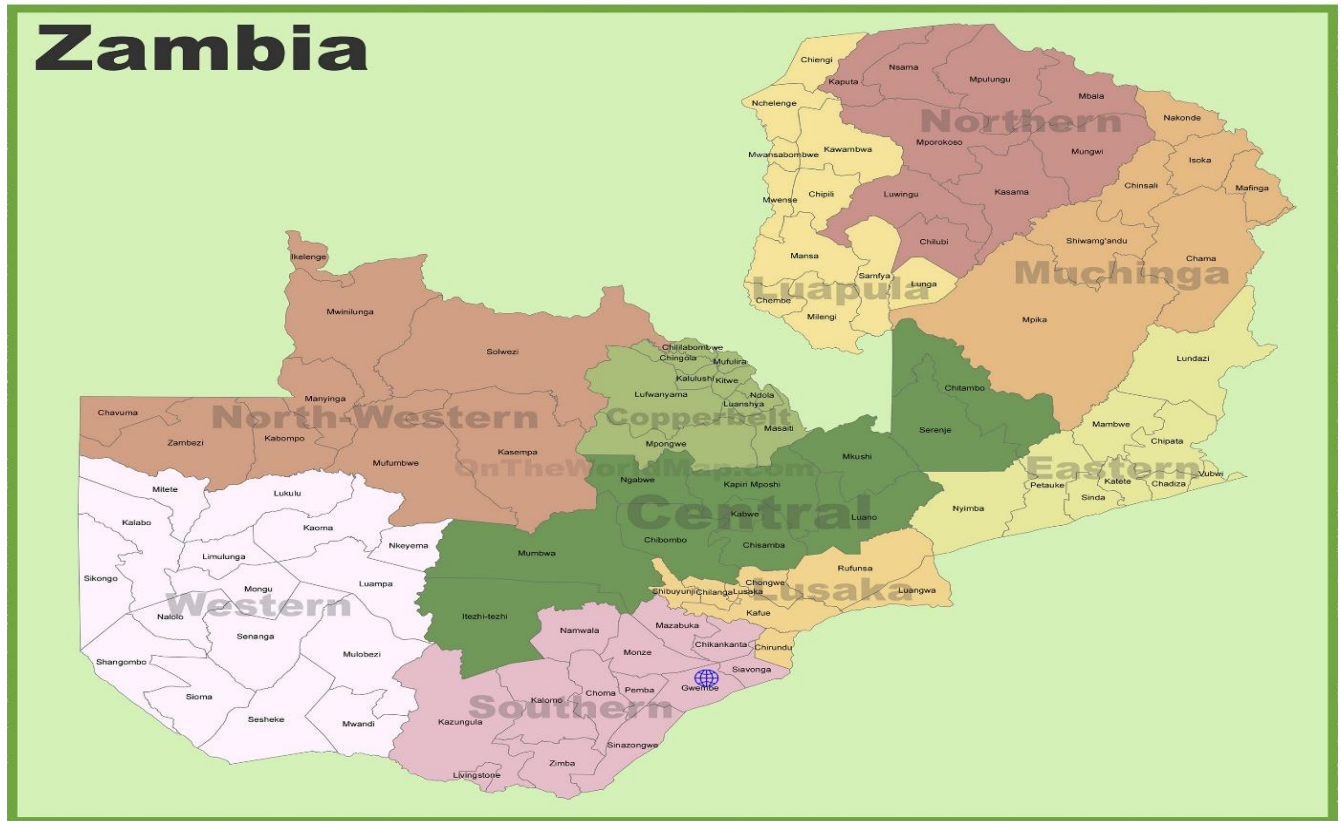


Figure 2: Location of Gwembe in relation to other districts in Southern Province

The site boundary coordinates are indicated in the table below;

Table 6: Shimabu mining limited License No. 22912-HQ-LEL Coordinates

No	LATTITUDE	LONGITUDE
1	16°40'42.00"S	27°44'48.00"E
2	16°40'42.00"S	27°46'18.00"E
3	16°40'48.00"S	27°46'18.00"E
4	16°40'48.00"S	27°46'30.00"E
5	16°40'54.00"S	27°46'30.00"E
6	16°40'54.00"S	27°46'36.00"E
7	16°40'60.00"S	27°46'36.00"E
8	16°40'60.00"S	27°46'42.00"E
9	16°41'18.00"S	27°46'42.00"E
10	16°41'18.00"S	27°46'36.00"E
11	16°41'30.00"S	27°46'36.00"E

12	16°41'30.00"S	27°46'30.00"E
13	16°41'36.00"S	27°46'30.00"E
14	16°41'36.00"S	27°46'24.00"E
15	16°41'48.00"S	27°46'24.00"E
16	16°41'48.00"S	27°46'18.00"E
17	16°41'60.00"S	27°46'18.00"E
18	16°41'60.00"S	27°46'12.00"E
19	16°42'06.00"S	27°46'12.00"E
20	16°42'06.00"S	27°46'06.00"E
21	16°42'18.00"S	27°46'06.00"E
22	16°42'18.00"S	27°46'00.00"E
23	16°42'30.00"S	27°46'00.00"E
24	16°42'30.00"S	27°45'54.00"E
25	16°42'36.00"S	27°45'54.00"E
26	16°42'36.00"S	27°45'48.00"E
27	16°42'48.00"S	27°45'48.00"E
28	16°42'48.00"S	27°45'42.00"E
29	16°43'00.00"S	27°45'42.00"E
30	16°43'00.00"S	27°45'24.00"E
31	16°45'54.00"S	27°45'24.00"E
32	16°45'54.00"S	27°42'30.00"E
33	16°44'06.00"S	27°42'30.00"E
34	16°44'06.00"S	27°43'36.00"E
35	16°42'30.00"S	27°43'36.00"E
36	16°42'30.00"S	27°44'48.00"E



Landmarks to the proposed license area in Gwembe District

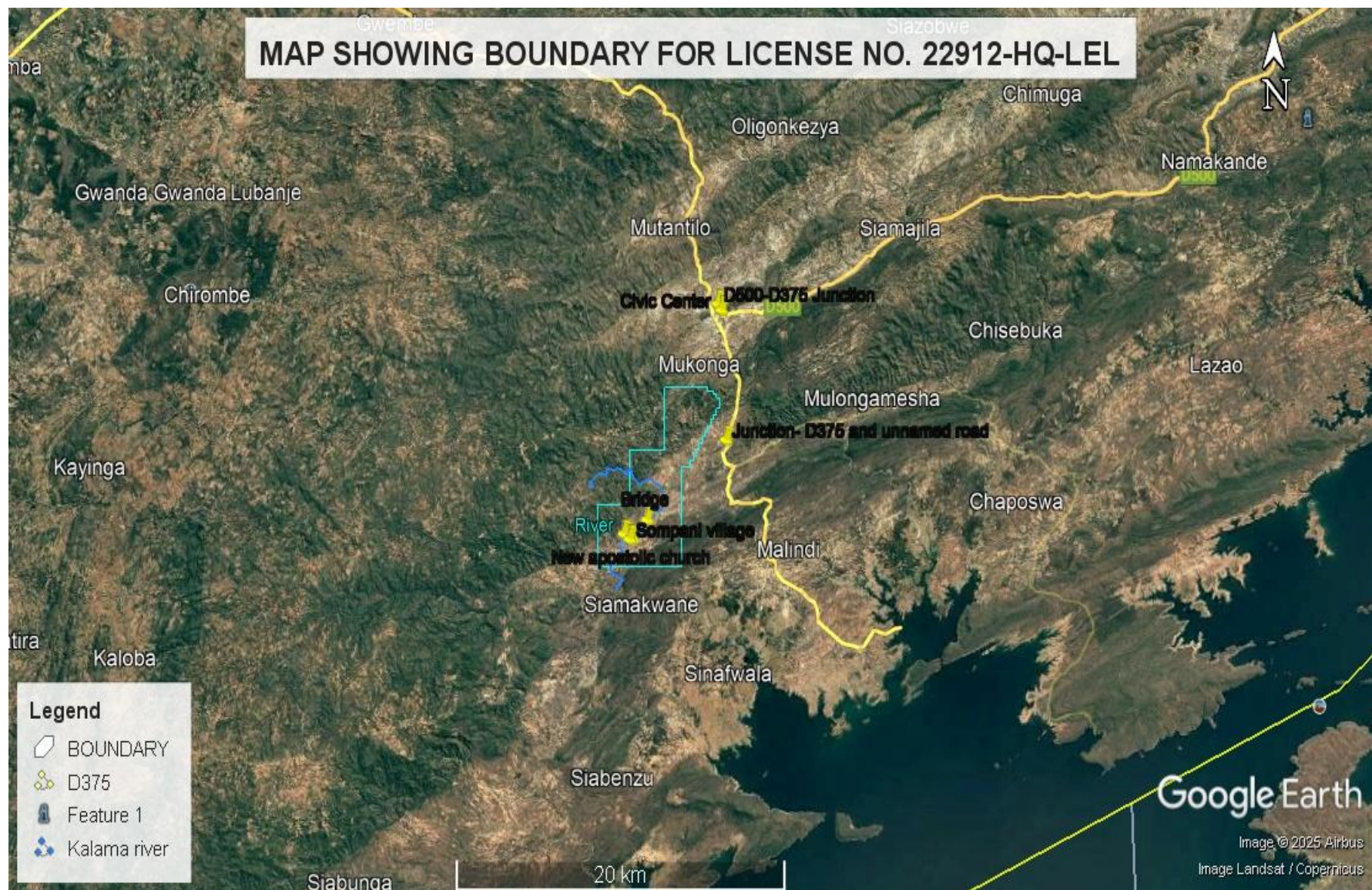


Figure 3: Project site

3.2 Nature of the project

Shimabu mining Limited plans to undertake the development of the coal mine in a phased approach. Development of the large-scale mine will constitute mining and infrastructure development for the full operation of the coal mine in the license area. The company envisages to progressively develop the 3652.5970Ha of land under the license to a full-scale mining operation in 25-30 years which will be producing 2,400 tonnes of coal annually.

Further, exploration activities will continue in other parts of the license where SML has determined that there is sufficient coal resource to support at least 25-30 years of active coal mining operations. The geological investigations' objectives were to provide details of the mineralization, extent and shape of the deposit and consequently the reserves for eventual mining. The exploration results where satisfactory indicating low to medium grade of coal deposit and now SML intends to commence mining on the above basis would like to implement the mining project.

The proposed project will involve mainly open pit mining. The mining will be conducted using the hydraulic excavators to mine the coal reserve. Where the rocks are hard, the rocks will be drilled. The mined minerals will then be transported from the open pit to the mineral storage pads within the license area.

3.2.1 Raw materials

The mining process raw materials will be utilized in two phases: at construction stage for the mine infrastructure and at operation phase for the mining activities.

Table 7: Project Inputs, Outputs and Waste

Input	Product	Waste	Storage of raw material
Construction phase			
Cement, water, sand, round bars and construction consumables	Complete mine infrastructure and related buildings	Construction rubble, cement packaging materials	To be stored in a designated warehouse
Operation phase			
Diesel	Powering machines and service vehicles.	Gas emissions	To be stored in a metallic fuel tank placed on a non-permeable concreted bund
Lubricants	Smooth operations of machines	Hazardous waste	To be stored in a confined space with a concreted surface.
Mobile equipment consumables (batteries, filters, tires etc.)	Smooth operation of machines	Hazardous waste	To be stored in a confined space with a concreted surface.
Mobile machinery and vehicles	Mine ore, Coal	Waste rock and overburden material, Hazardous waste, Scrap metal.	To be stored on a designated 10ha land within the project site
Water	Dust suppression and Coal Washing	Waste Water	Water storage tanks to installed within the mine.

3.2.2 Process and technology

Mining Operations

Coal processing will utilize a sequence of mechanical and chemical technologies to transform raw "run-of-mine" coal into a high-quality fuel source. The process begins with crushing and screening to achieve uniform sizing, followed by separation techniques like Dense Medium Separation and froth flotation, which use density differences and surface chemistry to strip away impurities like ash and sulfur. Beyond simple cleaning, advanced conversion technologies like gasification and liquefaction are increasingly used to turn coal into synthetic gases or liquid fuels, while modern High-Efficiency Low-Emission (HELE) systems and carbon capture are being integrated to mitigate the environmental impact of its combustion. The mining method to be used will be an open pit mining mining and the pits will cover 110Ha of the land and an anticipated production capacity of 2400/year.

Mining Flow Chart

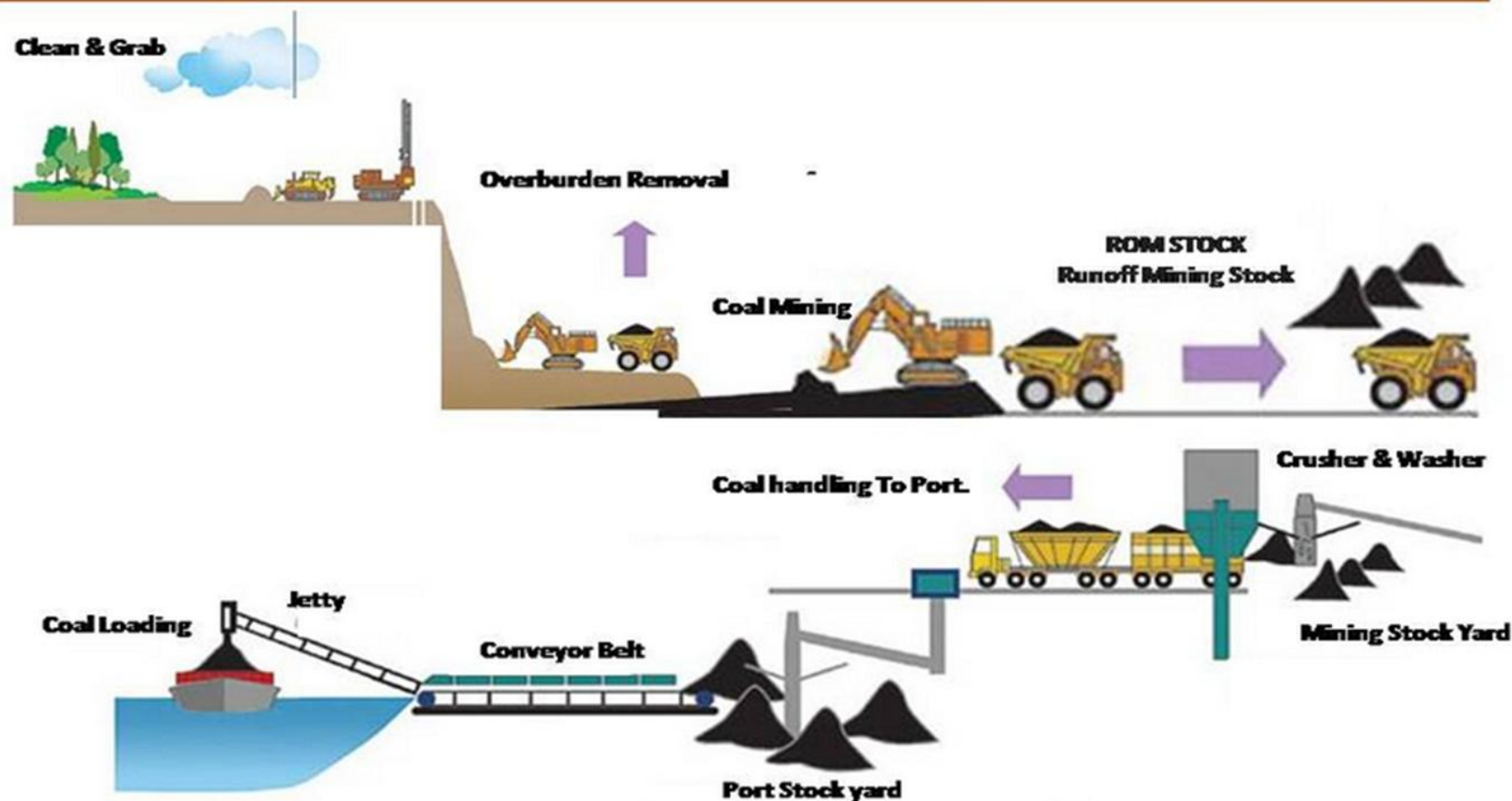


Figure 4: Schematic Drawing of the Proposed Open Cast Mining Method to Be Used (Source: Prasido Mining Techniques)

3.2.3 Products and by products

Coal is the primary product expected from the proposed mining activity in License No.22912-HQ-LEL. Waste rock will be a by product of the coal mining activities.

3.2.4 Production capacity

Shimabu Mining Limited intends to undertake mining activities in the License area for the next 25-30 years of the project mine lifespan commencing in the 4th Quarter of 2026 upon obtaining relevant approvals for the project and depending on availability of the ore body at the mine. Shimabu mining Limited projects an output of 233,711Mt of Coal ore. The planned mine life at these output rates is estimated at 25-30 years of mining operations with ash content of about 25% and calorific value of 10,200,5670 Kj/Kg.

3.2.5 Schedule and lifetime of the project

The implementation plan of the mining activities by SML will be in a phased approach. Current planning includes the following phases:

- ✓ Phase 1: Site preparations and pre-production (Year 0-1);
- ✓ Phase 2: Mine production at the open pit site exploiting the Coal reserve (Year 1 –Year 30).
- ✓ Phase 3: Future expansion to start the exploiting of deep situated Coal Reserve and extending the mine pit boundary.
- ✓ Phase 4: Decommissioning and closure.

Table 8: Mining implementation plan (30-year strategic plan)

S/No.	Planned activity	Duration	Start	Finish
1	Preconstruction phase	6 Months	20 th June, 2025	28 th December, 2025
2.	Preparation Phase	3 Months	28 th January, 2026	28 th April, 2026
3.	Operation Phase	30 Years	30 th May, 2026	30 th May, 2054
4.	Decommissioning/Closure Phase	12 Months	30 th June, 2055	31 st June, 2056

3.3 Main Project Activities

The major project activities will include open cast mining for Coal at the proposed mine site within the license area. The project flow regime will undertake the project implementation in a three (03) phase approach as detailed below:

- ✓ Phase 1: Mine Planning, Site preparations, construction and pre-production (Year 0-1) for new mine pits within the license area as way of mining expansion;
- ✓ Phase 2: Mine production at the open pit site exploiting the Coal reserve and Coal washing (Year 1 – Year 30 with a possibility of an operation extension).
- ✓ Phase 3: Decommissioning and closure.

3.3.1 Site Preparation phase for mine pits

SML proposed for the establishment of the open pit mine is a partial greenfield coal belt area with minor mining activities within and immediate outside of the License area. The mine site will be developed in areas where the concentration of the Coal belt is high. Preparation phase for the construction of mine support infrastructure and opening up the new areas for continued mining activities will include the below activities.

The phase will involve obtaining of all relevant authorization from regulatory agencies such as;

- ✓ Zambia Environmental Management Agency (ZEMA): EIA approval for the large-scale mining activities. Shimabu mining Limited will further undertake the identification of new areas within the mine site for possible mineral exploitation.
- ✓ Ministry of Mines and Minerals Development: obtaining of the mining License.
- ✓ Obtaining local authority licenses within the operation district in Gwembe
- ✓ Engaging the local chief and traditional leadership and disclosure of the commencement of the mining activities.

The operation phase will be preceded by engaging with the relevant authorities in which the proposed mining activities are to be undertaken by the developer and obtain consent and right to conduct the mining. This will be achieved through the customary engagement with Chief Chipeco's regarding the project development.

3.4 Construction phase activities

Being a greenfield project, construction and commissioning of the project will involve the clearing of the site in preparation for the construction activities to be conducted in new areas of the mine site. The clearing will involve the removal of vegetation to pave way for the construction of project facilities new areas. The proposed mine site facilities in phase 1 will include;

- ✓ Open pit Mining area with proposed benched open pit areas covering 90Ha of mine license area.
- ✓ Waste rock ROM pad for the storage of overburden material of approximately 10Ha.
- ✓ Proposed site for the construction of mine support infrastructure such as administration offices, Workers quarters, plant utilities such water treatment and storage plant to cover approximately 30Ha.
- ✓ Engineering workshop to cater for both heavy and light vehicle repairs at the mine site, store rooms, security checkpoint to control and monitor activities at the mine site, weigh bridge, change house, and fuel storage facility to cover 2Ha.
- ✓ The company further plans to undertake the safety measures by erecting a security/perimeter fencing around the mining pits and restrict access by the local public in the area and alternative access routes for the local settlers residing on the other side of the proposed mine site.

Other infrastructure that will be constructed on site or change the visual aspect of the site will include the office buildings and sanitation facilities, the Access and Haulage Road, the Waste

Rock Dumps and the Topsoil Stockpile. On site operations office block and associated sanitation facilities will be construction to accommodate the mining staff and the contractor. Site haulage road will also be constructed for hauling the mined coal to the crusher for crushing. This road will be an all-season road that will be maintained and dust generation controlled/minimized.

Top soil rich in organic matter will be stockpiled on the Top soil Stockpile while the Waste Rock from the stripping and mining activities will be stockpiled on the Waste Rock Dump. Other developments during this phase will include:

- ✓ A fire break around the camp site will be maintained
- ✓ Construction of bathing shelters and Toilets
- ✓ Setting up of a Sample Storage Area
- ✓ Demarcation of and digging of a Waste Disposal Pit
- ✓ Setting up alternative power for basic night lighting during new mine site construction
- ✓ Setting up of Radios for communication
- ✓ Maintain fire-extinguishers at the camp site

Precautionary measures will be taken during construction to ensure environmental protection and safety and occupation health. In new areas of the mines site that construction is envisaged to be undertaken, activities will generally comprise of land clearing, digging and earthworks to prepare foundations, compacting of foundations, setting of concrete footing and basements, fabrications and installation of fuel storage tanks, setting and erection of block walls, partitioning, roofing, painting and installation of fittings. Other infrastructure to be constructed will include piped water facilities connected to the water mains. Apart from materials specifically mentioned above other materials to be used in construction will comprise of laterite, river and building sand, crushed stones, steel bars and pipes, concrete blocks or burnt clay bricks, paint, planks, nails, wires, wire gauze, roofing sheets and fittings. Others will include pumps, meters, valves etc. Equipment and tools to be used will include bulldozers and excavators, tippers, concrete mixers, wheelbarrows, shovels, picks, axes, hoes, compaction rollers and lifting devices. The raw materials will generally be sourced locally.

The water requirement for mine operations is not yet established; this will be known when the mines operations begin. The source of water for mine operations will be boreholes to be sunk within the proposed project area.

3.4.1 Pre-Mine Infrastructure

SML will need to establish mining infrastructure before commencement of mining activities. Infrastructure to be established include maintenance Workshops, Pre-Stripping/Stripping facilities, Access Roads, Refuelling (20, 000 litres) and Explosives Facilities, 3, 000KW crushing plant and coal wash areas. The washing process will need between 20,000-50,000 litres of water per day on on full operation producing about 10 tonnes of coal/day.

3.4.2 Pre - Stripping

The next stage in the construction of an open pit involves the progressively removing of vegetation, top soil and overburden material from the open pit foot print. These works would excavate material

using the general earth moving equipment. During Pre – Stripping a portion of the top soil rich in organic matter will be stockpiled at designated location for use in the re-vegetation process during rehabilitation at project closure.

3.4.3 Pre - Mining

At an estimated depth of 40m m below the surface, the mobile equipment will be unable to dig the loose material and hard rock mining will commence. Hard Rock mining will involve standard drilling, controlled blasting, loading and haulage activities that would go on up to the life-of-mine.

3.5 Operational phase activities

The operational phase will involve continued mining, sorting and stock piling of the Coal mineral resource on the mine site. The operation phase of the mine development will be the exploitation of the surface mineral deposit down to a depth of approximately 40m below surface. The actual depth will be controlled by the depth of weathering which varies across the strike of the ore body outcrop. The deposit will be mined initially using conventional open pit mining methods and pit designs, viz. excavators and diesel-powered trucks for transport.

Shimabu mining Limited will undertake surface mining which is essentially classified as open-pit mining and will include quarrying, strip mining, contour mining, dredging, and hydraulic mining of the mineral resource within the mining License area. Topography and the physical characteristics of the deposit area will strongly influence the choice of method that the company will use.

Like any other mineral ore, the ore deposit will be blasted by explosives to fragment the insitu rock prior to excavation. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Loaders into trucks. The trucks will transport the mined mineral deposits directly to the primary stockpile area.

During the operation phase, SML will expand the open pit through a series of circumferential strips that would eventually expose the ore body.

As the pit develops and deepens, pit haulage roads and ramps will be developed to allow the mined rock and minerals to be transported to the surface.

3.5.1 Drilling

In order to expose the ore body by removing overburden material, SML will use specially designed drill rigs to drill vertical holes into the initial bench level. Drill pattern will be designed on a case-by-case basis to yield the optimal fragmentation.

Due to the hardness variability of the material/rock to be mined, production holes would be sized to optimise cost and fragmentation results. Smaller diameter holes will be used will be used to achieve controlled blasting at the mine pits area. Drilled holes will then be charged with explosives.

3.5.2 Charging and Blasting

Explosive transportation

When transporting explosives, the following will be the conditions for the transportation of explosives:

- The driver of the explosive vehicle must be licenced, authorised and appointed.
- The explosives will be transported in an approved vehicle
- The explosive vehicle will use the shortest and safest approved route at a maximum speed when driving is 50km/h and only day time movement between 06:00 and 18:00 hrs.
- The operator of the transport vehicle shall be the holder of a valid blasting license
- At the sides of the vehicle there shall be a warning “EXPLOSIVES” posted. The warning is written in red letter on a white background.

The transportation vehicle shall be equipped with but not limited to the following:

- Fire-extinguishers
- Flashing light
- Reverse alarm
- Red flag, and buggy-whip for light vehicles
- Emergency stop and battery isolation switch
- The transport vehicle must have an operating isolator/ cut-off switch. All electrical systems must be functioning, with all electric cables insulated.
- The transport vehicle must be maintained and kept in a road worthy condition and licensed
- The transport vehicle shall be powered by a diesel engine
- Explosives/ accessories shall be kept in their original package when being delivered from magazine to the blast location.

Explosive storage

The following are conditions for storage of explosives

- Build the magazine according to standard and approved blueprint by MSD.
- To store in a licence facility at the mine.
- Store explosives according to the holding capacity.

Blasting

For the blasting to achieve the desired fragmentation with the least possible ground vibrations produced, ammonium nitrate – based bulk product and initiation system would be used. The explosives will be transported and stored at a licensed magazine by MSD.

Drilled holes will be charged (i.e., loaded with detonators, boosters, high explosive products and stemming). Blasting will be practiced at pit limits to preserve the final pit wall. In addition, the mine rock mechanics engineer will regularly check and revise slope design as the pit is developed and additional data on the rock mass is collected. This will further minimise the risk of slope failure.

Shimabu mining Limited is aware of the risk of the use of explosives during blasting and the company will take safety measures to ensure reduced accidental risks. To ensure the safety of all personnel and machinery operating within the boundaries of License No.22912-HQ-LEL, a blasting schedule will be formulated and firing times may vary due to production demands, inclement weather, blasting exclusion zones or any unforeseeable circumstances but generally, blasting shall be limited to daylight times between 06:00 and 18:00 hours. The blasting time shall be displayed on

all Blasting Notice Boards no later than at 10:00 on the day of the actual blast with the help of a blasting Technician.

3.5.3 Loading, Hauling and Dumping

After blasting, the fragmented waste rock amounting to 1.6 billion tons over the period of the project and minerals would be into haul trucks by a loader and removed via the ramps. The Coal will then be tipped at the Run-Of-Mine (ROM) Pad for crushing before being resized and transported by haul Trucks to storage facility before. Waste Rock amounting to 1.6 billion tons over the period of the project will be transported to the Waste Rock Dump and/or backfilled into the open pit as mining progresses around the project area to improve the public safety of the vicinity areas. Haul roads for coal to the crushing plant will be watered regularly by water bowsers to provide a compacted all-weather surface with minimal potential for dusting. The hauled material will either be tipped at the ROM Pad or at the Waste Rock Dump. A bulldozer will be used at the waste rock dump to maintain the slope angle and the tip head.

3.5.4 Coal Processing technology

Once the ore has been transported to the crusher it will be crushed using a jaw crusher. Once crushed the coal will be resized using screens according to customer specification. After resizing, the coal will be washed. The waste water will be channelled to the slurry pond.

3.5.5 Waste Management during operations

Solid waste generated during the operation phase at the mine site to be set up in the license area will be disposed of at the dumpsite within the mine area (license to be obtained from ZEMA). The quantity of solid waste to be generated will be significant owing to the number of people that are at the mine and the duration of the mining activities. Hazardous waste generated from machinery if any such as used oil will be stored in metal drums and transported to licensed disposal facilities for disposal in Gwembe CBD.

Shimabu Mining Limited will manage water across the mine site in order to prevent any adverse impact on adjacent watercourses and groundwater, and to conserve natural resources. To achieve this, the company will develop and implement a Site Water Management Plan. The Water Management Plan will focus on the following:

- ✓ Conduct mine dewatering activities in the mine pits
- ✓ Separation of clean and dirty water;
- ✓ Treatment of mine effluent and surface runoff prior to discharge to the environment;
- ✓ Where practicable, reduce raw water consumption, maximize re-cycling of waste water and reduce the volume of effluent discharged to the environment;
- ✓ Regular inspection and maintenance of the mine site drainage system and pollution control facilities; Regular monitoring of surface water, effluent streams and flow rates, and groundwater quality;
- ✓ Compliance with the Zambian ambient water quality standards and other relevant guidelines for effluent discharge to surface waters;
- ✓ Preparation of formal emergency response procedures in the event of a plant spill; and

- ✓ Development and regular updating of the site water balance in order to effectively and efficiently manage the water resources across the mine site.

The major anticipated source of pollution from the mining activities includes disturbance of the flora/habitats, contamination of groundwater resources with hydrocarbons and depletion or drawdown on the groundwater resources due to dewatering.

Disposal of waste rock, soils, waste sand, sludge and tailings will be disposed of in storage ponds within the mining area. The developer will also use dry sacking as a disposal method for the described waste. Dry stacking is the most sustainable method used to store filtered tailings and other waste rock the silty and sandy material that's left over once the metals are extracted. In the dry stack method, tailings are placed and compacted in a mound that is concurrently reclaimed with native soil and vegetation.

3.5.6 Hazardous Material/ Waste

The only hazardous material and waste on site will be explosives used to break hard mineral ore before excavators and hydraulic hammers can be used break the coal seams in smaller pieces. Detonating explosives release toxic gases, primarily oxides of nitrogen and carbon monoxide. Nitric oxide (NO) and nitrogen dioxide (NO₂) are produced by large surface blasts in which the explosive does not detonate properly. Carbon monoxide (CO) is also released by the detonation of explosives. CO is not a problem after large surface blasts because it quickly dissipates in the atmosphere to safe levels. If a mine worker walks onto a blast site too soon after a blast, the CO emanating from the muck pile poses a serious risk to the worker. CO may also migrate hundreds of feet through the ground to collect in a, manholes, and other confined spaces.

Following a blast, Mine workers may become ill or die if they remain in an area where toxic fumes levels are high. Workers will be waiting long enough to allow the fumes to dissipate, using a portable gas monitor the SHE officer will be ensuring that the air near the blast site is safe to breathe before proceeding.

Storage of Hazardous material and waste

Hazardous materials on site will be stored in a confined area with limited access. This area will comprise a storage container placed on a concreted surface with restricted access. Hazardous material such as explosive remains may pose danger to the surrounding community and may contaminate drinking Water if not properly handled. After every blast, explosive remains will be collected and stalled in dedicated Hazardous waste storage zone with restricted access. Management will ensure that residue explosive remains are disposed of in line with the Material safety data sheet instruction and in consultation with relevant authorities.

All storage and handling areas will be subject to regular inspections and audits. And all spills reported through the site incident reporting system. All personnel involved in the ordering, storage, use and disposal of hazardous materials will receive training focusing on environmental awareness, safe handling procedures and spill reporting and spillage response/action.

Mining Operation Extension

The mining operations Extension Phase of the operation marks the expansion of the coal mining activities from pits that will be developed in phase 1 of the project undertaking. At extension time, new pits within the large-scale licensed area will be opened up. The overburden and waste rock amounting to 1.6 billion tons over the period of the project removed from the new pit will be used to fill the old pits through progressive rehabilitation.

3.6 Decommissioning and closure phase activities

The proposed project will be officially completed when either the ore material has been exhausted through mining/exploitation, or the project proves not being viable. The closure plans of the project will be updated and integrated into the general closure plans for the whole mine site. The final update of the closure plan will take place at least 2 years before the closure of the mine site.

Shimabu mining Limited will undertake the mining project in order to mine the coal deposit in the license area. Considering that the previous mining activities in the area have yielded potential for more mineral exploitation, Shimabu mining Limited will proceed with the mining activity considering the mining license once the LML is granted upon fulfilling all the statutory requirements. On the other hand, when the Coal mineral resource is deprived, or when it becomes unsustainable to mine the coal deposit, the developer will undertake closure and decommissioning of the project in line with the agreeable standard as stipulated in the relevant Acts applicable in Zambia and the mining sector in particular.

The activities that will be carried out during the decommissioning of the mine will include the decommissioning and removal of the equipment from the mine, demolition of mine offices and the re-vegetation of the entire project area, unless by request, pre-determined by the local population to have the facilities for alternative use. As for the offices, it is most likely that they will not be demolished but rehabilitated so that they can be used for some other project activities.

The removal of all other buildings and foundations will occur during mine decommissioning and precisely the plant site will be rehabilitated so that any contamination (e.g. soils, scrap metals, spilled chemicals, oils and fuel) that could have occurred during the life of the mine should not impact on the surface water, groundwater and flora after closure.

Closure will also cause the cessation of activities on the waste rock dump. The top of the dump will be engineered in such a way as to slope to one direction toward a natural drainage during construction of the final lift. This will facilitate post-closure collection of runoffs from the dump into the natural drainage. The following activities will be undertaken during this phase

- ✓ Notice to relevant authorities on the status of the project. This will include the Ministry of Mines and Minerals Development, MSD, ZEMA and other local stakeholders such as the local Chief, local councils, and Forest Department and the affected local residents.
- ✓ Restoration of the prospecting area to acceptable alternative land use capability compatible with the surrounding land use and the local authorities without disturbance from residual exploration impacts.

- ✓ Rehabilitation of the degraded areas such as replanting of trees and grass, back-filling of excavations (borrow pits), sampling and analysis of the soils in order to check whether the environment is polluted and to what extent. This will however also be an on-going exercise.

Shimabu mining Limited will during the closure of the project further ensure that there is reduction and/or mitigation of the anticipated:

- ✓ Potential hazards of geological origin, such as erosion, collapse and subsidence and landslides of the rocks on site.
- ✓ Environmental deterioration due to cumulative effects of successive floods or erosion over time.
- ✓ The decommissioning and closure process will essentially be aimed at restoring the surrounding environment to a state, resembling as closely as possible that which existed prior to the commencement of mining as measured by both chemical and biophysical parameters.

4.0 PROJECT ALTERNATIVES

The following project alternatives were considered, based on the project setting, objective, industrial experience, the location of the proposed large-scale mining project and the proposed mine infrastructure.

4.1 Project location alternative

The location of any mining project is influenced by the availability of the mineral resource for exploitation. The mineral resource is traditionally extracted from the earth strata before reporting to the various beneficiation facilities. The resources for exploitation are mainly discovered and quantified through the exploration process (which was undertaken and completed by SML to determine the mineralization level).

Shimabu mining Limited can therefore only undertake mining activities only within the boundaries of License No. 22912-HQ-LEL where the ore resources have been geologically proven to be present. The location of the mine site has no alternative sites for undertaking similar activities as the occurrence of coal in the project area is site specific and the ministry of Mines has only granted SML the current license area for coal exploitation.

The mining License granted to SML is site specific and covers license No.22912-HQ-LEL thus no other mining area has been earmarked as an alternative with the same mineral resource availability.

4.2 Mining method alternatives

To extract the mineral ore resources from the ground, the ore is removed or mined from the ground in either open pit or underground mines. The primary method that is most feasible to be used for phase 1 project undertaking is open cast (open pit) using benching method. Alternatives to be considered as secondary methods will include:

- ✓ Underground – sinking a vertical or inclined shaft into the earth to reach the ore and driving horizontal tunnels into the ore.
- ✓ Open-pit is used to recover over 90% of ore that is mined using the open pit method – open-air mining. Ores near the surface can be quarried after removal of the surface layers. coal mining, like most other minerals, is mainly done through either open cast (pit) or underground mining depending on factors such as the depth of the ore resources, the competence of the geology and the economics of the proposed mining project.

Shimabu mining Limited will conduct the proposed mining activities in the project area using open cast (Open Pit) mining as the primary method and technology for the operation in License No. 22912-HQ-LEL. At full scale development of the mine and with changes in the occurrence of the mineral belt in the license area, SML will not consider setting up an underground portal for further mining due to the limited size of the license area.

4.2.1 Mining Design Alternatives

SML has evaluated through exploration and related studies that the mineable and economic coal mineral resource has potential to make the mine viable using open pit mining technology. Ground competence and conditions influenced the mining method and subsequent mine design.

The competence of the ground and prevailing geotechnical conditions at the mine as well as the evaluated mineral resource favours open pit mining mine design as opposed to underground. The mineral occurrence at the proposed pits for coal occur near the surface, hence open pit mining is the best option as compared to any other method.

4.3 Process and Technology

The Processing of Coal ore into concentrates depends on the discovered ore. Oxides and sulphides ores are processed using different technologies world over. Oxide ores are processed through the hydrometallurgy process (crushing and milling) while sulphide ores processed via a pyrometallurgy process (crushing, Milling, flotation, thickening, smelting and refining). The configurations of either of these processes can be refined further depending on the specific ore body constituents. Shimabu mining Limited will not undertake the mineral processing activities in the phase 1 of the project which is proposed in this EIA report. The core mined at the plant will only undergo washing at the mine site and then stockpiled for haulage and future use at the proposed power plant. Shimabu mining Limited has not considered the option of processing Coal ore owing to the lack of thermal power plant in the project development.

4.3.1 Ore Storage Pads and Loading Facilities

No other alternatives apart from storing the ore temporally on site near the pit and loading it before transporting to the crusher were considered.

4.3.2 Waste Rock Dumps

No other alternatives apart from situating the waste rock west of the open pit for the location of the Waste Rock Dump and Top Soil Stockpile. The waste rock dump will be situated west of the ore body as there is adequate space within the mine site. The waste rock dump will be situated on northern part of the pit. Dump to be constructed in 24m height benches and 4.0m bench widths.

4.4 Raw material Alternative

Shimabu Mining Limited has only one source of the mining material, which is from the ore that will be mined from the discovered ore body within License No. 22912-HQ-LEL. No other options have, therefore, been considered in terms of sources of coal. Shimabu mining Limited will continue with the exploration and mining activities, within the license, during the operations stage to possibly increase the ore reserves and potentially the life of the mine.

During construction Phase: The material alternatives where to either to use concrete material or steel for the floor slabs and the columns of the building and installations. The developer opted to use concrete for foundations, steel beams and brick work for walls in the plant and support buildings. In terms of material implementation, the proposed tanks installation will be constructed using high grade steel to be fabricated by certified welders and will be based on steel reinforced concrete foundations. The walls will be made from concrete block, plastered and painted. The buildings will be constructed using a standard reinforced concrete shell comprising reinforced concrete columns and suspended floor slabs. The roof structure will be made up of steel trusses with composite steel roof sheets. The walls will be made from concrete block, plastered and

painted. The advantages of using this building methodology and materials are that: They are cheaper compared to having a steel frame building which is faster to build though very expensive; They are more flexible as it is easier to adapt in case of any changes to the building unlike a steel one which is difficult in case of any change which requires the introduction of additional steel sections.

Additionally, during operation phases, the other input/raw materials will include Explosives will be used for blasting waste rock. The No other alternative is best compared to blasting. Pick and shovel alternatives are uneconomical and would take time to break the rock. Additionally, the magazine where the explosives will be stored will be situated away from any village or any infrastructure.

4.5 Project Design, Configuration and Size

Project in mining is strictly influenced by factors such as the size and quantity of the available resources. The existing project is not an exception to such factors. The project design, configuration and size were driven by the available resources as determined through the vigorous mining activities that have been undertaken so far. Project (*refer to the mine plan in appendix*). The project financial model was also used to come up with the configuration and size based on the project viability and payback period as well as the best management option for the proposed project.

4.6 Water Supply Alternative

The project area has Kalama River which is non-perennial. The potential sources of water are sinking boreholes or obtaining from the dam. Sinking new boreholes will be a feasible option because of the associated costs of getting surface water from the Kariba Dam. The preferable option is sinking boreholes (two) within the project area.

4.7 Power Supply Alternatives

Options considered for the sources of energy included coal, and electric power from either ZESCO, Solar or generator sets. In order to ensure a constant supply of power, to ensure smooth operations and to be conservative, renewable energy sources, in form of electric power, will be sources as opposed to coal. Solar power and Generators will be used considering the project location is far from the grid. Coal has to be transported from Gwembe and the costs involved are prohibitive.

4.8 Waste Management alternatives

Domestic Solid Waste: The alternatives of the use of rubbish pits and dumping of solid waste at a licensed dump site were considered. Dumping at licensed dump site was preferred because it is more environmentally friendly. Most of the waste that shall be generated shall be biodegradable waste. The SML licensed dumpsite will be situated away from the proposed mine site and therefore was chosen as the best alternative for solid waste management as it services the whole of mine.

Sewage Disposal: Portable toilets, soak away system and septic tanks were considered for sewage disposal. Flushable toilets with septic tanks were considered and were preferred because they are more environmentally friendly and due to lack of sewer service line at the site, sewer network line would be way too expensive to install.

Hazardous waste: All hazardous waste will be stored on site as per waste management regulations as SML will obtain a hazardous waste generation and storage license. The waste will be disposed of by registered waste management companies to be engaged by SML.

4.9 Fuel Storage Alternatives

The alternative of using a fuel bowser for purchasing fuel from filling stations from Munyumbwe and distributing it to the machines on site and the alternative of storage of fuel at the proposed project site were considered. The use of an onsite fuel filling station was preferred because it is considered to be cost effective and easy to implement.

4.10 No Project Alternative

The purpose of the mining project is to exploit the geological resource for the socio-economic development of the project area in particular and the country in general. The implementation of the proposed project has created jobs for the local people, contribute to the payment of taxes to both the local and central government. No project option or none implementation of the project will entail leaving the discovered geological resource untapped in the ground, non-creation of jobs for the local people. No project implementation might also leave the area vulnerable to environmental damage from the artisanal or small-scale miners that, might flood the area illegally trying to exploit the resources based on the knowledge that mineral resources have been discovered in the area. The coming in of the illegal miners might have a damaging impact on the environment and force the government to spend more resources in preserving the area.

4.11 List of alternatives

The following were the chosen options in order of preference: -

- ✓ Constructing the proposed project at the existing location/site due to the availability of the mineral resources for mining;
- ✓ Mining the ore through open pit method other than underground mining method;
- ✓ Processing the ore on site;
- ✓ Raw material being Coal. The open pit mining project will be an excavation or cut made at the surface of the ground for the purpose of extracting Coal for the viability of the mine.
- ✓ Disposal of the overburden material;

5.0 ENVIRONMENTAL BASELINE STUDY

This section presents the general predominant climatic conditions of the project license area in Gwembe District of Southern Province. The extent of the proposed SML coal mining project environmental and social baseline site and desk assessment of the below biophysical environmental receptors was conducted around the license area.

5.1 Climate

The Southern Province has a tropical climate with three distinct seasons: the warm-wet, cold and hot season. The collected data from the metrological department for Gwembe had some information gaps, however data was provided for the months January, February and March for year 2014. According to this data from the Zambian metrological department, for the 3 months of 2014 that the data was available, the highest temperature was recorded on the 24th of January 2014 at 33.5⁰C and the lowest was recorded on the second of January, 2014.

5.2 Rains Fall

Rains in Southern Province like the rest of the country are caused by the convergence of the North-east and South-east Trades that form the Inter-Tropical Convergence Zone (ITCZ). The rainy season of the province is relatively long and the mean annual rainfall is relatively high. The average length of the rainy season is just over five months with the December, January and February period experiencing greatest rainfall while November and March have less. The region experiences rainfall between September and April. The highest rainfall occurs in January and February with the mean annual rainfall of approximately 529mm. The average annual rainfall in this region of Southern Province was 875mm.

The rainfall data for the first 4 months of 2021, collected from the Zambian metrological department, indicated that the February, 2021 experienced the most rainfall (675mm) for the period under review 1st January to 30th April, 2021.

5.3 Relative Humidity

Relative humidity varies throughout the year, reaching peak in the wet season. The highest relative humidity for the first 3 months of 2014 was recorded on 93.0% on the 2nd of January, 2014, while the lowest humid day for the said period was 20th January, 2020 having recorded a relative humidity of 66%.

Wind directions are dominated by winds from the northeast through to the southwest. wind data for the first 3 months of 2014 January to March ranged from 1.0m/s to 4.0m/s.

5.3.1 Sunshine availability

The project area experiences approximately a mean sunshine duration per day in the range of 5.6hours in December to 9.3 hours in October.

5.4 Air Quality, Dust and Noise

License No. 22912-HQ-LEL lies within Siamuluwa area which is predominantly customary land under HRH Chief Chipepo's. The area has no industrial activity within and outside of the proposed mine license area. Predominant economic activity in the area is arable agriculture and animal rearing particularly Cattle and goats with seasonal fishing activities in the Zambezi River (locals seasonally engage in fishing as a source of livelihood in the nearby Zambezi and Lake Kariba)

In view of the above activities, the proposed mine area in terms of air quality was generally deduced to be good owing to the lack of industrial activity likely to lead to compromised air quality. In view of having baseline data as a primary requirement for assessing the impacts on air, air quality and dust sampling was conducted around the project site area to ascertain the quality of the air prior to project implementation.

The air quality sampling made during day time when the area is active with various activities by the local people. Sampling methodology involved sampling from different points within the License area. The sampling device was positioned at a sampling position of 1.2m above ground level. Visibility was predominantly clear and no foul smell was observed. Some individuals working in the environs of the project site were interviewed whether they have been affected by any form of air pollution and the answer was that they have not been affected as there is no industrial activity in the area. The main ambient air parameters considered during the survey are;

- ✓ Carbon monoxide
- ✓ Sulphur dioxide
- ✓ Nitrogen oxides (NO_x)

In accordance with the guidelines, sampling for each gas was done over a period of 60 minutes. A maximum of four trials/ sample tests were conducted on each sampling point (SP) in order to obtain an average reading of the ambient air gas concentrations. The SKC air check personal aerial dust sampler was used to detect the dust levels at the project site. This is a portable device that specifically measures occupational dust and dust fall out during normal operations in potentially hazardous work environments. A reading of each gas component was taken after a 20-minutes interval for a duration of 60 minutes at each sampling point and readings recorded.

Further, air quality and Noise measurements were conducted from 16th-19th March, 2025 in which ambient air quality data was obtained by way of periodical measurements in the five (5) sampled sites ambient air and six (5) for Noise level. Noise level measurement included determination of the Noise sources and probable sensitive receptors considering that the area has no industrial establishments. The nine sampled points for ambient air were identified and the levels of SO₂, NO_x, NO₂, CO, dust and noise levels measured in the five (5) sites. The sample results were obtained for each sampling point and analyzed for concentration of ambient dust. Potential areas of concerns within the site where two (2) while the other 3 sites where in the nearby surrounding community. Summary results of the Air quality analysis are presented in the table below:

Table 9: Project Sampling Sites for ambient gases and ambient dust

Sampling point	Coordinates		Area Description	Atmospheric condition
	South	East		
SP 1	16°44'43.29"S	27°43'8.78"E	Exploration site	Normal
SP 2	16°45'27.04"S	27°43'29.72"E	Settlement	Normal
SP 3	16°45'3.28"S	27°42'55.08"E	Exploration site	Normal
SP 4	16°45'15.24"S	27°43'16.08"E	Kalama River Surrounding	Normal
SP 5	16°45'26.61"S	27°43'36.52"E	New apostolic Church	Normal

Table 10: Dust measurement results in the project area

Period of the Day & Date	Sampling Dates	Dust Level Results (mg/Nm ³)			Duration (min)	ZEMA Limit	Remarks	Dust Level Results (mg/Nm ³)			ZEMA Limit	Remarks
		S1	S2	Average				S3	S4	Average		
	October-November 2025											
16.03.2026 Morning	12	10.7	8.3	9.5	30	50 mg/Nm ³	Normal	5.4	5.2	5.3	50 mg/Nm ³	Normal
	13	6.4	6.6	6.5	30	50 mg/Nm ³	Normal	7.9	7.2	7.6	50 mg/Nm ³	Normal
	14	6.5	6.1	6.3	30	50 mg/Nm ³	Normal	6.3	7.5	6.9	50 mg/Nm ³	Normal
17.03.2026 Afternoon	15	7.9	6.7	7.3	30	50 mg/Nm ³	Normal	6.1	6.9	6.5	50 mg/Nm ³	Normal
	16	8.7	7.9	8.3	30	50 mg/Nm ³	Normal	8.75	6.4	7.8	50 mg/Nm ³	Normal
18.03.2026 Mid-day	17	7.6	8.1	7.9	30	50 mg/Nm ³	Normal	7.8	7.3	7.6	50 mg/Nm ³	Normal
	21	6.9	7.5	7.2	30	50 mg/Nm ³	Normal	8.3	9.6	9.0	50 mg/Nm ³	Normal
	22	6.6	6.3	6.5	30	50 mg/Nm ³	Normal	8.1	7.6	7.9	50 mg/Nm ³	Normal
	23	8.1	8.4	8.3	30	50 mg/Nm ³	Normal	6.9	5.7	6.3	50 mg/Nm ³	Normal
	25	6.0	7.2	6.6	30	50 mg/Nm ³	Normal	5.1	6.8	6.0	50 mg/Nm ³	Normal
19.03.2026 Morning	02	7.1	7.3	7.2	30	50 mg/Nm ³	Normal	7.9	8.5	8.2	50 mg/Nm ³	Normal
	03	7.1	8.3	7.7	30	50 mg/Nm ³	Normal	6.5	7.4	7.0	50 mg/Nm ³	Normal
	04	7.9	6.8	7.4	30	50 mg/Nm ³	Normal	9.7	8.2	9.0	50 mg/Nm ³	Normal
	05	7.2	7.5	7.4	30	50 mg/Nm ³	Normal	7.3	6.7	7.0	50 mg/Nm ³	Normal

Table 11: Ambient Air quality measurement results in the project area

Location	Parameter	Results (ug/m ³)	ZMAC	Duration (min)	Remark
SP 1 (Exploration site)	CO	5.1	100mg/m ³	60	Low levels
	SO ₂	7.2	500ug/m ³	60	Low levels
	NO _X	ND	400ug/m ³	60	Low levels
	NO ₂	ND	N/A	60	Not detected
	Ambient Dust	11.2	50mg/Nm ³	60	Below limit
SP 2 (Settlement)	CO	6.7	100mg/m ³	60	Low acceptable levels
	SO ₂	ND	500ug/m ³	60	Not detected
	NO _X	ND	400ug/m ³	60	Not detected
	NO ₂	5.3	N/A	60	Low levels
	Ambient Dust	11.5	50mg/Nm ³	60	Below limit
SP 3 (Exploration site)	CO	6.4	100mg/m ³	60	Low acceptable levels
	SO ₂	7.1	500ug/m ³	60	Low levels
	NO _X	3.5	400ug/m ³	60	Low levels
	NO ₂		N/A	60	Low levels
	Ambient Dust	11.7	50mg/Nm ³	60	Below limit
SP 4 (Kalama River Surrounding)	CO	10.5	100mg/m ³	60	Low acceptable levels
	SO ₂	10.7	500ug/m ³	60	Low levels
	NO _X	9.9	400ug/m ³	60	Low levels
	NO ₂	4.1	N/A	60	Low levels
	Ambient Dust	8.4	50mg/Nm ³	60	Below limit
SP 5 (New apostolic Church)	CO	6.4	100mg/m ³	60	Low acceptable levels
	SO ₂	ND	500u ₃	60	Not detected
	NO _X	3.8	400u		Low levels
	NO ₂	ND	N/A	60	Low levels
	Ambient Dust	10.1	50mg/Nm ³	60	Below limit
SP 6 (Mine Surrounding)	CO	8.7	100mg/m ³	60	Low acceptable levels
	SO ₂	3.1	500ug/m ³	60	Not detected
	NO _X	7.5	400u	60	Not detected
	NO ₂	9.9	N/A	60	Low levels
	Ambient Dust	9.0	50mg/Nm ³	60	Below limit

Dust Analysis

A SideKick® single pump dust sampler was placed at specified locations and was made to run for a specified period after which it was removed and readings obtained. The results are quoted in parts per million (ppm) then converted mg/Nm³. The obtained figures were extrapolated to 24hrs.

Noise levels

The project area has no industrial activities with potential to generate noise above the industrial set limit. The source of noise experienced in the project area is the sound of birds and people near the school. However, noise level measurements at various points on site and the surrounding areas when noise levels were taken during the day time indicated acceptable noise levels as shown in the table below.

Table 12: Ambient Noise level measurement

Sampling Location	Noise level- dB(A)		Duration (min)	Operation Time	IFC Standard (Industrial)	Remarks	Noise Source & Receptor	
	Min	Max					Source	Receptors
Settlement area	44.5	46.5	12	N/A	85dB	Normal	People, and Birds	Nearby communities
Exploration site	62.4	64.2	12	8Hrs/Day	85dB	Normal	Farms	Nearby Communities
Kalama River side	42.4	45.6	12	8Hrs	85dB	Normal	Birds	Nearby communities
New apostolic church	41.3	46.4	12	8Hrs	85dB	Normal	people	Nearby communities
NOISE ZONING								
Location	Distance from Source		Classification		Noise Level- dB(A)	Comments		
Kalama primary School	50m		Low level		51.3	No requirement for noise abatement PPE		

5.5 Geology

The existence of coal in the Zambezi Valley was recorded in 1865 through systematic exploration works around mamba area on behalf of the Northern Rhodesia Coal Syndicate (Mark C Murphy and Co, 1950). In accordance with the geological survey re-conducted in 1965, for the estimation of the coal reserves in the Zambezi Valley; Sinazongwe, Nkandabwe, Siakandobo and Mulungwa areas have huge coal potential.

5.5.1 General Geological outlay of the area

The geology of the Southern Provinces is of a complex nature. The basement rocks are overlaid by the Muva, Lower and Upper Roan, Mwashia Upper and Lower Kundelungu series. Large parts of these have been irregularly deposited and irregularly eroded over time.

The Basement complex and the Muva system comprise a series of Schist, Quartzites, Gneisses and intrusion of Granite. On the Muva and Basement rocks are sedimentary rocks of the Katanga system which are considered to be of the late Pre - Cambrian age. The rocks of the Katanga System are widespread on the Kafue and parts of the Mazabuka District and are divided into three groups,

which have a fairly well-defined sequence throughout the study area. The lowest of the three is predominantly arenaceous and is formed of conglomerates, sandstones and quartzites, where all the mineral ore deposited are said to occur. The second and upper group comprises dolomites, shales and limestones with thin beds of sandstones while the uppermost group comprises inter-bedded argillites and dolomites. The above-mentioned rock groups have undergone the process of structural folding forming a series of north-west/south-east trending anticlines and synclines plunging generally to the north-west. The subsequent erosion has removed the higher parts of these structures and the Katanga sedimentary rocks are now represented by a series of pedi-plains composed of synclinal basins and anticlines.

5.5.2 Geology of the Project License area

The The Project Licence Area (Licence No. 22912-HQ-LEL), located in the Southern Province, is underlain by sedimentary and basement rock units that host coal mineralization. The geology of the area is characterized by sandstone, siltstone, carbonaceous mudstone, and basement complex rocks, which collectively provide favorable conditions for coal deposition.

Coal mineralization within the licence area is structurally controlled and is commonly associated with fractures, faults, and lithological contacts within the sedimentary sequence. The mineralization occurs as veins, veinlets, and disseminations, particularly within sandstone and siltstone horizons, and locally along the contact zones with carbonaceous mudstone and basement rocks.

In the Southern part of the project area (Siamuluwa), the geology is more complex and is disrupted by several horizons of sandstone and siltstone resembling Maamba Sandstone lithologies. These units are intersected by structural features that act as conduits for coal-bearing hydrothermal fluids, enhancing coal concentration in the area.

The basement complex underlying parts of the licence area consists mainly of gneisses and schists, which are locally fractured and altered. These structural weaknesses provide favorable pathways for coal mineralization, particularly along fault zones and shear structures.

Overall, the geological setting of the Project Licence Area is conducive to coal mineralization, with favorable host rocks, structural controls, and hydrothermal alteration features. The presence of coal within the licence area indicates good potential for further exploration and possible economic extraction.

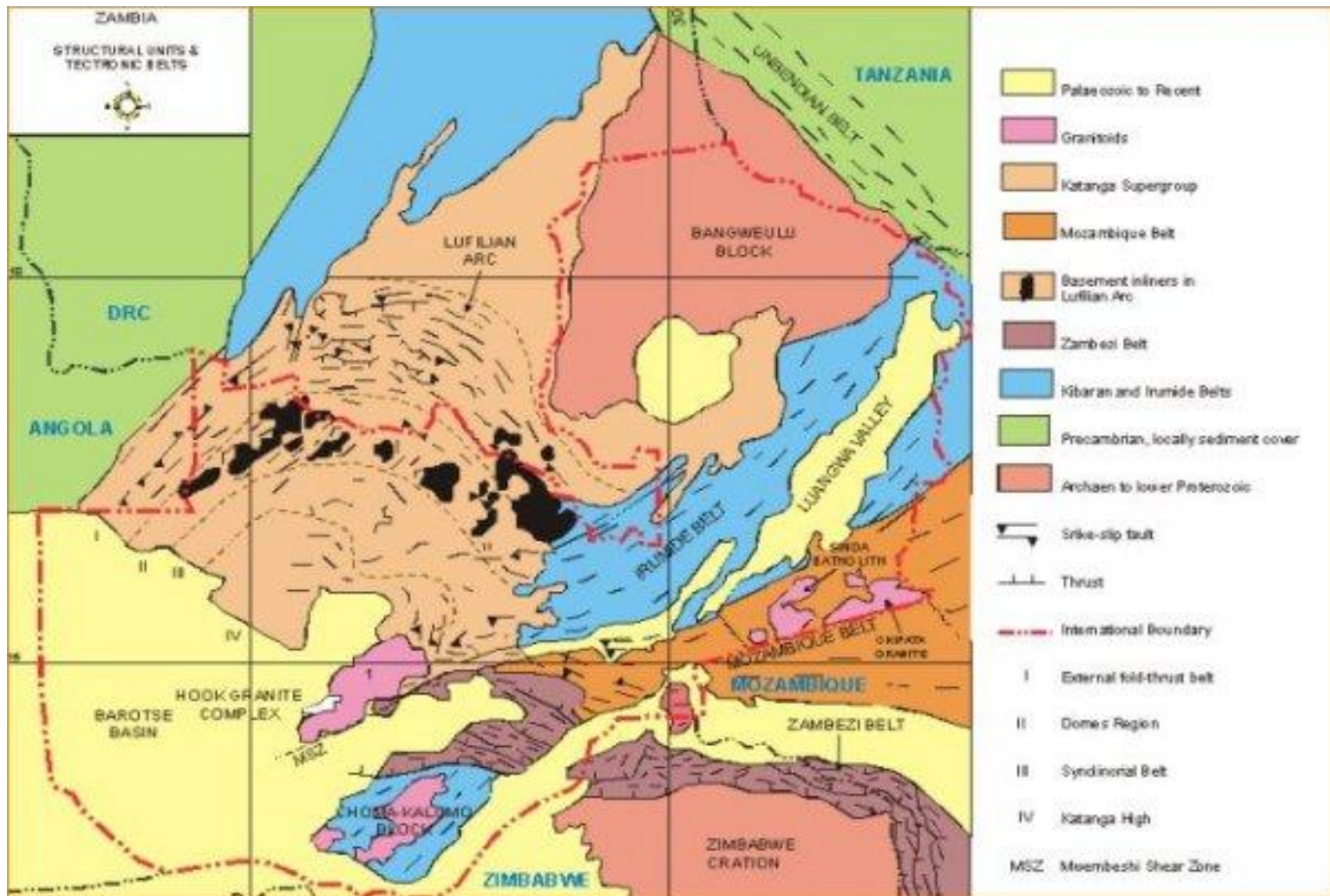


Figure 5: General geology of Zambia incorporating Gwembe District

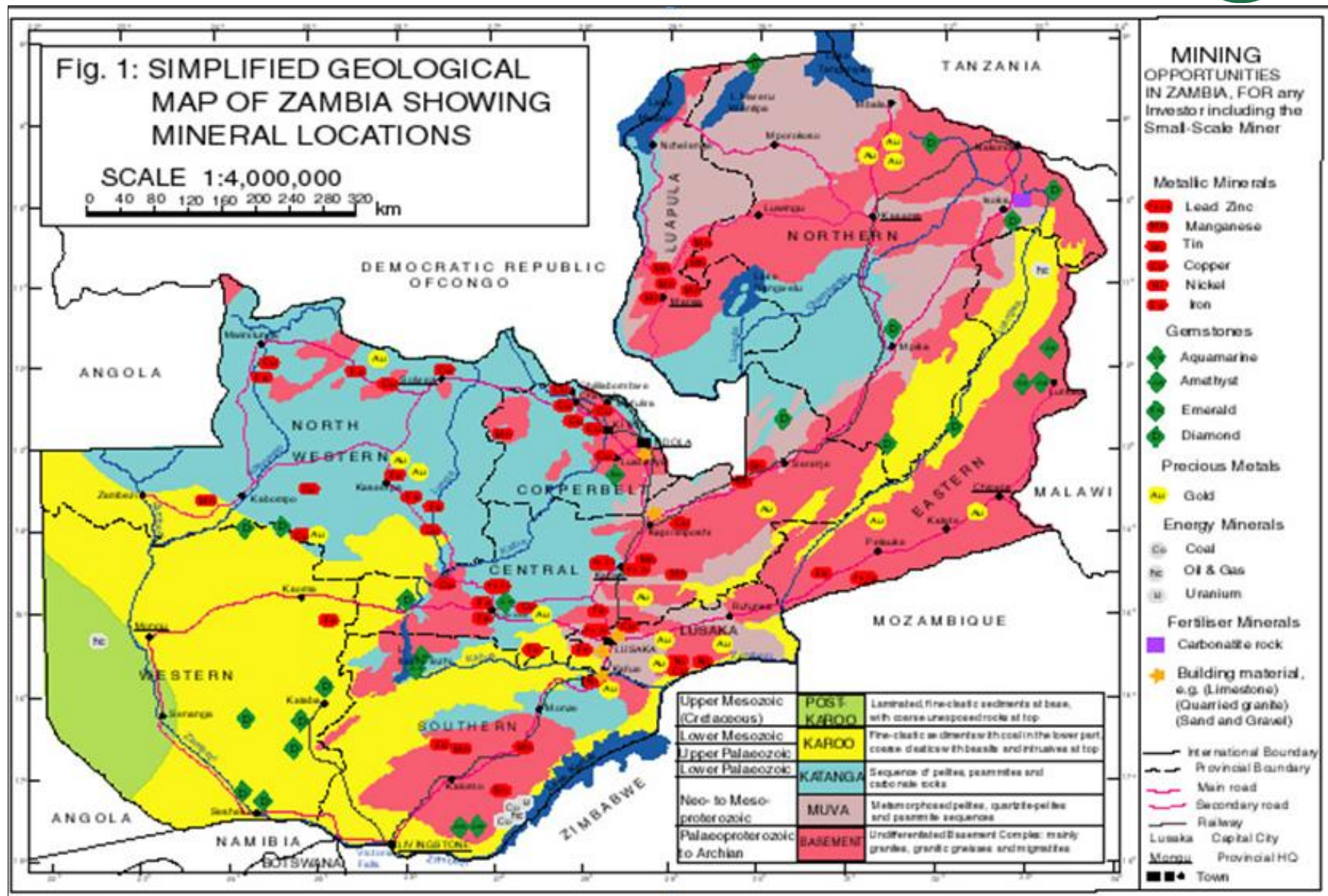


Figure 6: Detailed geological Map

5.6 Hydrogeology

Kalama River is the only River found within the license area which is also non-perennial. It is located on the west part of the license area. The hydrogeology of the area is that of deep-seated aquifers with an approximate water table depth of about 5m to 10m. The Kalama River had no water as it is non-perennial and only have water during rain season.

The nearest settlement to Kalama River is about 200m.

In terms of ground water resources, while rainfall is the primary contributor, it is the lithology (or rock type) and the structural character (porosity, clay content, folding, faulting, jointing and foliation) that are relevant with respect to water availability at the site. The rainfall regime has remained reasonably unstable in the Zambezi Valley for the last 3 seasons leading to drying up of most surface water bodies including Kalama River in the project area. Generally, ground water levels go down between May and November and rise between December and April during the rainy season.

Ground Water sources

The project area has over 15 domestic boreholes withing the boundaries. While the central Dolomite Formation normally provides the best aquifer in the region, the schists associated with the beds below, especially within the Cheta Formation give relatively poor yields in the Zambezi Valley. This is indicative of the structural character of the geological environment which, as reflected by the geophysical investigations of the area, should be relatively conducive to water production.

The quality of the ground water associated with the significant lithologies present in the area may be characterized as good (*refer to water sample results below*).

Table 13: Coordinate for water sampling point

Sampling point	Coordinates	
Borehole	16°45'20.40"S	27°43'42.03"E



SCHOOL OF ENGINEERING
CIVIL ENGINEERING DEPARTMENT
ENVIRONMENTAL ENGINEERING LABORATORY

P.O Box 32379, Lusaka

PHYSICAL/CHEMICAL EXAMINATION OF WATER

Attn : Shimabu Mining
Sampled by : Client
Sampling date : 06.11.2025
Report date : 24.11.2025

Laboratory Results

Parameter	Borehole	ZABS Guideline (Maximum Permissible value for drinking water)
pH	6.75	6.5- 8.0
Turbidity (NTU)	2.65	5.0
Conductivity (µs/cm)	812	1,500
Total Dissolved Solids (mg/l)	441	1,000
Total Suspended Solids (mg/l)	<1.0	-
Total hardness (as mg CaCO ₃ /l)	202	500
Calcium hardness (as mg CaCO ₃ /l)	100	500
Alkalinity (as mg CaCO ₃ /l)	190	500
Iron (mg/l)	0.2134	0.30
Ammonia (as NH ₄ -Nmg/l)	<0.0001	1.50
Sulphates (mg/l)	10.362	400
Chlorides (mg/l)	35.0	250
Nitrites (as NO ₂ -N mg/l)	<0.0001	1.0
Nitrates (as NO ₃ -N mg/l)	<0.0001	10.0
Acidity (as mg CaCO ₃ /l)	Nil	500
Total phosphates (mg/l)	<0.0001	5.0
Magnesium (mg/l)	24.00	150
Calcium (mg/l)	40.0	200
Fluorides (mg/l)	0.20	1.50
Potassium (mg/l)	7.62	-
Sodium (mg/l)	23.1	200
Manganese (mg/l)	<0.01	0.1
Bacteriological Results		
Total coliforms (#/100ml)	78	0
Feacal coliforms (#/100ml)	22	0

Tests carried out in conformity with "Standard Methods for the Examination of water and Wastewater APHA, 1998".

Tested by: D. Muwonge..... Checked & Approved by: E. Mutati.....
Lab. Technician Acting Chief Engineer



The results for water samples from the borehole showed that Turbidity, Sulphates, Lead, Manganese, Sodium, Cadmium, Chloride, Nitrates, Arsenic, Aluminium, Fluoride, Copper, Colour (Hazen), Hydrogen Sulphide, Zinc, Iron and Total Dissolved Solids levels were within and in conformity with the World Health Organization (WHO) set limit for drinking water. The drinking water quality is generally good in the project area.

5.7 Topography

Generally, the Southern region topography comprises a plateau that slopes gently from 1240m in the north-west to 1130m ASL in south east. Southern Province and Gwembe District are situated at an average elevation of about 1200m above sea level. The area forms a gently undulating plateau rising to low hills of about 1400m in Kafue – Mazabuka and dropping area to about 1,130m to the south. The plateau is broken by isolated low ranges of granite or quartzite hills rising to heights of 100m above the general level of the plateau. A widely occurring and very noticeable characteristic of the greater part and one arising from a combination of topography and hydrology are the flood plains and dambos. The headwater dambos are a very common feature occurring on all gently sloping valleys. The headwater dambos are significant for the hydrology of the project area. The area has steep sided valley of high relief and represents the topographic boundaries between the plateau and the Zambezi Rift valley. The plateau area has elevations ranging from 1000m and 1100m above sea level.

5.8 Soils

The soils of Southern Province are ferrallitic in nature and are derived from various parent rocks, including granite, gneiss, sandstone and schist. These are old soils and are heavily leached due to high rainfall with lower base saturation of pH between four and five, having a red or reddish-yellow colour. The clay content is generally higher: soil textures change from clays to sandy clays or sandy clay loams, showing gradually increasing clay content from the coarse-grained surface soil to the sub-soils. Although they are clay-dominated soils with low permeability, they are generally well drained. They are variable in depth and frequently underlain by quartz rubble or concretionary ironstone/laterite developed under conditions of peneplanation from the Miocene epocha about 25 million years ago. Results from soil studies done in the project area including surrounding mining license areas indicate as summarized below:

The Liquid Limit (LL) ranges from 20.6% to 26.5%. The Plasticity Limit (PL) ranges between 15.6 and 20.6. The Plasticity Index (PI) of 5.2. The Linear Shrinkage (LS) ranges between 4.5% and 6.0%. The results of all lab tests have been attached to this report in Appendix 19. The geotechnical results have shown that the project site is suitable for the mining using the open pit method. Pit slope stability will be primarily controlled by the depth and extent of the weathering profile. This is strongly dependent on geology and tectonics.

Gwembe in general and sompani ward in particular has slightly acidic Nitosols with pockets of Vertisols, Arenosols, Leptosols and, Solonetz. According to (Sichinga. S, 2019), this type of soil exhibits the following properties:

- ✓ Limited soil depth in the hills and escarpment zones,
- ✓ Presence of hardpans in the pan dambo areas,
- ✓ Poor workability in the cracking clay soils,

- ✓ Problems of crusting in most parts of the Southern province,
- ✓ Low water-holding capacities and the problem of wetness in



Soil type within license No. 22912-HQ-LEL

These are vertisols derived from siliceous parent material. They are characterized by a peaty organic horizon, ranging from under 25 to over 180cm in thickness. The black top soil horizon is sometimes underlain by quartz sands ranging in colour from dark grayish brown to pale gray. The peat horizon usually has a pH of 3.5 to 4.5 if not drained. Due to the gently undulating topography, the vegetation and soils show a regular topo sequence, with the Mopane woodland areas having the ferrallitic soil type while the depressions of dambos are characterized by water logged grasslands usually devoid of trees having peaty vertisols. The License Area has Mopane woodland soils and dambo characteristic soils as a number of dry dambos are traversed.

5.9 Land tenure and land use

All land in the country is vested in the hands of the president who holds it on behalf of the citizens. The Commissioner of Lands administers land on behalf of the president of the republic of Zambia.

There are two main forms of land tenure in the district, which are Trust and Traditional Land tenure systems. Trust Land is state land under the control of the President through the Commissioner of Lands, leased to various establishments. The Traditional Land tenure is the dominant system in the district where Chiefs allocate occupancy and use rights.

However, since all land is vested in the President, this land can still be converted to state land through consultations with the Chiefs. Mountains dominate the land so much that land for settlement is only found in isolated pockets. However, most of the habitable land is used for agriculture. Traditionally, men control most of the land. They decide on the use of the land. While women have limited say over what to do with the land. Land uses include mining, individual/residential, industrial and commercial, parks and open spaces and urban agriculture.

The above-mentioned land uses, with the exception of reserve land, can be leased to individuals for a period of ninety-nine years. The president reserves the right to allocate and withdraw rights to own land in the country.

License area No. 22912-HQ-LEL is located on customary land spanning 3652.5970Ha in which the exploration activities have been undertaken and the subsequent mining activities will occur once the mining License has been granted. The license area falls within Chief Chipepo's Chiefdom of Gwembe District.

5.10 Built Environment

License No. 22912-HQ-LEL is located in a rural setup in Siamuluwa area. The proposed project area spans 3652.5970Ha of land with mixed infrastructure types that include one public structure (Kalama and Chilamba primary schools) while the other built environment comprises family dwelling houses and toilets. The proposed project site consists of virgin land with minimal anthropogenic disturbance and therefore has built structures that are found within the periphery of the license area. The area has over 50 settlers (households) with diverse construction type of dwellings and social infrastructure. Structures range from those constructed of burnt brick, iron roofing, wooden doors to those made of mud and pole with grass thatch roofing.

5.11 Fauna

A terrestrial flora and fauna study of the project area based on a desk study (literature review) and a site visit was undertaken. The main objectives of the fauna study were: - To identify the pre-existing species that was present in the region; To identify existing fauna species in the project area; To evaluate the diversity of the terrestrial fauna in the study area; To identify endangered habitats and describe management actions to prevent further habitat degradation of these sites.

Terrestrial fauna

No rare or endangered fauna species were observed either by the EIA term or the locals.

Big animals too were not encountered in the project area during the survey. A good number of small animal species such as reptiles, birds, insects were however recorded. Foot-marks and droppings of bush pigs, common duikers and spring hare were recorded.

Animal life within the project site is not significant because there has been human disturbance hence animals have migrated to other areas. However, traditional knowledge revealed that the area has a number of reptiles and amphibians in addition to common small animals that have adapted to the area mainly terrestrial animals.

Reptiles

Reptiles that were observed and sighted by the local people at a few kilometers from the project site were *Naja nigricollis nigricollis* (*Black-necked Spitting Cobra*) and *Python* (*Python sebae*). Other reptiles include representatives of lizards such as *Mabuya mabuya* (*Common African Lizard*), Geckos, Chameleons and skinks.

Table 14: Fauna species in the project area

No.	Scientific Name	Common Name
1	<i>Najanigricollis nigricollis</i>	Black-necked Spitting Cobra
2	<i>Dispholidus typus</i>	Boomslang
3	<i>Chamaeleon</i>	Common African Chamaeleon

4	Python sebae	Python
5	Typhlops gracilis	Blind Snake
6	Mehelya capensis	File Snake
7	Dendroaspis polylepis	Black Mamba
8	Boaedon fuliginosus	House Snake
9	Bitis arietans	Puff Adder
10	Cnemaspis africana	Gecko
11	Geochelone	Tortoise

Insects

A number of Insects were observed and noted during the Field survey at the project site area and the surrounding area. Insect life includes a variety of species of dragonfly, wasp, bees, crickets, grasshoppers, termites, flies, mosquitoes, ants, lady bugs, butterflies and moths.

Table 15: Common Insect species observed in the area

Scientific name	Order/Family	Common Name
<i>Apis mellifera</i>	<i>Hymenoptera</i>	Honey bee
<i>Microtermes goliath</i>	<i>Isoptera</i>	Termite
<i>Dorylus helveticus</i>	<i>Formicidae</i>	Ants
<i>Solenopsis spp</i>	<i>Formicidae</i>	Red ant
<i>Belonogaster junceus</i>	<i>Vespidae</i>	Wasp
<i>Helicopsis spp</i>	<i>Scarabaeidae</i>	Dung Beetle
<i>Anopheles spp.</i>	<i>Culicidae</i>	Mosquito
<i>Muscadomestica</i>	<i>Diptera</i>	House fly
<i>Brachypasma membranaceus</i>	<i>Orthoptera</i>	Giant cricket
<i>Cicadetta spp</i>	<i>Cicadidae</i>	Cicada

Aquatic Fauna

The aquatic resources of the project during the project undertaking and ESIA does not exist in the river. This is because the river is only flooded during rain season and dries up quickly with no water in nearly a year.

Avifauna

The project area has a disturbed fauna habitat due to human settlements and their associated anthropogenic activities including arable agriculture which led to most of the birds to migrate to far areas that exhibit reduced human activities and settlements. However, interviews of the local inhabitants, area measurements per square meter and field observations reveal species as indicated in the table below:

Table 16: Bird species in project area

Scientific Name	English Name
<i>Otus senegalensis</i>	African Owl
<i>Platalea alba</i>	African Spoonbill
<i>Merops persicus bullockoides</i>	Bee Eater
<i>Pelecanus onocrotalus</i>	White Pelican
<i>Acrocephalus baeticatus</i>	African Reed Warbler
<i>Melierax metabates</i>	Dark Chanting Goshawk
<i>Caprimulgus nigriscapularis</i>	Black shouldered Night Jar
<i>Coracias spatulatus</i>	The racket-tailed roller
<i>Euplectes</i>	Red-collared widowbird

NB: No endangered bird species was observed by the ESIA team nor reported to have been seen by the locals

5.12 Flora

The district lies in the Southern Province of Zambia and is covered by Miombo woodland, some relic gallery of Riparian vegetation, Munga woodlands in various forms, and Chipya or seasonally burnt woodlands. Some of the common tree genera found in the district include *A. haematoxylon*, *Acacia ataxacantha*, *A. erioloba*, *A. galpinii*, *A. xanthophloea*, *Parinari*, *Marquesia*, *Brachystegia*, *Burkea*, *Syzygium*, *Isoberlinia angolensis*, and *Julbernardia* as canopy dominants and *Acacia fleckii*, *A. nebrownii*, *Cryptosepalum*, *rehmanniana*, *Guibourtia*, *Combretum*, *Ficus*, *Khaya*, *Pericopsis*, *Piliostigma* and *thonningii* as sub-canopy dominants.

Within the broad Miombo Woodland in the area are woodland and forest sub-types that are specialized in occurrence, composition and structure. The distinctive woodland sub-types are: Riparian, Chipya woodland and various assemblages of the dominant tree genera of *Brachystegia*, *Julbernardia* and *Isoberlinia* with other co-dominants such as *Erythrophleum africanum*, *Marquesia macroura*, *Parinari curatellifolia*, *Pericopsis angolensis* and *Pterocarpus angolensis*. The major factors influencing their general make-up are: the moisture regime prevailing in the area, including annual rainfall, surface and underground water; elevation and exposure to prevalent winds and seasonal temperatures; soil types, depth and rockiness; and anthropogenic influences such as woodland clearance for cultivation, settlements and cultural practices such as woodland burning.

The license area covers a land area of 3652.5970Ha and a number of households living within the license as well as farms. This feature resulted in sparse undergrowth or absence altogether for most woodland areas surveyed. But despite some parts being well wooded and apparently forming good habitat, no wildlife was sighted except for avifauna, Rodents, reptiles such as lizards and a good number of insects. These aspects make the conservation value of the area high for vegetation, high for avi-fauna and very low for wildlife in general.

Table 17: Vegetation types in the license area

Vegetation Type	Plot Identification Numbers
<i>Acacia fleckii</i> , <i>Cryptosepalum</i> , <i>A. nebrownii</i> and <i>thonningii</i>	VSP 1
<i>Brachystegia bussei</i> , <i>Julbernardia paniculata</i> and <i>A. erioloba</i>	VSP 2
<i>Isoberlinia angolensis</i> , <i>Pterocarpus</i> , <i>Acacia ataxacantha</i> ,	VSP 3
<i>A. galpinii</i> , <i>A. xanthophloea</i> , <i>Piliostigma</i> and <i>Pericopsis angolensis</i>	VSP 4

Common shrubs and small trees throughout the woodland were in the following genera: *Albizia*, *Hymenocardia*, *Lippia*, *Pseudolachnostylis*, *Psychotria*, *Swartzia* and *Uapaca*. These were occasional to locally common in most of the woodland sub-types found in the mine license area. On the anthills, the common ones were *Boscia*, *Diosypros*, *Lannea*, *Markhamia*, *Steganotaenia* and occasionally *Zanzoxylem*. The following vegetations were found in the Vegetation sampling plots of the area during the field survey.

Vegetation Sampling Plot 1(VSP1):

The vegetation in the first sampling plot typically composed tree species of Munga and Miombo woodlands such as *Acacia fleckii*, *A. galpinii*, *A. nebrownii* and *thonningii*, with *Acacia fleckii* being

the dominant specie. The pattern of occurrence for the tree species appeared to be defined by soil type, depth and rockiness.

The assessed area had 16 woody stems (sptem per hectare= $10000 \div 400 = 25 \times 16 = 400$ stems), shrubs and grass such as *Acalypha welwitschiana*, *Combretum collinum* and *Imperata cylindica* in it. The average diameter for trees in the plot was 9.4cm and an average height of 10.7m. Most of the stems in the sapling and juvenile stages were either of coppice origin or had regenerated at the edge of the stand.

Table 18: Plant Species list and Abundance in Plot 1

Vegetation Type	Number	Abundance (%)
<i>Acacia fleckii</i> ,	7	35
<i>A. galpinii</i>	4	20
<i>A. nebrowniii</i>	3	15
<i>thonningii</i> ,	2	10
<i>Acalypha welwitschiana</i>	1	5
<i>Combretum collinum</i>	2	10
<i>Imperata cylindica</i>	1	5

Species Diversity= $1/(\text{sum of values in column of } P_i^2)=4.30$

Vegetation Sampling Plot 2(VSP2):

The vegetation in the second sampling plot typically composed tree species of Miombo woodlands such as *Brachystegia bussei*, *Julbernardia paniculata*, *Anisophyllea boehmii*, *Dicrostachys cinerea*, *Securidaca longipendiculata* and *A. erioloba*, with *Securidaca longipendiculata* being the dominant specie. The pattern of occurrence for the tree species appeared to be defined by soil type, depth and rockiness. *Julbernardia paniculata* on the assessed site appeared to grow on deep sandy soils while *Brachystegia bussei* seemed to prefer shallow soils on rocky sites. The assessed area had 21 woody stems (sptem per hectare= $10000 \div 400 = 25 \times 21 = 525$) stems in it with an average diameter of 15cm and an average height of 18m. The site had some grass such as *Hyperthelia dissolute*, and juvenile plants.

Table 19: Plant Species list and Abundance in Plot 2

Vegetation Type	Number	Abundance
<i>Brachystegia bussei</i>	2	9.1
<i>Julbernardia paniculata</i>	3	13.6
<i>Anisophyllea boehmii</i>	1	4.5
<i>A. erioloba</i>	1	4.5
<i>Dicrostachys cinerea</i>	4	18.2
<i>Securidaca longipendiculata</i>	10	45.5
<i>Hyperthelia dissolute</i>	1	4.5

Table 20: Plant Species Diversity in Plot 2

Vegetation Type	n	n/N	P_i	P_i^2
<i>Brachystegia bussei</i>	2	2/22	0.09091	0.008264
<i>Julbernardia paniculata</i>	3	3/22	0.13636	0.018595
<i>Anisophyllea boehmii</i>	1	1/22	0.04545	0.00207
<i>A. erioloba</i>	1	1/22	0.04545	0.00207
<i>Dicrostachys cinerea</i>	4	4/22	0.18182	0.033058
<i>Securidaca longipendiculata</i>	10	10/22	0.45455	0.2066
<i>Hyperthelia dissolute</i>	1	1/22	0.04545	0.00207

Species Diversity=1/(sum of values in column of P_i^2)=3.67

Table 21: Plant Species Diversity in Plot 3

Vegetation Type	n	n/N	P_i	P_i^2
<i>Isoberlinia angolensis</i>	3	3/28	0.107143	0.01148
<i>Strychnos spinosa</i>	2	2/28	0.07143	0.051
<i>Albizia antunesiana</i>	5	5/28	0.17857	0.03189
<i>Acacia ataxacantha</i>	7	7/28	0.25	0.0625
<i>Imperata cylindrica</i>	2	2/28	0.07143	0.051
<i>Canthium crassum</i>	1	1/28	0.03571	0.001276
<i>Combretum collinum</i>	1	1/28	0.03571	0.001276
<i>C. molle</i>	2	2/28	0.07143	0.051
<i>Dalbergiella nyassae</i>	3	3/28	0.107143	0.01148
<i>Diplorhynchus condylocarpon</i>	2	2/28	0.07143	0.051

Species Diversity=1/(sum of values in column of P_i^2)=7.13

Vegetation Sampling Plot 3(VSP3):

The vegetation in the second sampling plot typically composed tree species of Miombo woodlands such as *A. xanthophloea*, *Piliostigma* and *Pericopsis angolensis*, with *Pericopsis angolensis* being the dominant specie. The pattern of occurrence for the tree species appeared to be defined by soil type, depth and rockiness. The assessed area had 15woody stems (sptem per hectare=10000÷400=25x15=375 stems) in it with an average diameter of 18cm and an average height of 11.8m. The understorey was made of small trees and shrubs including: *Albizia amara*, *A. antunesiana*, *Anisophyllea boehmii*, *Boscia albitrunca*, *Combretum mechiowanum*, *Dicrostachys cinerea*.

Table 22: Plant Species list and Abundance in Plot 3

Vegetation Type	Number	Abundance
<i>A. xanthophloea</i>	4	16.7
<i>Piliostigma</i>	3	12.5
<i>Pericopsis angolensis</i>	6	25
<i>Albizia amara</i>	2	8.3
<i>A. antunesiana</i>	3	12.5
<i>Anisophyllea boehmii</i>	2	8.3
<i>Boscia albitrunca</i>	1	4.2
<i>Combretum mechiowanum</i>	2	8.3
, <i>Dicrostachys cinerea</i>	1	7.1

Table 23: Plant Species Diversity in Plot 3

Vegetation Type	n	n/N	P_i	P_i^2
<i>A. xanthophloea</i>	4	4/24	0.1667	0.02778
<i>Piliostigma</i>	3	3/24	0.125	0.01563
<i>Pericopsis angolensis</i>	6	6/24	0.25	0.0625
<i>Albizia amara</i>	2	2/24	0.08333	0.006944
<i>A. antunesiana</i>	3	3/24	0.125	0.01563
<i>Anisophyllea boehmii</i>	2	2/24	0.08333	0.006944
<i>Boscia albitrunca</i>	1	1/24	0.04167	0.00174
<i>Combretum mechiowanum</i>	2	2/24	0.08333	0.006944
<i>Dicrostachys cinerea</i>	1	1/24	0.04167	0.00174

Species Diversity=1/(sum of values in column of P_i^2)=6.86

Exotic Species

There were no exotic woody or herbaceous species seen within the license area

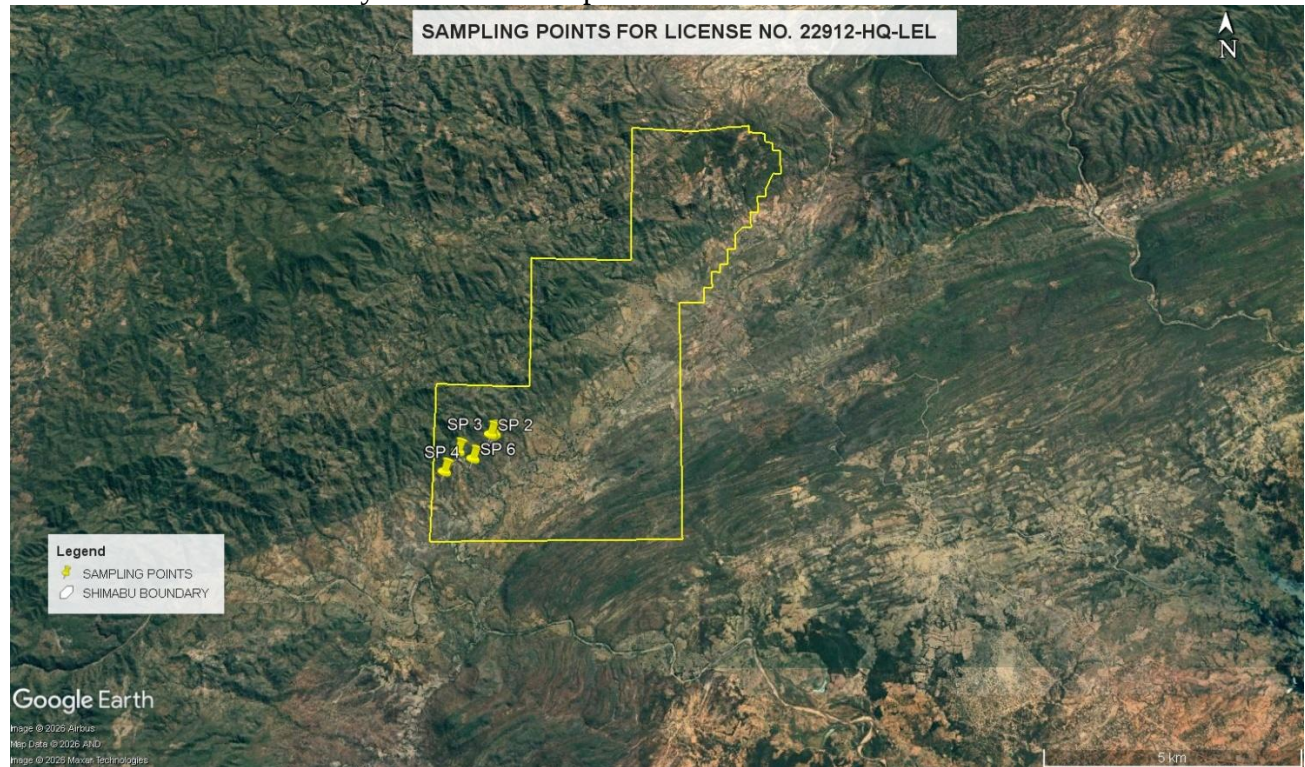


Figure 7: Vegetation sampling points

Table 24: Plant Species List for the SML License Area

S/N	FAMILY	NAME OF SPECIES	GROWTH FORM
1	Mimosaceae	<i>Albizia antunesiana</i>	tree
2	Eurphorbiaceae	<i>Acalypha welwitschiana</i>	Shrub
3	Fabaceae	<i>A. galpinii</i>	tree
4	Fabaceae	<i>A. xanthophloea</i>	tree
5	Capparaceae	<i>Boscia albitrunca</i>	Shrub
6	Fabaceae	<i>Piliostigma</i>	Shrub
7	Fabaceae	<i>Brachystegia bussei</i>	tree
8	Passifloraceae	<i>Adenia gummiifera</i>	Climber
9	Fabaceae	<i>Julbernardia paniculata</i>	tree
10	Fabaceae	<i>Pericopsis angolensis</i>	tree
11	Fabaceae	<i>A. erioloba</i>	tree
12	Anisophylleaceae	<i>Anisophyllea boehmii</i>	tree
13	Polygalaceae	<i>Securidaca longipendiculata</i>	Small tree
14	Fabaceae	<i>Cryptosepalum</i>	Sub-shrub
15	Fabaceae	<i>A. nebrownii</i>	Tree
16	Combretaceae	<i>Combretum collinum</i>	Shrub
17	Fabaceae	<i>thonningii</i>	Small tree
18	Dipterocarpaceae	<i>Marquesia macroura</i>	Tree
19	Fabaceae	<i>Dicrostachys cinerea</i>	Tree
20	Phyllanthaceae	<i>Hymenocardia acida</i>	Shrub
21	Cyperaceae	<i>Papyrus nilotica</i>	Large grass
22	Strychnaceae	<i>Strychnos spinosa</i>	Tree
23	Anacardiaceae	<i>Lannea discolor</i>	Tree
24	Poaceae	<i>Imperata cylindrica</i>	Grass
25	Ebenaceae	<i>Diospyros mespiliformis</i>	Tree
26	Caesalpinaceae	<i>Erythrophleum africanum</i>	Tree
27	Dipterocarpaceae	<i>Monotes adenophyllus</i>	Tree

28	Euphorbiaceae	<i>Bridelia micrantha</i>	Tree
29	Poaceae	<i>Hyperthelia dissoluta</i>	Grass



Flora species in the project area (source: field reconnaissance survey, April 2026)

Field reconnaissance survey and desktop studies were conducted for the project area to determine the flora composition and tree population of the mine area given the fact that the area supports anthropogenic activities through mining activities. The project area and the surrounding region are mostly composed of Mopane woodland. Mopane (*Brachystegia*) is a genus of trees comprising a large number of species. Mopane woodland is classified in the tropical and subtropical grasslands, savannas, and shrub lands. The Mopane woodland is usually distinguished by its three dominant species, the *Brachystegias*, *Julbernadias* and *Isoberlinias*.

Other common tree species included *Uapaca*, *Pterocarpus*, *Piliostigma*, *Pseudolachnostylis*, *Acacia* and *Combretum*. In most cases, variations occur in small patches forming pure stands of say *Uapaca kirkiana*, and also *terminalia* Mopane do exist side by side with dominant woodlands. Grass species identified in the area consist *Eragrostis viscose* (Sticky love Grass); The project site and the surrounding regions are mostly composed of Mopane woodland. Mopane (*Brachystegia*) is a genus of trees comprising a large number of species. Mopane woodland is classified in the tropical and subtropical grasslands, savannas, and shrub lands. The Mopane woodland is usually distinguished by its three-dominant species, the *Brachystegias*, *Julbernadias* and *Isoberlinias*.

5.13 Archaeological and cultural environment

Southern Province has a diverse mix of ethnic or tribal groupings with their corresponding Bantoid languages. The project area has one grave site (*locally referred to as Chuumbwe*) within the local setting of the project area. The principal ethnic group and their languages are given in the table below;

Table 25: Ethnic Groups of Southern Province

Ethnic Group	Language
TONGA The Tonga people are found in Mazabuka, Choma, Monze, Pemba Namwala, Sinazeze, sinazongwe and Livingstone Also spoken in Zimbabwe and to a lesser extent in Mozambique	There are two distinctive dialects of Tonga; Valley Tonga and Plateau Tonga. Valley Tonga is mostly spoken in the southern areas of southern province (Tonga people) while Plateau Tonga is spoken more around Monze District.

The main tribe around the proposed project area is Tonga and to a less extent lozi. The main language spoken is Tonga. The Tonga language is officially taught in schools. It is also used in

literacy campaigns, agricultural extension services, newspapers and radio programmes. Tonga is also widely used. Intermarriages across tribal lines are common and people usually live together in harmony. The traditional ceremony practiced in the area is Iwindi.

5.14 Population

Southern Province had a population of 1,606,793 of which 49 percent were males and 51 percent were females. The population increased from 1,212,124 in 2000. The average annual population growth rate for the province over the intercensal period 2000-2010 was 2.9 percent.

There was a decline in the growth rate from 2.3 percent in the 1990 -2000 period to 2.9 percent between 2000 and 2010.

The project area falls within Sompani ward of Gwembe Constituency. Based on the 2022 Census of Population and Housing, the total population of Gwembe District (which contains Sompani Ward) is 79,338 people. The proposed mine License area encompasses 6 villages (Lufutuko, Kalisalile, Siamuluwa, Siamulunda, Malungo and Kaumba) within the proposed land for the development of the mine. The area has a total of 50 Households spatially settled within the 6 villages outlined in the license area with spatial settlement patterns with a trend of one HH extending number of dwellings within the same village.

5.15 Social Services and Amenities in the Project Area

Economy: Like the rest of Gwembe district, the proposed project site and surrounding areas are largely dependent on small scale farming of crops, animal rearing and to some extent, fishing. These provide a significant part of the income to a considerable number of households to the residents of the project site and surrounding areas. The fishing industry, particularly Kariba fishing, provides employment to a large number of people in the district. Hence has helped in the alleviation of poverty and improvement of living standards. The fishing sector will continue to play an important part in the district's economy if conservation and sustainable fishing practices are encouraged.

Agriculture

Agriculture is another major source of living for a considerable number of the Gwembe district's rural population, Sompani ward inclusive. However, agriculture production is generally low due to low rainfall and frequent droughts, very high temperatures, poor and thin soils, rugged terrain and poor feeder roads among other constraints. Thus, the contribution of agriculture to the economy of the district is insignificant. Subsistence farming is the most widely practised type of agriculture. Cultivation activities are undertaken by the villagers for food supply by growing rain-fed crops such as maize, millet, and sorghum. These fields are harvested and the produce is generally stored in the owner's granaries. The fields generally range in size from 0.5ha to 5.5ha. Subsistence farmers also keep livestock of which the major ones are indigenous breeds of cattle and goats.

Education

The ward has 4 schools names: Sompani, Kalama, Simwami and Chilamba. Kalama primary School is the closest school existing in the project area, followed by Chilamba and Simwami primary schools to cover for children within and outside of the license area. The schools are offering primary school curriculum.

Health

Sompani health post is the only clinic existing in the license area. Apart from that, the other access to primary health care services to the local people is Gwembe district hospital. With current service provision radius of about 15km within and outside of the license area.

The market availability for various commodities in the project site and surrounding areas is mainly influenced by the availability of commodities. The most commodities such as fuel and groceries are bought from Munyumbwe some 45km from the site.

Water and Sanitation

Local people draw water from boreholes that has been installed on different points in different villages and schools. There are 28 boreholes in total. Households concentrated on the southern boundary utilise water from the boreholes, including cooking and washing.



Picture showing the borehole at Sompani primary school (reference: field survey: April, 2026)

The informal trading sector is an important sector of Sompani ward and Gwembe district economy and a major source of living for a large number of people. It is a major source of revenue for the district council. Most people in this sector are involved in the running of grocery shops, selling of new and second-hand clothes, vegetables and fish. The sector has potential to contribute more to the district's economy if infrastructure such as markets is put in place and revenue collection is enhanced.

Tradition and religious practices

Tradition

Primarily the Tonga people populate gwembe district. The project area falls under Chief Chipepo's Chiefdom. The traditional ceremony practiced in the area is Zambangulwe tonga traditional ceremony. The prominent socio-cultural practice is polygamy. It is not uncommon for a man to have three or four wives. Most females are married during their adolescent years. Children, a woman's sole means of acquiring the respect of her husband and the community are considered the

property of the mother. This results in extraordinarily large family sizes as wives compete for their husbands' affection.

Women carry out the majority of agricultural and all domestic work. Land however, is the property of the husband and the husband's family. When a husband dies, therefore, his wives and children are immediately disenfranchised as his immediate family members gain control over his land and resources. Large villages are rare. Rather, extended households comprised of three to four families and two to three generations, are randomly scattered throughout the valley making any type of service delivery expensive, Labour-intensive, and time consuming (source, <http://southern province administration website>; accessed, 05/01/2020).

Religion

Gwembe area is predominantly a Christian community with various churches of diverse denominations existing. The majority of the population is religious and a large number of denominations can be found in the area, amongst which are catholic churches, Seventh Day Adventist, new apostolic, pilgrims and faith apostolic church.

5.16 History

Gwembe District, created in 1947 in Zambia's Southern Province, is historically inhabited by the Tonga people (specifically the Gwembe Tonga), known for their resistance against forced resettlement during the 1950s Gwembe Town Council. The community faced significant cultural disruption following the Kariba Dam construction and subsequent relocation to areas like Lusitu and Chirundu. The Tonga people established themselves in the Gwembe Valley, cultivating, fishing, and practicing cattle husbandry, with rich cultural expressions like the *Budima* dance. In 1958, residents resisted relocation from the rising Zambezi River waters, leading to a conflict on September 10, 1958, where eight people were killed, forcing them to move.

Administrative Structure: The district, headquartered in Munyumbwe, consists of three main chiefdoms: Chipepo, Munyumbwe, and Simamba. The community historically relied on farming, but faced challenges with famine caused by irregular rainfall and, more recently, lack of suitable agricultural support. The people of the Gwembe Valley continue to maintain their traditional identity despite historical, social, and environmental changes.

5.17 Resettlement and compensation

The license area is 3652.5970Ha in extent. The area has a total of over 50 HH from 6 different villages located in pattern that depicts settlements in areas of arable land, water availability. The proposed mining area has no inhabitants that will be impacted by the mining activity except for farming fields and grazing land in Sompani zone.

In the event of the future mining expansion of the rest of the license area subject to confirmation from further Geological studies, Shimabu mining Limited will undertake progressive resettlement of the Project Affected Persons and farms in line with the National Resettlement Policy and IFC PS 5 on Involuntary Resettlement. The Resettlement Action Plan (RAP) will be prepared and

agreements entered into with the Project Affected Persons for relocation, compensation for the loss of land at current replacement value. The project affected families have been engaged by consulting team and SML in consultation with HRH Chief Chipeco's council and a resettlement agreement has been reached.

5.18 Acid Base Accounting (ABA)

ABA Overview

Acid-base accounting (ABA) is an analytical procedure that provides values to help assess the acid-producing and acid-neutralizing potential of overburden rocks prior to coal mining and other large-scale excavations. Acid-Base Accounting (ABA) is a selection procedure whereby the acid-generating potential and acid-neutralizing potential of rock samples are determined, and the difference, net neutralizing potential, is calculated. The ratio of neutralizing potential to acid-generation potential, and/or net neutralizing potential is compared with a fixed value or set of values to split samples into categories that require, or do not require, further determinative acid potential generation test work. Acid-Base Accounting is the balance between the acid neutralization and acid generation properties of any geologic material. Coal and overburden contain some sulphide minerals, mostly pyrite, react with water and oxygen to give sulphuric acid. Hence, decrease the pH in the mine discharges. Acid leaches metals from coal and overburden and introduces them into the environment and can cause water pollution.

Therefore, ABA will be used as a mechanism by SML for evaluating pre/post-mining water quality considering that the area has both surface and ground water sources. Its utilization is enhanced when used along with other pre-mining information including water quality, the examination of and evaluation of geologic and hydrologic conditions in license No. 22912-HQ-LEL (*Refer to appendix for detailed results*).

Sampling

SML has an existing small trench with potential for ABA processes and sampling will be done on the other areas of the mine license area that will host the mining open pit as well as the waste rock dump. These two materials:

Coal and waste rock are the two major causes of acid mine drainage hence to be investigated as part of the Environmental Impact Assessment process for the mining of Coal at the proposed site.

Acid Base Accounting

Acid-Base Accounting Test was carried out using Sobek Method (Sobek et al., 1978). Sobek method (Standard ABA method): The earliest and still much-used method determines the acid potential based on the Sulphur content each mole of sulphur produces two moles of acid neutralized by one mole of calcium carbonate

Assumption: oxidation of pyrite by oxygen; and the mole ratio of sulphur to calcium carbonate is therefore 1:1.

The weight ratio will be:

100 g CaCO_3 /mole CaCO_3 : 32g S / mole S

or

31.25 % CaCO_3 per % S (% is same as the kg/ton) in standard AP units

Neutralization potential by reaction with acid and back-titrating

The NP in the Sobek test is determined by treating the sample with HCl, and back-titrating with NaOH. The strength and amount of HCl to use are assessed with a —fizz test. With a stronger amount of initial acid, the solution reacts at a lower pH and involves phases that would not react at the more realistic pH of the real situation. Therefore, the simple Sobek test tends to misjudge the NP of material, and this affects the AP/NP ratio. The presence of siderite (iron carbonate) can significantly affect the laboratory determination of NP.

6.0 PROJECT IMPACTS

This section describes the criteria for impact's assessment and the potential environmental and social implications of the proposed project relevant to the successful implementation of the project. The general methodology, used for the determination and analysis of the Project impacts, is to identify project interactions with the receiving environment, using project and baseline description information. This chapter also discusses the impacts of the continued development of the mine site. The project impacts on both the biophysical and socio-economic and cultural environment within the project's area of influence. A matrix was used to establish the likely changes effected by the project on the environment. Results obtained were then analyzed and assessed to establish significant, major and minor impacts. The following criteria were used:

Nature of impact

This is an appraisal of the type to affect the proposed activity would have on the affected environmental component. Its description should include what is being affected and in what way.

Direct Impact

This is an impact that appears immediately as a result of an activity of the project. e.g. Loss of ecological habitat during exploration operations.

Indirect Impact

An impact that is related to the project but it is of secondary nature. It only shows in an indirect way. For example, the large-scale mining exercise may cause indirect impacts on the local economy of a community by increasing accessibility to other markets.

The indirect impacts are primarily socio-economic and extend beyond the project implementation. The indirect impacts include changes in economic activities and long-term changes, such as increased land degradation due to increased settlement and development at and around the project site.

Unlike the direct impacts, which occur in the immediate environment, the indirect impacts would have effect on adjacent regions.

Spatial Extent

The physical and spatial size of the impact is a description of whether the impact would occur on a scale described as follows:

- ✓ Site, the impact could affect the whole or measurable portion of the site. Whether it is limited to the immediate area of the proposed project
- ✓ Local, the impact could affect the extended area adjacent to the site perhaps a neighbouring or small town. Whether it would affect environments up to 15 km outside the immediate environments.
- ✓ Regional, that impact could affect the area including the outlying areas of the city, the transport routes and the adjoining towns.
- ✓ National, the impact could be as far as reaching international boundaries.

Frequency

Frequency is the incidence, occurrence, regularity, rate or rate of recurrence of the source of impact that will affect the proposed prospecting activities. This is measured by the number of times of occurrence of the source of impact due to the proposed development.

- ✓ Occurs once, where the source of impact will either occur once or disappear with mitigation or will be mitigated through natural process after occurring once due to the proposed project.
- ✓ Occurs twice, where the source of impact will occur twice at any given phase of project implementation and thereafter it will be entirely negated and;
- ✓ Occurs more than twice, where the source of impact will continuously occur more than two times for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.

Duration

The lifetime of the impact; this is in the context of the life-time of the proposed development.

- ✓ Short term, the impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the preparatory phase
- ✓ Medium term, the impact will last for the period of the preparatory phase, thereafter it will be entirely negated,
- ✓ Long term, the impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter,
- ✓ Permanent, the only class of impact which will be non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.
- ✓ schedules; the affected environment is altered; however, function and process continue, albeit in a modified way,
- ✓ High, where it could have significant influence on the environment but cannot be mitigated or be accommodated by the project environment by introducing alternative mitigation measures such as realignment of a particular stretch or adoption of different design measures. Function or process of the environment is disturbed to the extent where it temporarily or permanently ceases.

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Note that some impacts have a high intensity and a short duration with no permanent audio effects.

Severity

This describes whether the severity (harshness/gravity) of the impact would be high, medium, low or negligible (no impact). The severity of the impact will be qualitatively determined on the components of the environment to be affected by taking into consideration the following questions.

These are rated as follows:

- ✓ Low applies where the impact is very little and will not have significant influence on the environment. This will not be required to be significantly accommodated in the project design or implementation and the impact changes the affected environment in such a way that natural processes of functions are not affected in any significant way;

- ✓ Moderate, applies where the impact could have an adverse influence on the environment and would require some modification of the project design or alternative implementation schedules. In this regard, the affected environment is altered while the function and process continue, albeit in a modified way; and
- ✓ High, applies where the impact could have significant influence on the environment but cannot be mitigated or be accommodated by the project environment by introducing alternative mitigation measures such as realignment at a particular stretch or adoption of different design measures. In this regard, the function or process of the environment is disturbed to the extent where it temporarily or permanently ceases.

Probability

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

- ✓ Unlikely, the probability of the impact occurring is very low, due to the circumstances, design or experience.
- ✓ Possible, the impact could possibly happen, and mitigation planning should be undertaken.
- ✓ Probable, it is most likely that the impact will occur at some or other stage of the development. Plans must be drawn up before the undertaking of the activity.
- ✓ Definite, the impact will take place regardless of any prevention plans, and only migratory actions or contingency plans can be relied on to contain the effect.

Sensitivity

The sensitivity of the element being impacted would be regarded as being high, medium, low or negligible (no impact). An effort will be made to determine the quantitative sensitivity of the element of the environmental components being impacted upon due to the proposed development. This section describes and lists the criteria for impact's assessment and the potential environmental and socioeconomic impacts of the proposed project to which much attention will be paid during the implementation process of the project. This section also includes a brief discussion on the mitigation and enhancement measures for the identified impacts both of the existing mining activity and the proposed expansion of pits in the license area.

It is essential to forecast the impending environmental conditions of the project area that might be expected to occur because of the construction and operation of the proposed project. An attempt was made to forecast forthcoming environmental conditions quantitatively to the extent imaginable. However, for intangible impacts, qualitative assessment has been made so that planners and decision-makers are aware of their existence as well as their potential implications.

The impacts are discussed during the site preparation and operations phases closure phase as well. The impacts on the following aspects of the environment have been covered as a part of this Report:

- ✓ Land Environment;
- ✓ Hydrology and Water quality;
- ✓ Terrestrial Ecology;
- ✓ Aquatic Ecology;

- ✓ Noise Environment;
- ✓ Air quality and;
- ✓ Socioeconomic.

6.1 IMPACTS ON LAND USE

Site Preparation, Construction and Operations Phases

The site preparation phases of the proposed Project will commence immediately after obtaining all the necessary approvals from the regulatory authorities. The significant impacts predicted on the Land Environment during this phase are as follows:

Soil contamination: Soil contamination may occur with the use of machinery on site during excavation and transportation of the rock samples. This may happen through fuel and oil spillages. By its nature, mining requires the removal of earth to retrieve resources below the surface. Mining can destroy landscapes, not only remove earth but also remove the trees that are essential to maintaining the soil.

Mitigation: Servicing and refuelling of machinery will be done in designated places that will have concrete surfaces and an interceptor in case of a spill. The developer will Limit movement of heavy machinery only to designated access routes and operational areas.

Loss of habitat

Anthropological disturbance due to the clearance in readiness for mining support infrastructure may lead to loss of habitat for small insects and mice commonly found in the project areas.

Mitigation: This impact is minimal as the areas considered for the mining does not harbour animals. The mining activities will cause minimal disturbance to the natural habitats of the small animals in the area as it will be restricted to the allocated land.

- ✓ Land Degradation.
- ✓ Dust from Haulage of ore materials.
- ✓ Solid waste management.

Land Degradation

The runoff from the construction and operation areas will have a natural tendency to flow along with the natural drainage as well as contaminating the land environment. The major sources of contamination are likely to be the physical degradation using excavators and other mining equipment as well as sewage from the accommodation and the offices. The runoff from these sites will likely be away from the clear areas, stockpiles into the land environment and waterways if not controlled. Potential fuel and chemical spills and sewerage waste if not properly handled can cause serious land degradation. Deep excavation of the earth loosens the land which is the cause of landslide in mining. Tailing dam failure also occurs as result of excessive dam loading.

Mitigation Measures

Potential land degradation will be mitigated by;

- ✓ Preserving trees and grass in most areas that will not be housing mining infrastructures and the mine pits.

- ✓ Sewerage waste from toilets and kitchen sinks will be channeled to a lined septic tank and emptied regularly by a registered sewerage waste handler in Gwembe or the nearby surrounding districts.

Solid Waste Management

The project is likely going to generate waste in the form of mine waste as well as domestic waste from the camp and offices. The mine waste will form permanent landmarks in form of waste rock dumps and overburden storage facility. The domestic wastes, on the other hand, will only be generated during the lifecycle of the project and if managed properly will not cause severe environmental problems.

Mitigation measures

The following are the proposed mitigation measures on Land Environment: -

- ✓ Shimabu mining Limited will operate a dump site for all the domestic waste;
- ✓ All waste from mining activities will be dumped at the overburden stock pile area for rehabilitation of exhausted pits within the license area.
- ✓ Shimabu mining Limited will engage recycling companies for electronic waste for collection and recycling from the site;
- ✓ Shimabu mining Limited will ensure that the workers are sensitized on the best waste management practices.

Landscape and Visual Amenity

The potential impact associated with the project on landscape and visual amenity is the creation of visual intrusion and disruption to aesthetic quality and light reflectivity from the mining activities. The project site has second generation of vegetative cover. Therefore, clearing of vegetation on-site will create a visual intrusion and disruption to aesthetic quality.

Mitigation Measures

Potential Landscape and visual impacts will be mitigated by:

- ✓ Applying selective clearing of vegetation on site (only clear areas where mining infrastructure will be implanted) and also watering the cleared areas and roads to reduce Dust levels on site.
- ✓ Leaving a perimeter buffer of trees and grass vegetation along the boundaries to screen sensitive viewing areas

6.2 IMPACT ON HYDROGEOLOGY

Site Preparation, Construction and Operations Phases

Groundwater Contamination

Open Pit mining operations have the potential to impact negatively on the hydrogeology of the region through contamination of the aquifer systems by oils, greases and seepage of the effluents waste during the mining operations. It is essential that septic tanks are lined and emptied regularly to eliminate the potential of ground and surface water pollution. poorly designed septic systems release viruses, bacteria, and household chemicals into the groundwater and make it unfit for human

consumption. Poorly maintained septic tanks also result in leaks which cause groundwater contamination.

Explosive waste disposal sites if not adequately monitored can lead to Explosive waste constituents contaminating ground and surface water. When these explosive wastes which are mostly solid mix with water, they can cause the leakage of dangerous substances into the groundwater.

Groundwater is maintained through the hydrological cycle which is the movement of water above, below and on the surface of the earth. As the water moves, it comes into contact with pollutants in the atmosphere such as harmful gases. When it rains, the water carries these contaminants into the ground and pollutes the groundwater.

Drawdown effects

According to C. Stumpp and G. C. Hose, (*The Impact of Water Table Drawdown and Drying on Subterranean Aquatic Fauna in In-Vitro Experiments*, journal Published online 2013 Nov 20. doi: [10.1371/journal.pone.0078502](https://doi.org/10.1371/journal.pone.0078502)), Groundwater fauna (stygo fauna) are generally the highest organisms of groundwater ecosystems. They are important contributors to the health of the ecosystem by maintaining water quality and water flow in aquifers, and processing organic matter. Groundwater ecosystems may be vulnerable to environmental change and disturbance due to the relatively stable physicochemical conditions in the aquifers to which fauna is adapted. It is known that microorganisms are strongly adapted to such stable conditions and any environmental change might lead to changes in community structure. Stygo fauna may be similarly sensitive.

Within groundwater, there is often a natural gradient of decreasing oxygen and nutrients with depth below the water table. Consequently, stygo fauna are often most abundant and diverse at shallow depths, closer to the groundwater table, and richness and abundance generally decrease with distance below the water table. Fluctuations in the groundwater table, particularly declining water tables, may therefore, greatly influence stygo fauna assemblages.

Mitigation Measures

The following are the proposed mitigation measures: -

- ✓ implementation of the storm water management plan for the site to control erosion;
- ✓ monitoring of the water quality in the and downstream;
- ✓ Awareness will be created among the work force on the need to conserve water.
- ✓ Regular monitoring of the water pipe network for leaks will be undertaken.
- ✓ Preventing uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that might result in fire or explosion;
- ✓ Using engineering controls commensurate with the nature of hazard to monitor sinkholes;

Surface water contamination

Construction activities are unlikely to have any significant impacts on water resources. However, operation of the coal mine may result in the generation of both solid and liquid wastes with potential to pollute surface water resources. Liquid waste will mainly consist of fuel and oil spills, used oil from vehicle refuelling and servicing activities, sewerage from the ablution block as well as effluent from floor washings, tap drains and other activities involving use of water. Other potential sources include solid waste including used batteries and incompletely drained oil containers. These materials

if improperly disposed of may result in acid and oil drain into the soil, storm water drainages and may wash down into the nearest stream.

In addition, greases and sewerage waste can easily be transported to streams and rivers through the natural drainages within the site and contaminate the surface water bodies if not properly managed during the both the construction and operation phases.

At the close of the mining operations in the next 25-30 years. Shimabu mining Limited will continue to maintain the tore drains and siltation ponds to control any possible siltation from the Waste Rock Dump, the plant area, the tailings storage facility, controlled flooding of the underground facilities until after obtaining the closure certificate from the Ministry of Mines.

Mitigation Measures

The following are the proposed mitigation measures: -

- ✓ Implementation of the storm water management plan for the site to control erosion and foreign materials entry into the natural drainage system on site.
- ✓ Setting up solid waste management bins away from the natural water drainages
- ✓ monitoring of the water quality in the upstream and downstream;
- ✓ Using engineering controls commensurate with the nature of hazard to monitor sinkholes;
- ✓ Proper and effective maintenance of equipment to be undertaken so that the possibility of spillage/leakage of petroleum products is reduced or eliminated;
- ✓ Awareness will be created among the work force on the need to conserve water.
- ✓ Regular monitoring of the water pipe network for leaks will be undertaken.
- ✓ Preventing uncontrolled releases of hazardous materials to the environment.

6.3 IMPACT ON TERRESTRIAL ECOLOGY

Site Preparation, Construction and Operations Phases

Flora

The proposed project site is within the natural Mopane woodland. The development of the mine is expected to clear some vegetation to pave the way for project development. Shimabu mining Limited will ensure that only the vegetation in areas where mining infrastructures will be implanted within the project area will be removed during the project implementation. Shimabu mining Limited will also work with the communities in re-vegetation projects during the project operations.

At project closure phase in the project area, Shimabu mining Limited is expected to have been and still involved in activities that would have improved the flora and habitats of the project area. It is therefore anticipated that the flora and habitats will have improved better than the status.

Fauna

The project area has been traversed by human activities relating to farming conducted by local settlers. The area, therefore, does not have most fauna because of human disturbances. The proposed project is therefore not likely to have a significant impact on the fauna of the area.

The direct project site is devoid of tangible fauna. Only small animals and snakes were recorded during the site assessment of the proposed project area. SML is expected to implement measures that will encourage fauna in the vicinity.

Mitigation measures

The following are the proposed mitigation measures: -

SML will only clear the flora and habitats around only the areas earmarked for proposed project development other than what has been cleared by illegal miners, settlers and operations.

- ✓ SML will be sensitizing the communities on the importance of flora, fauna and habitats conservation.
- ✓ SML will work with the traditional leadership to ensure that the project related development is in a controlled manner and people do not clear the flora in a haphazard manner in terms of housing and farming.
- ✓ SML will implement progressive rehabilitation on site as part of the compensation process for the cleared our vegetation.
- ✓ Project equipment shall be maintained to ensure reduced noise to the surrounding equipment to encourage animal's colonization in the nearby habitats.

6.4 IMPACT ON AQUATIC ECOLOGY

Site Preparation, Construction and Operations Phases

Aquatic Flora

Poor project implementation has the potential to affect the aquatic ecology of the ecosystem. Preservation of the ecosystem, is, therefore, vital through a measure that protects the surface water bodies from the pollution.

Aquatic Fauna

Measures to be implemented include monitoring activities as well as control of possible pollutants into the aquatic environment. Shimabu mining Limited will, therefore, enhance all positive impacts during the implementation of the future projects.

Aquatic Ecology

Shimabu mining Limited will continue to implement the same measures even after closure of the project until the closure certificate is obtained from the Ministry of Mines. Shimabu mining Limited will hope to help restore the project to a status close enough to before mining operations.

Mitigation Measures

The following mitigation measures are being proposed for implementation: -

- ✓ Sensitization of the communities and the worker on the importance of the conservation.
- ✓ Continue the engineering measure to control sedimentation and siltation into the water bodies.
- ✓ Frequent monitoring of the aquatic ecology including the species diversity around the mine site.

6.5 IMPACT OF NOISE ON THE ENVIRONMENT

Site Preparation, Construction and Operations Phases

Operations of Mining Equipment

The effects on ambient noise levels are expected during operations due to machinery that is involved in the operations. The current noise is within the acceptable levels in line with the international guideline values. The increased operations of project are expected to increase noise levels within the proposed project area. The increase is however not expected to go beyond the WHO guideline values. The same noise that will be experienced during the project is expected to continue after the

completion of the site preparation and construction activities of the proposed project. The effects on ambient noise levels are expected when the begins due to machinery that will be involved in the operations. The current noise is within the acceptable levels in line with the international guideline values. The proposed project is expected to increase noise levels within the proposed project area.

Mitigation Measures

The following mitigation measures are being proposed for implementation: -

- ✓ Maintenance of the equipment to ensure that low noise generation.
- ✓ All workers involved in noisy works will be provided with Personal Protection Equipment (PPE).

6.6 IMPACT ON AIR QUALITY

Site Preparation, Construction and Operations Phases

The potential sources of pollution to ambient air quality include; Dust generation on site i.e. dust and exhaust fumes from equipment/machinery. The flora and the workers on site are the only environmental receptors that are likely to be impacted by any increased particulate dust from the project site.

Fuel Combustion from Equipment

The operations, various equipment requires combustion of fuel. Diesel is used in such equipment. The primary pollutant which gets emitted because of diesel combustion is SO₂. The TSP emissions are minimal due to low ash content in diesel.

Fugitive Emissions

There will be an increased machinery movement in the area. Typically, due to the blowing of winds, especially when the environment is dry, some of the stored material can get entrained in the atmosphere. However, such an impact is not likely going to be visible because the proposed project is in an isolated environment. The effects on this account are generally, insignificant in nature.

Vehicular Movement

No significant impacts on ambient air quality are predicted due to the increase in vehicular movement in all the phases of the project. The project is not very big; hence few compared to more significant projects.

Particulate matter

The plant operation will involve mining the coal, transporting it to crushing site and stockpiling it in readiness for sales. The only major air emissions from this operation in addition to the major air

Mitigation Measures

The following mitigation measures are being proposed for implementation: -

- ✓ Maintenance of the equipment to ensure that low emissions generations.
- ✓ Minimize dust from open area sources, including haulage roads; storage shed and TSF by using control measures increasing the moisture content;
- ✓ Implementing dust suppression techniques, such as applying water or nontoxic chemicals on construction roads to minimize dust from vehicle movements;

- ✓ Manage emissions from mobile sources by use of cleaner fuels or technologies, implementing the manufacturer recommended engine maintenance programs; drivers being instructed on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits; and
- ✓ Dust suppression techniques will be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements
- ✓ PPE, such as dusk masks, will be used where dust levels are excessive.

6.7 SOCIO-ECONOMIC IMPACTS

The social impacts and risks that may arise as a result of the proposed project have been identified and assessed.

Job Creation

The proposed project is expected to contribute to creating jobs both in the region and in the area. Zambia and the region are in dire need of new jobs, especially for the youths. The proposed project will enable Shimabu mining Limited to generate income to create the jobs as well as other activities including payment of taxes.

Productivity

The proposed project is expected to contribute to the productivity of the region and the country at large. The recovery of the minerals will enable Shimabu mining Limited to generate some more income to sustain the jobs as well as other activities including payment of taxes. Without production, the mine will never open and no jobs could be created as well as other socio-economic problems both in the area and the country at large.

Tax Contribution

The proposed project is expected to contribute to the production at Shimabu mining Limited and in the contribution of the company towards taxes both to the local and central government systems.

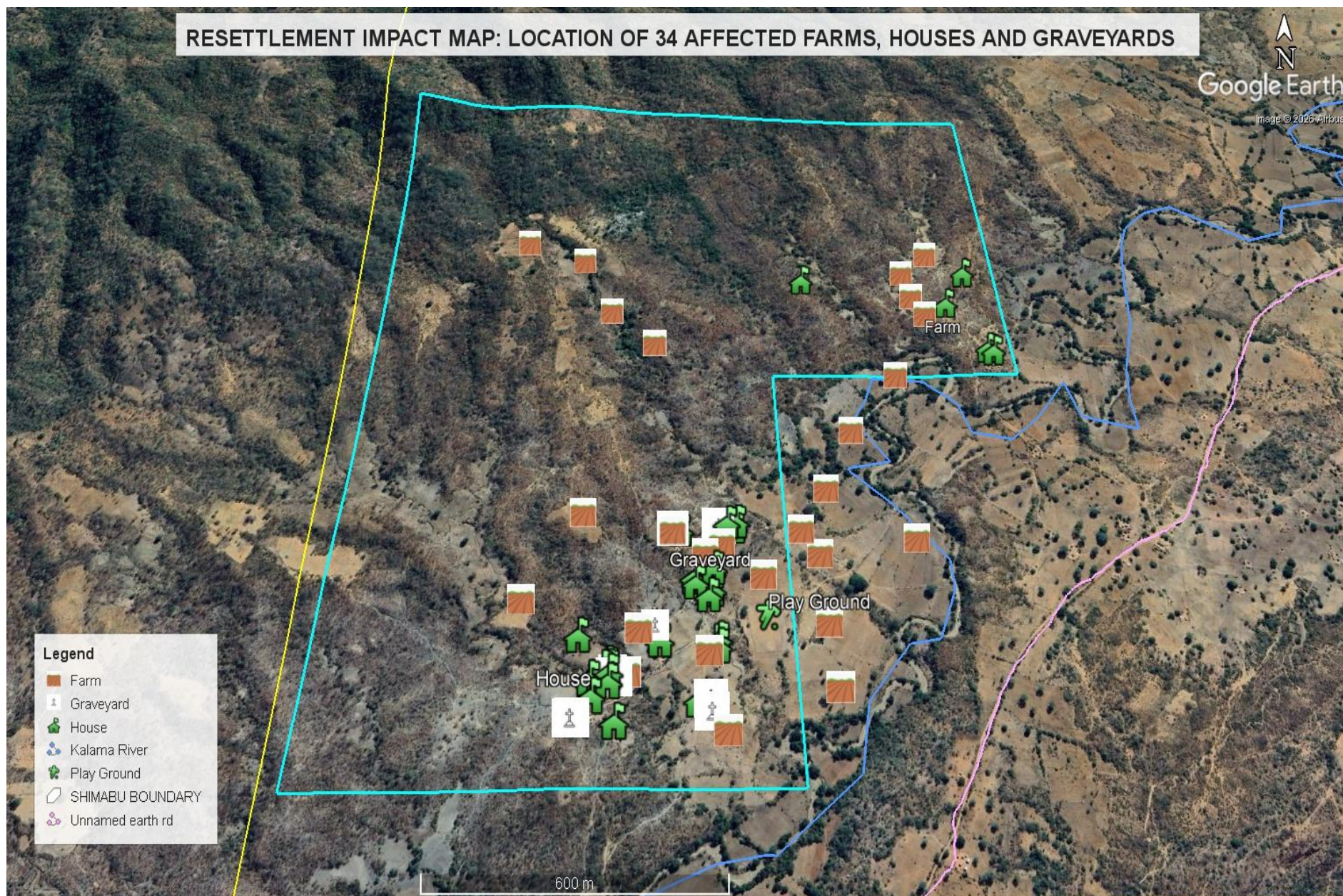
Health and Safety Risk

The proposed project will pose a safety and health risk to the workers who will be required to work in the open pit mine. The workers will also be provided with appropriate PPE. Shimabu mining Limited will also ensure that the open pit mining operation is designed in line with the international standards of safety. Shimabu mining Limited will conduct risk assessments in working places to ensure workers are operating in safe environments.

Shimabu mining Limited will further ensure the safety of the local community by re-routing of the access road that traverse the mine area, erect warning signage in the active mining sites including restrict access to the pits.

Resettlement

The project will affect 28 households, 34 farmlands with the total size of 58.75Ha of land being affected. This therefore implies that there will be resettlement plans, and only compensations for the affected houses and farms.



Loss of Livelihood

The proposed project is expected to bring negative effect on the livelihoods of the local people. The negative impacts will include: loss of 34 farmlands that were counted, where crops are grown, communal grazing land as well as 28 households. However, if the project does not get implemented to completion, Shimabu mining Limited will have lost resources that the company cannot exploit.

Mitigation Measures

A resettlement action plan will be developed to ascertain the value of the assets owned by the project affected people. The project affected people will be compensated in monetary form.

Loss of Ethnicity

No significant changes have been experienced in the years that the company has undertaken exploration activities in the project area. Further no impacts are expected on the ethnicity of the project area during all the phases because of the project implementation. The size of the proposed project is not as significant as other mining activities. Therefore, the influx of people into the proposed project area will be restricted to some job seekers, traders and promoters of vices such as prostitution and crime. It is therefore not expected that there will be significant influence of the loss of ethnicity in the area due to the proposed project.

Mitigation Measures

The following mitigation measures will be implemented:

- ✓ Shimabu mining Limited will contribute in the promotion of cultural activities such as traditional ceremony;
- ✓ Promotion of the employment of the local people for all the jobs that can be done by the local people.
- ✓ Encouraging the local works to be promoting their cultures at the expense of foreign cultures.
- ✓ Continuous and frequent monitoring of both the operations on site and in some sections of the communities;
- ✓ Continuous involvement of the local communities in monitoring activities.

Loss of access routes

The developer proposes to fence strict mining areas and open pit mining areas in order to restrict access to the mine area, ensure safety for the general public and safeguard mining equipment. This may lead to blocked access routes and roads if planning is not properly done and in unforeseen circumstance where the mineral of interest is near the access routes.

Mitigation Measures: The only access routes in the proposed area to be fenced go to farms and few scattered houses whose occupants will be relocated. However, should the residents require that new access routes be opened, the company will create access roots in consultation with local residents and Chief Chipepo's royal establishment.

Loss/Restriction of Access to Common Resources

The Kalama River lies within the proposed mining site in the western part of the site. Fencing the whole license area implies restricting access to the common resource water for livestock and garden.

Mitigation Measures: the area of interest in the project area is South and west part and is along the river. There will be diversion of the river to avoid contamination of the water.

Loss of customary rights

The developer will obtain the certificate of title from the ministry of land and thus the land will cease to be customary. The land in question will be a property of the SML.

Mitigation Measures: The developer has a good working relationship with the chief representative and local headmen. It will ensure that all land conversion is done in line with both the Zambian laws and chief Chipeco's requirements for conversion to title. In addition, the company will continue to honor and respect the local leadership of headmen and Chief Chipeco's royal establishment who have welcomed them and accepted the project.

Damage to agriculture/ fisheries

Mining pollution if not properly managed can cause damage to both soil and surface water, changing the soil and fresh water chemistry and thus adversely affecting agriculture and fishing.

Mitigation Measures: The company will divert Kalama River if the area is found to have the necessary mineral resources. However, diversion of the stream will be done when need arises and an impact assessment will be conducted before this project could be done. However, the river has no fish as it does not hold water for long period of time. The company will also mitigate its major pollutant particulate matter by employing dust suppression techniques.

Mitigation Measures for dam failure, landslide and slope failure, explosion and radioactive material release.

- ✓ Dam failure - Actions such as using sandbags to increase freeboard and prevent overtopping, using riprap to prevent erosion to the dam structure, or applying a geotextile filter fabric to combat piping are all examples of emergency intervention techniques that can be used to try to save a dam from a total failure.
- ✓ Land slide and slope failure - modifying slope geometry, using chemical agents to reinforce slope material, installing structures such as piles and retaining walls, grouting rock joints and fissures, diverting debris pathways, and rerouting surface and underwater drainage.
- ✓ Explosion – The developer will prevent the formation of an explosive atmosphere, including by ventilation. Collect, contain and remove any releases to a safe place. Avoid ignition sources. Avoid adverse conditions (such as exceeding pressure/temperature limits) that could lead to danger.
- ✓ Radioactive material – Shimabubu Mining Limited will monitor radiation doses received by workers at the crusher plant and tailings storage facility. In practice, workers exposed to radiation will wear dosimeter badges. Advice will be sought from the Radiation Board of Zambia on employee radiation dose monitoring. Records of radiation doses received by workers will be submitted to the Mines Safety Department, ZEMA and the Radiation Board of Zambia every 6 months.

6.8 AREAS WHERE INFORMATION IDENTIFIED IS INCOMPLETE

The Major areas of concern that proved to have some information gaps during ESIA data collection included the identification of fauna. there are no published data on the exact types and number of fauna species found in Gwembe and particularly the project area. This led to the team depending on the local knowledge of the birds, snakes and other fauna species observed in the project area in the most recent past. This information was difficult to prove as despite the ESIA team spending over 10 days on site, some of the species that the locals claimed existed onsite where not observed. However, the ESIA team only included fauna species that the majority of the locals claimed to have seen in the proposed project site and surrounding areas.

Project phase	Description of Impact	Environmental Impact Characterisation											
		Type of impact	Spatial extent	Frequenc y	Duratio n	Revers ibility	Residu al	Acumulat ive	Intensity	Severity	Likelihood	Sensitivi ty	Signifi cance
POSITIVE ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS													
Increased Contribution to the Mining Sector													
Constructio n	The operation of the mine will make a positive contribution to the local and national economy through its multiplier effect	Direct	On site	Ongoing	Long term	irrevers ible	non	yes	Moderate	Moderate	Probable	High	High
Increase Mineral reserve													
Operation	Increase Coal availability	Direct	Local	Once-Off	Long term	irrevers ible	non	yes	Moderat e	Moderate	Probable	High	High
Capacity building and Mining technology transfer													
Operation	Training will be provided to permanent maintenance staff at the ongoing mine site to maximize of the benefits	Direct	Local	Ongoing	Long term	irrevers ible	non	No	Moderat e	Moderate	Probable	High	High
Local economy support													
Construction	Local purchase of raw material and services	Indirect	Local	Ongoing	Long term	irrevers ible	non	yes	Moderat e	Moderate	Probable	High	High
Operation	Local purchase of raw material and services	Indirect	Local	Ongoing	Long term	irrevers ible	non	yes	Moderat e	Moderate	Probable	High	High
Increased Government revenue													
Operation	Increase in revenue and taxes for both central and local government in Gwembe	Direct/ Irreversib le	Local	Ongoing	Long term	irrevers ible	non	yes	Moderat e	Moderate	Probable	Moderate	High
Employment creation													

Construction	Employment of local skilled and unskilled labour	Direct	Local	Ongoing	Short term	irreversible	non	yes	Moderate	Moderate	Probable	Moderate	High
Operation	Employment of local skilled and unskilled labour	Direct	Local	Ongoing	Long term	irreversible	non	yes	Region	Moderate	Probable	Moderate	High
NEGATIVE ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS													
<i>Air pollution and dust generation</i>													
Construction & operation	Temporary air pollution due to vehicular emission and dust generation by excavation & transportation of ore and raw materials.	Direct	Local	More than twice	Short term	irreversible	Highly likely	Yes	local	Low	Probable	Low	Medium
<i>Noise pollution and Vibrations</i>													
Site preparation & Construction	Noise generated during operations at the mine activities by vehicles, earthmoving equipment, excavation of construction materials and general construction activities	Direct	Site	More than twice	Short term	irreversible	non	No	Moderate	Low	Probable	Low	Medium
Blasting Hazards													
Operation	Ground vibrations, air blast, fly rock, generation of fines, fumes and dust	Direct	Local	More than twice	Long term	irreversible	Highly likely	yes	Moderate	moderate	Probable	Low	Medium
Abstraction of groundwater													
Operation	Abstraction of water cause changes in flow of water, as well as water levels.	Direct	Local	More than twice	Long term	irreversible	Highly likely	No	Moderate	Low	Probable	Low	Medium
<i>Landscape and Visual Amenity</i>													

Operation	The creation of visual intrusion and disruption to aesthetic quality from mine dumps and pits	Direct	Local	More than twice	Long term	irreversible	Highly likely	yes	Moderate	Low	Probable	Low	Medium
Impact from Land degrading resulting from mine pits													
Operation	Impact emanates from every irreversible land deration from open pit mining activities	Direct	Local	Twice	Long term	irreversible	non	yes	Moderate	Low	Probable	Low	Medium
Changes in Biodiversity													
Construction & Operation	Impact arising from the removal of tree species from the project footprint.	Direct	Local	More than twice	Long term	irreversible	non	No	Moderate	Low	Probable	Low	Low
Changes in Soil and Geology													
Construction & Operation	exposure of the rock, soil and rock breaking cavities during excavations	Direct	Local	More than twice	Long term	irreversible	non	No	Moderate	Low	Probable	Low	Medium
Land Use Impacts													
Construction	Land degradation due to land clearing.	Direct/Irreversible	Local	One phase	Short term	irreversible	non	No	High	Medium	Probable	Medium	Medium
Operation	Changes in land use	Irreversible	Local	On-going	Long term	irreversible	non	No	High	Medium	Probable	High	High
Solid, Liquid and Hazardous Waste generation													
Construction	Generation of solid waste from construction activities, liquid waste from human waste and hazardous waste from machinery and equipment	Direct	Local	Twice	Short term	irreversible	non	yes	Moderate	Medium	Probable	Medium	Medium
Physical Injury risk due to construction activities													

Site preparation	Civil works public and occupational safety risks would arise from various constructions activities such as foundation, operation and movement of heavy equipment and vehicles	Direct	Site	More than twice	Short term	irreversible	non	No	Moderate	Moderate	Probable	High	High
Construction	Storage and improper use of mining equipment.	Direct	Site	More than twice	Medium term	irreversible	non	No	Moderate	Probable	Moderate	Low	Moderate
Impact on historical & archaeological sites													
Construction	Disturbance to historical and archaeological sites due to excavation works	Direct	Site	More than twice	Short term	irreversible	non	No	Moderate	Probable	Moderate	Low	Low

7.0 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

For sustainability of the environment, the SML project will be implemented in line with the developed EMP, which addresses environmental impacts associated with the Mining activities responsibly and effectively. To accomplish that objective, the environmental management plans below have been developed to enhance the positive impacts and mitigate the negative impacts of the project. Ensuring that the EMP is adhered to in all the phases of the project; planning, construction, operation and decommission phases will be the sole responsibility of the Safety Health & Environmental (SHE) Office, which will also be responsible for accident prevention, mine safety, and environmental awareness and training programmes.

7.1 Impact on landscape and aesthetics

- a) Less well vegetated areas shall be preferred for work installations and the company will ensure that only the sites where construction will take place will be cleared.
- b) Landscaping and planting of flowers will be practiced to improve the appearance of the surrounding.
- c) In order to minimize visual impact, the color of the structures shall blend in with the natural environment and the height of structures shall not extend beyond tree canopy.

7.2 Ecological disturbance and imbalance

- a) Cutting of trees will be limited so as to provide a windshield against soil erosion.
- b) Mulching on destabilized soils will be practiced and sides of the drainage channels shall be planted with grass or stone pitched to prevent soil erosion.
- c) Drain systems shall have scour checks.
- d) Topsoil stripping will be practiced and this will be stockpiled for use when rehabilitating the site. When rehabilitating, the topsoil shall be re-spread and, where appropriate, the area re-vegetated with species consistent with the surrounding vegetation.
- e) Felled timber will be used in the construction work.

7.3 Soil Contamination

Soils in the areas where digging and/or drilling will be undertaken may be contaminated with oils from the machinery to be used. This impact will be minimal given that the drill holes will only be placed on the rocks to be blasted. Rarely the presence of chemically active mineral phases in the dust (e.g., sulfides occasionally present at hard rock ore) may alter soil chemistry and suitability for the fauna and flora that the soil supports. Dust impacts of such nature are relatively limited in most cases.

7.4 Vibrations and Noise

- a) Impact of vibrations and noise on air quality
- b) Operation of equipment with potential to generate high levels of noise will be limited to day time.

- c) Workers assigned to jobs with high prolonged exposure to highly pitched noise will be provided with personal protective gear such as ear plugs or muffles as appropriate.
- d) Equipment will equally be serviced to improve efficiency and reduce friction of moving parts which may generate noise to limit noise levels to less than 85 dB.
- e) The blasting operation will be done by experienced employees, who are quite adept with handling and use of explosives.
- f) Adequate warning will be carried out before blasting.
- g) The mine site will be fenced off to prevent unauthorized access.
- h) Cutting of trees will be limited so as to provide a windshield against noise pollution.
- i) All construction works will be done during the normal working hours of the day to avoid or to keep noise pollution to a minimum level that may disturb the animals, birds, insects etc within the locality of the project site.
- j) Water sprinkler systems will be installed in the crushing plant and at bulk ore transfer locations to suppress dust.
- k) Air quality control equipment will be installed in critical areas to assess the performance of the dust suppression systems.

7.5 Air quality and Dust generation

Haulage trucks will be regularly cleaned and maintained to reduce exhaust emissions.

- a) Access tracks and cleared areas will be regularly watered down to reduce emissions of dust.
- b) In the event of excess dust being generated, personal protective equipment (dust masks) will be used.
- c) Employ appropriate measures to reduce dust by: Keeping disturbed areas to a minimum, and revegetating bare areas, as soon as possible;
- d) Minimizing vehicle movements and speed.

7.6 Public safety

Blasting activities to be undertaken on site using explosives may create a risk to the public and employees through fly stray stones. Explosive handling may also be a potential high risk of injury and death. Rock falls from the weaken rock strata at the site may also be another potential public safety concern. Blasting of the rocks will be controlled and undertaken during the day with maximum safety caution and warning to the employees and the public. The project site is located away from residential establishments and thus the risk of injury or damage through stray fling stones is insignificant. The exploration site will be protected to prevent trespass and warning signage will be provided on the sites. The drilling process will be done so as not to weaken the rock structures.

Impacts of unstable pit wall on safety

- a) Implement erosion and storm water management measures by constructing diversion channels around the perimeter of the mines and grading of the perimeter haul road to divert storm water runoff and surface drainage away from the pit and its slopes.
- b) The pit will be dewatered to prevent build up and accumulation of water. Silt settled in the mine sump during the wet season will be removed as necessary during the dry season by

hydro or mechanical means to free up capacity for water to accumulate at the bottom of the pit.

- c) Cautious blasting will be practiced at pit limits to preserve the final pit wall.
- d) Regularly check and revise slope design as the pit is developed and additional data on the rock mass is collected.

7.7 Ground and surface water contamination

The proposed project site has one river, which is Kalama River which is non-perennial. The mining activities will not result in the contamination of the water. Dust depositions on surface water bodies may increase the presence of Total Suspended Solids (TSS) and Total Dissolved Solids (TDS). Active minerals in the dust may dissolve and alter the pH and chemical composition of the water and make it unsuitable for fauna and flora to inhabit. The depth of the blasting of the rocks and excavation will not reach ground water level. Therefore, the impact of surface and ground water contamination is insignificant. Run-off from copper ore waste tips or copper ore fines stockpiles can cause erosion and contaminate local watercourses. Suspended solids (and acid drainage) may harm freshwater ecosystems and impact on other water users. Waste may also create problems if dumped on flood plains where it may exacerbate flooding. Settled silt and clay can also be washed out and displaced from settling ponds and lagoons during storm events.

7.8 Vegetation Clearance

Clearing of the project area for establishment of the temporary camp site, and crushing plant will be restricted to the allocated land only. The project area is mostly covered by rock bed and has no major trees of rear or endangered species that will be highly impacted by the clearing activities.

7.9 Impact of abstraction of water on local water resources

- a) Careful use of water resources will be implemented to reduce wastage arising from spills and leaks.
- b) Awareness will be created among the work force on the need to conserve water.
- c) Regular monitoring of the water pipe network for leaks will be undertaken.
- d) Reuse of water during construction and operational phases will be instigated. This includes use of dirty water for dust suppression.
- e) The boreholes to be sunk will be regularly monitored to verify any impact on water levels.
- f) Mulching on destabilized soils will be practiced and sides of the drainage channels shall be planted with grass or stone pitched to prevent soil erosion.
- g) Drain systems shall have scour checks.
- h) To limit, contain, and manage the impact of spillages, fuel tanks and drums will be contained in a bund of sufficient capacity and will stand on an impervious surface.
- i) To limit the number of spills during transfer from drums to vehicles, hand pumps will be used.
- j) The open storm water drainage system shall be designed by utilizing a series of French drains around the roads and buildings.

7.10 Impact of overburden dump stability

- a) Heavily weathered materials and rock types prone to erosion will be identified and placed in central areas well away from dump walls. Conversely, more competent, less weathered materials will be used to construct the outer dump walls and to dress the slopes;
- b) Dumps will be of terrace construction i.e. there will be no end-tipping;
- c) Dump construction will be regularly monitored to verify that it is as per design; and
- d) Perimeter drains and silt traps will be regularly inspected and maintained. Drains and silt traps will be cleaned before the start of each wet season.
- e) Re-vegetation of the dump walls and upper dump surfaces will be conducted progressively during the life of the mine to produce a sustainable vegetation cover, stabilize slopes, improve visual aesthetics and minimize post closure re-vegetation requirements

7.10 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

Table 26: ESMP for SML Operations

Table 26: EMM for SME Operations									
Aspect	Objective	Impact	Enhancement / Mitigation measures	Frequency of Monitoring		Time frame	Performance indicator	Responsible person	Cost (USD)
				What to monitor	Frequency				
Enhancement measures for Positive Project Impacts									
Coal mining	Operate the business sustainably	Increased Contribution to the Mining Sector	To maximize this benefit, where possible procurement of services from local contractors and locally produced raw materials during the construction phase should be done.	Amount of revenue contribution to the national economy	Monthly	Mine lifecycle	Increased revenue to the national treasury and contractors engaged on the project.	Mine manager	2,000
		Capacity building and technology transfer	Training will be provided to permanent maintenance staff at the existing mine to maximize of the benefits	Policy activities	Weekly	Mine lifecycle	A policy in place	Mine manager	1,200

		Local economy support	Where possible procurement of services from local contractors and locally produced raw materials during the construction phase should be done	Number of people employed at the mine and contractors working onsite.	Bi-annual	Operation phase	Employees on site	Mine manager	7,000
		Increased government revenue	Where possible procurement of services from local contractors and locally produced raw materials during the construction phase should be done.	Tax remissions	Annual	Construction and operation	Tax remittance receipts/records	Mine manager	-
		Employment creation and contribution to poverty reduction	SML will employ about 200 permanent workers for the mining project.	Number of people employed by the project	Monthly	Construction phase	No. employed in project construction phase	Mine manager	25,000
		Capacity building and skills development	Workers that shall be employed shall acquire skills	Worker's skills	Monthly	Construction & operation phases.	Level of skills acquired	Mine manager	2, 000

			in mining sector.						
Subtotal costs									46,200
Mitigation measures for Negative Project Impacts									
Loss of flora	Minimize cutting trees/vegetation during site clearing and Levelling.	Impacts on the existing flora	Clearing of the site will however be confined to the project boundaries. Soil erosion processes by wind and rain due to vegetation cover clearance will increase but these will be controlled by: Restricting vegetation clearance and excavations activities within the footprint of the project site; and Construction of an effective storm water drainage network and using other	Construction activities	Daily	Constructi on	Alignment between actual Mine site	SML	5,000

			well engineering						
Occupational Health and Safety	To record Zero injuries on site	Risk of injury/as a result of exposure to hazardous conditions	- Hazardous material will be managed in accordance with Waste Management Regulations. Adequate protective equipment shall be provided to the persons handling hazardous materials and those who are likely to be exposed to such conditions. - The developer will not allow any developments around the mine that could put the workers and the local	Accidents with the proposed project site Impacts associated with health and safety risks, exposure to hazardous conditions	Daily	Construction and Operation	Accidents Records	Mine manager	5,000

			community at risk. In the event of exposure to hazardous conditions SML first aiders will attend to the patient prior to immediate relocation of the patient to the nearest medical facility in Gwembe						
Clearing of the area for mining activities	Minimize the damage to the landscape	Impact on Landscape and Visual Amenity	Land degradation due to the creation of land overburden material and dumps on the mine site.	Construction activities;	Monthly	Construction & Operation	Presence of overburden material	SML	-
	Minimise /eliminate the potential of diversity loss.	Impact on Diversity	Monitor the Mine site invasion by native and alien species and employ mitigation measures.	Invasive species	Daily	Construction & Operation	Free from invasive alien species.	SML, ZEMA	2,000

			Adhere to strict conservation practices. And limit vegetation clearance to the critical areas.						
Effects of mining on the general environment	Minimize the construction impacts on the Environment	Mining, Construction and maintenance related impacts	Use the existing roads to access the mine site to reduce the impacts on the surrounding flora.	Access roads	Daily	Construction & operation	Only existing access roads are used	SML	35,000
					Monthly	Operation	Records/reports on monitoring	SML	

Releases to soil	Minimize soil and geology disturbance	Soil and Geology	Slippery ground during wet months. This will be mitigated by avoiding resuming work immediately after the rains and by applying blast on road networks. Floating rock boulders in sub soil – This can present a high risk during the construction / operation stages of the project. It can result in unstable structures. Detailed mapping of subsurface should be carried out as a mitigation measure.	Exposure of rocks, soil and rock breaking	Daily	Construction and Operation	Records/reports on monitoring.	SML	8,000
			Vegetation shall be	Vegetation	Daily	Construction &	Records/reports on monitoring.	SML	
			cleared only in			Operation	Vegetation is cleared		

			area that shall be inundated to prevent soil erosion in the areas adjacent to the specific area that shall be inundated.				only in area that shall be inundated.	
			To reduce soils contamination, hazardous fuels and oils and solid waste shall be managed in accordance with the provisions of relevant Zambian environmental regulations.	Hazardous fuels and oils, solid waste.	Daily	Operation	Records/reports on monitoring	SML
			In case the contamination occurs, the contaminated soil shall be treated appropriately using the best soil treatment methods, or per recommendations from ZEMA.	Contaminated soil	Daily	Construction & Operation	Records/reports on monitoring. Containment soils are adequately treated.	SML

Noise generation	Reduce and minimize Noise on site.	Noise pollution & vibration	To prevent soil compaction, the activities likely to compact the soil shall be restricted to the area that shall be inundated as much as possible.	Soil compaction	Daily	Construction & Operation	Records/reports on monitoring. Soil compaction is restricted to the area that shall be inundated	SML	5,000
			Activities involving noisy machinery or activities shall be restricted to between 07:00-18:00 to minimize disturbance to the near-by community.	Activity duration	Daily	Construction	No noise generating activities are conducted before 07:00 or after 18:00	SML	
			Noise levels shall be kept below 80dB.	Noise	Daily	Construction	Noise levels kept below 80dB.	SML	
Release of dust to ambient air	Minimize air pollution onsite	Air pollution and dust generation	The dusty portions of the site shall be watered regularly, and reasonable	Dust	Daily	Construction	Dust is adequately suppressed.	SML	

			vehicular speed limits shall be adhered to.						
			Limit machinery and vehicular movement to essential work only	Traffic flow and speed limits	Daily	Construction	Dust and CO ₂ nuisance kept	SML	2,000
			Machinery shall be maintained regularly to reduce CO ₂ emissions.	Machinery & vehicle maintenance	-	Construction	CO ₂ (or soot) nuisance reduced	SML	
Migration of people to site and increase in income	Minimize the HIV infection rates	Increased HIV/AIDS transmission	SSPL will use the existing company policy on HIV to sensitize workers and community on the disease.	Sensitization activities and materials	Daily	Construction & operation	Sensitization activities conducted	SML, Gwembe DHMT	1,000
Total costs (USD)									83,000.00

7.11 Emergency Response and Preparedness Plan

This Emergency Response and preparedness Plan is a guide to respond to emergency situations which may arise during the operation of the mine. The plan identifies likely emergency situations together with their causative factors followed by an elaboration of the proposed response. The plan finally identifies the respondents in order of priority. It is anticipated that implementation of the plan would help minimize the risks associated with implementation of the proposed project within acceptable levels. The plan is however subject for review each time there is a new, unforeseen emergency situation and incorporates all causative factors resulting in such emergency situations for improved future response performance. The primary aim of the Plan is to:

- ✓ Safeguard lives of people working within the project site that may be caused as a result of the operations.
- ✓ Lessen property damage of people living in the surrounding areas of the project site.

7.11.1 Categorization of Emergencies

Emergencies shall be categories in three levels as shown below:

(a) First Level: Non-emergency-but unusual

First Level describes a non-emergency but unusual event and slowly developing and may not yet be a threat to the operation of the mine. Nevertheless, it may continue to worsen. The mine Manager and his team shall investigate the situation and recommend actions to be taken.

(b) Second Level: Potential chemical/Harzadous spillages.

Harzadous materials or chemical spillages such as acids and fuels from the machineries.

(c) Third Level: Major Incident

This level describes a situation that may eventually lead to mine pit wall failure, major explosion, inundation of water/mud, extensive fire, or a fatal accident.

7.11.2 Emergency Response Team

Shimabu Mining Limited shall constitute an Emergence Response Team comprising relevant stakeholders. Its primary role will be to attend to emergencies resulting from the project undertaking within the required time, using the available resources. Fire hydrants will also be stationed in place in case of fire eruption

7.11.3 Stakeholder Notification

The Mine manager shall be responsible for notification of staff, the public and relevant authorities using effective means of communication in the event of an emergency. The following telephone numbers, for example, shall be used during an emergency:

- ✓ General Emergency Line – 999
- ✓ Medical services/ Ambulance – 991
- ✓ Police - 911
- ✓ Fire Brigade – 993

7.11.4 Measures for Prevention of potential accidents and incidents

During the operation of the mine, sensitization will be undertaken and induction of all employees including contractors will be conducted in line with the safety policy of SML. All employees will be

issued with appropriate PPE when undertaking construction and earth works including excavation activities at the mine on the project site. Work areas will be restricted to authorized personnel only and all work areas will be placed with appropriate signage to ensure no accidents occur during the operation phase.

Table 27: Emergency Preparedness and Response Plan

Emergency Situation	Likely Cause	Proposed Response	Respondents
1. Road traffic accidents (RTA)	a) Speeding motor and construction vehicles in the project area roads. b) Lack of speed control humps & signs.	• Create speed limit signs on the road and sensitize road users in the project area of construction vehicles risk of accidents and injury. • Construct speed humps to control speed of vehicles. • RTA's will be reported to the Police post within the boundaries of the Mine. • Victims will be treated using first aid skills on site prior to reference to the nearest health facility.	Mine Manager, Zambia Police and Gwembe District Hospital.
2. Occupational injuries	a) Unskilled labour b) Neglect of safety procedures c) Faulty equipment and tools d) Sheer Accidents e) No safety induction	• Apply appropriate First Aid. • Document incident. • Treat minor injuries using first aid. Evacuate to hospital if necessary. • Investigate causative factor and institute appropriate measures to prevent similar occurrence.	Mine Manager, First Aid Attendant on Duty, and Gwembe Hospital Staff.
3. Oil and Fuel Spillages	a) Neglect of safety procedures b) Equipment/machinery malfunction c) Leakages	• Contain spillages by applying suitable material to stop material flow and spread (e.g. Spill Kits). • Inform ZEMA and other relevant agencies. • Clean up affected areas and remediate contaminated soils. • Document incidence.	Mine Manager, Emergency Response Team, ZEMA,
4. Soil contamination with chemicals and effluent	a) Poor chemical handling and effluent system failure. b) Neglect of chemical handling procedures.	• Prevent water runoff from the mine and affect aquatic species • Clean up the affected areas. • Chemical neutralization of affected areas of the mine	Mine Manager, ZEMA, Gwembe Council

NB: The above proposed Emergency Response Plan will be reviewed each time an emergency situation occurs to incorporate any missing causative factors and review response mechanisms for enhanced effectiveness in future occurrences within the mine site and surrounding community in local Village area.

7.12 Enhancement plan for Environmental, Socio-economic and cultural impacts

Shumabu Mining Limited will implement a Plan that will seek to enhance the positive environmental, economic and social cultural benefits of its presence in the operational area of Gwembe and the surrounding areas. The focus of the plan is to prevent the occurrence of negative effects on residents in the project area of influence while maximizing their benefits.

Shimabu mining Limited will implement the following programs as part of its socio-economic management plan. The proposed interventions are aimed at broadening the beneficiary base for the company's business undertakings beyond the traditional beneficiary groups of shareholders, employees and tax/levy collectors by including the public especially those closest to the operational area.

7.7.1 Employment action Plan

Shimabu mining Limited has given priority to local residents in offering employment opportunities. Employment will only be offered to outsiders if the required skills, work ethic and experience could not be found locally. Further, the company will provide equal opportunities to both males and females provided they meet the education and skills/experience criteria. The company will endeavor to institute a counseling program to help prepare all employees scheduled for retrenchment or retirement prior to the effective dates on finance management and investment. SML will ensure that casualization of labour is minimized by offering employees fixed term contract type of employment if this is suitable.

7.12.2 Educational and training support plan

Training of employees regarding specific mining skills will be undertaken and this will benefit both the company and individual employees. Community support may also be offered where applicable and if funding is available.

7.12.3 Local economic development

Where relevant, priority will be given to local suppliers of goods and services as a way of empowering the local economy. This will be done with a view to supporting local economic development. Information on how to conduct business with Shimabu mining Limited will equally be communicated to help would be local contractors and suppliers.

7.12.4 Community Support Plan

Shimabu Mining Limited will periodically liaise with local communities in the project area in identifying development programs reflecting major community needs and work with them in supporting the community provided the community will have demonstrated the willingness to help themselves with the company providing supplementary support. As part of its policy on corporate citizenship, Shimabu mining Limited will inform the community in which it operates and gets them up-to-date with developments taking place at the Mine. This will facilitate community participation in decision making on major developments. This process as witnessed during this EIA preparation process will continue throughout project implementation phase by calling the public and consulting them on major decisions with a bearing on the local and wider environment.

8.0 DECOMMISSIONING AND REHABILITATION PLAN

The proposed Mine project life is expected to extend for at approximately 25-30 years. It is expected that there will be various mine developments within the area resulting from the availability of Coal ore in Gwembe District.

Economic sustainability and technological changes / advances as well as climate change will be the key factors that will influence any decision to decommission the mine. As these factors dictate, as specific closure concept and plan will be developed.

Generally, decommissioning and closure principles require that a project is decommissioned and the site rehabilitated in a socially responsible manner that reflects sound environmental management practices. The decommissioning and closure phase of a project should be implemented to achieve the following objectives:

- ✓ To protect public health and safety;
- ✓ To reduce or prevent environmental degradation; and
- ✓ To allow for the continued productive use of the project site, similar to its original use or to an acceptable alternative use.

In respect of the operation of the Mine, decommissioning and site reclamation activities that may cause environmental impacts include facility removal, progressive rehabilitation of pits, land re-contouring, and revegetation. The typical activities that will be undertaken during the mine decommissioning and site reclamation phase will include the following:

- ✓ Breaking up of concrete pads and foundations;
- ✓ Rehabilitation of the pits and soil re-profiling;
- ✓ Removal of access roads that will not be maintained for other uses;
- ✓ Re-contouring the surface and revegetation; and
- ✓ Reestablishment of the natural drainage pattern of the site.

In respect of the operation of the Mine, decommissioning and site reclamation activities that may cause environmental impacts include facility removal, land re-contouring, and revegetation.

8.1 Closure objectives

The closure of the mine operations on successful achievement of the project objectives and at the exhaustion of the mineral resources at the mine will be done at the close of the project lifecycle. The closure objective will be to restore the site to its natural state. This will be a transitional change over a period of time in order to restore the land environment to its original state. The site will have to be restored to a condition which is safe, stable and minimizes environmental impacts on the flora, fauna, water and soil. The area must as a minimum not negatively affect the socio-economic status of the local residents in the project area.

In the event that the project is abandoned prior to its lifespan being over, a decommissioning and closure plan will be instituted to ensure all the potential negative effects arising from the abandonment will be addressed in totality taking into consideration the cost attached to the undertaking.

Table 28: Closure Objectives

Aspect	Objective
Final land use	Maximize the beneficial use of the mine site after closure.
Safety and public health	Leave the site in a condition that reduces adverse effects on people and the environment as generally acceptable by stakeholders.
Vegetation	Re-vegetating the site or allowing the site to naturally re-vegetate to meet the agreed condition prior to mining activities and land acquisition by SML.
Ground water contamination	Achieve a condition where contaminants on site are below acceptable standards. Minimize potential of offsite pollution.
Soil contamination	Achieve a condition where contaminants on site are below acceptable standards.
Socio-economic	Enable all stakeholders to have their interests considered during the closure phase of the project as explained in the project disclosure meeting.

8.2 Decommissioning during construction (project abandonment)

Prior to project completion, Shimabu mining Limited may consider abandoning the project at operation stage having realized some resources from the mining activities. A decommissioning and closure plan will be instituted to ensure all the potential negative effects arising from the abandonment will be addressed in totality taking into consideration the cost attached to the mine undertaking.

8.2.1 Potential effects

Negative environmental impacts

During the closure phase, rehabilitation of the mine pits, removal of infrastructure, access routes used to relocate mine machinery and other equipment may be sources of dust due to vehicle movement. This will result into dust generation that may affect the vegetation by settling on the leaves of flora around the mine site. Settlements in the vicinity of the mine will be affected by dust resulting from the gravel roads due to their distance from the haul roads. Increased noise levels may be experienced by residents near the access routes during removal of equipment. The fuel storage facility used for refueling of operational vehicles and machinery may lead to underground and surface water contamination if not properly managed at project abandonment stage.

Negative Physical impacts

Negative physical effects of the premature abandonment of the project will include generation and non-collection of construction waste materials such as sand, quarry dust, blocks, scaffolds, cement and mounting systems (piles and support rail). Foundations dug up during construction may lead to physical injuries if warning signs and security are not provided at the site during this phase. A lack of security fencing of the area will lead to local residents trespassing in the mine site and vandalizing the incomplete structures and increased risk of safety at the mine pits.

Negative ecological impacts

Most of the trees that have been cut down during the operation phase will completely be lost resulting into water runoff and erosion during rainy season. Once trees are lost, this will change the biodiversity of the project area as the indigenous tree population will be reduced.

Socio-economic negative impacts

The potential employment opportunities for the local people will be lost due to the project abandonment. This may lead to increased crime rates in the area as the potential economic activity will no longer be

attainable. This in turn will lead to loss of economic value that would have been realized if the project was implemented.

All these effects are deemed potentially negative during the closure phase of the project. The potential effect, its class, score in terms of extent of the effect, occurrence frequency and the responsible personnel to ensure mitigation measures are implemented are summarized in the table below.

Table 29: Project abandonment potential Impacts

POTENTIAL EFFECT	CLASSIFICATION	EXTENT SCORE	FREQUENCY			RESPONSIBILITY
			L	M	H	
Soil erosion/water run off	Environmental	Medium		✓		EHS manager
Solid waste generation	Environmental	Low		✓		EHS manager
Ground water contamination	Environmental/public health.	Low				EHS manager
Air quality pollution	Environmental/occupational health.	Low	✓			EHS manager
Deforestation	Ecological.	Medium			✓	EHS manager
Loss of fauna habitat	Ecological	Medium				EHS manager
Employment loss	Socio-economic.	High			✓	EHS manager
Increased Crime rates	Socio-economic.	High			✓	EHS manager

8.2.2 Mitigation measures

Warning signs around the project area will be erected to warn potential trespassers of the physical danger posed by the abandoned project. The built-up area will be fenced off during construction and fence will act as barrier to deter illegal entry into the mine area. All the materials that will remain unused at the project site will be taken away to avoid posing a physical hazard. Sampling of water will be conducted and samples analyzed as part of the closure plan and results presented to relevant authorities such as ZEMA and Gwembe Town Council. Corrective action will be taken depending on the outcome of the water sample results.

8.3 Decommissioning after ceasing operation

Shimabu mining Limited intends to undertake the mining operations project through the 25-30 years resource estimated time for the coal deposit. All relevant local and regional regulatory bodies such as the Ministry of Mines and Minerals Development, Zambia Environmental Management Agency (ZEMA), Gwembe Town Council, government departments and other relevant local authorities and/or interested and affected parties will be informed beforehand in the event that the developer decides to abandon the implementation of the project for any predicted or unforeseen circumstances. A detailed final closure plan will be submitted for approval to ZEMA and Ministry of Mines and Minerals Development.

The following sections describe the activities to be undertaken by the developer to successfully bring the project to a close taking into consideration all the environmental, physical and socio-economic impacts that may arise during this phase.

8.4 Environmental closure plan budget

An estimated **US\$ 48,330.00** will be used for the decommissioning and rehabilitation plan of the Mine Site. The amount will be disbursed on need basis during the period of closure and post closure monitoring.

Shimabu Mining Limited will expend the above stated amount in accordance with the activities indicated in the table below.

Table 30: Proposed Closure Budget Estimate

Activity	Rate/ measure (USD)	Unit	Quantity	Cost (USD)
Equipment /infrastructure dismantling				
Un-installation of mounting system				6,200.00
Demolition of offices, house and other concrete infrastructure.				3,600.00
Burying of pits on the mine site				2,000.00
Disposal of demolition waste			-	1,300.00
Grading, levelling and clearing of demolished areas			-	2,300.00
Demolition of fuel storage facility and related structures	2,200			2,200.00
Treatment of contaminated soils			-	2,300.00
Re-vegetation costs				
Supplying and planting trees	3.00		1,800 M ²	5400.00
Vegetation care and maintenance (20% of cost)				1080
Installation of warning signage			10	1000
Subtotal (for pre closure activities)				27,380.00
Post closure monitoring				
Collection and analysis of ground water samples (monthly)				6,000.00
Collection and analysis of surface water samples (monthly)				6,000.00
Collection and analysis of soil sample (bi –annual)				3000.00
Noise/Air quality measurements (bi annual)				1250.00
Public consultations				1,200.00
Summary reports(bi-annual)				2,000.00
Detailed reports (annual)				1,500.00
Subtotal (for post closure monitoring)				20,950.00
GRAND TOTAL				48,330.00

Certain components of the project site buildings and infrastructures could be adapted for sustainable use including use as small business enterprise within the mine area. These buildings include stores, workshops, offices etc. The local community and businesses will be consulted in this regard prior to closure.

8.5 Stakeholder consultation

Relevant stakeholders and prospective affected people and other interested parties were invited for the project scoping meeting. The stakeholders identified both at local and district level that may have interest in the project undertaking and those directly affected by the proposed development. Two consultative stakeholder meetings were held in respect of the proposed coal mining activities. Stakeholder engagement included disclosure of the proposed mining activities through invitations to the scoping meetings. Summary details of the stakeholder engagement meetings are presented below;

Table 31: Stakeholder engagement record

Meeting date	Meeting details	Venue & Total attendance
6 th November 2025	SML Management Meeting with HRH Chief Chipepo and Chief Representative and local headmen to discuss the proposed project and the details, rationale and agreements as regards the company CSR and mitigation measures for the anticipated impacts of the project undertaking.	Sompani Primary School. A total of 23 stakeholders attended the meeting
19 th November 2025	ESIA stakeholders scoping meeting to discuss the proposed development of SML large scale coal mine, the area to be covered by the proposed mining activities, project benefits and impacts of the project on the local people. Land acquisition and ownership issues as well as Resettlement preliminary activities that form part of the scope of the ESIA.	Sompani Primary School: Sompani primary School. 59 stakeholders attended the scoping meeting and diverse views were exchanged during the meeting.
9 th April, 2026	SML ESIA disclosure meeting from the field study on the proposed large scale coal mining in Gwembe district	Sompani primary school. A total of 72 stakeholders attended the meeting.

8.5.1 Other Stakeholders in Environmental Monitoring

Stakeholders that may be interested in the environmental monitoring of the project impacts apart from SML, during the design and development and operation of the mine project include, among others ZEMA; Ministry of Mines and Minerals Development, Ministry of Agriculture, Department of Social Welfare, Forestry Department, Ministry of Lands, Chiefs and Traditional Affairs and Gwembe Town Council. Furthermore, Zambia Police, local authorities, health and other public authorities as well as various utility and service providers will also monitor some of the effects of the project during their day-to-day work responsibilities. The resultant data collected from monitoring should be analyzed and the information generated used to improve the implementation of the project. The analysis of this data should be done on a regular basis, preferably by those institutions with formal monitoring responsibilities.

9.0 DECLARATION OF AUTHENTICITY OF REPORT CONTENTS

To the best knowledge of Shimabu mining Limited the content of this report is a true representation of the ESIA study findings in the project area through the work of the consulting team and any work done by others have been quoted and referenced accordingly.

A handwritten signature in black ink, appearing to read "Juliet", is positioned above a horizontal line.

Juliet Sichobo Bushe
Director
Shimabu Mining Limited

10.0 CONCLUSION

This Environmental Impact Assessment was meant to objectively assess and evaluate impacts that may arise because of proposed large-Scale coal Mining operations in License No. 22912-HQ-LEL. The project aims at mining coal with environmental planning and mitigation of negative impacts of the proposed activities once the Mining License is granted.

The positive impacts of the projects appear to be more sustainable in that the proposed project is aimed at improving the socio-economic status of both the region and the country. Based on the level of detail and depth of the study, it is the view of the consultant that all envisaged environmental and Socio-economic impacts have been fully addressed within the limits of the current state of knowledge and reasonable practice. It also believed that with proper regulatory supervision, the negative impacts of the project could be mitigated and the positive impacts enhanced.

11.0 APPENDICES

Appendix 1: Shimabu Mining Limited Registration documents

Companies Form 7
Companies Registration No. 120180002053
Serial No. 1068841



COMPANIES
REGISTRATION AGENCY



Republic Of Zambia

CERTIFICATE OF INCORPORATION OF COMPANY LIMITED BY SHARES

(Section 10)

This is to certify that SHIMABU MINING LIMITED is on and from the 13th day of March 2018 incorporated as a COMPANY LIMITED BY SHARES.

Given under my hand and seal at Lusaka, Zambia, this 13th day of March 2018.



N.J. Moola
Assistant Registrar of Companies

For further details relating to this business visit
<http://www.pacra.org.zm>

Appendix 2: SML EIA Terms of Reference Approval Letter (22912-HQ-LEL)



ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY RESPONSE LETTER

18 Dec, 2025

{serial_no}

The Director

Shimabu Mining Limited

plot no.299b mapanza road Kafue District

LUSAKA.

-

Cell: +260977493455

Email: Shimabu_mining_limited@gmail.com

Dear Sir/Madam,

RE: APPROVAL OF THE TERMS OF REFERENCES AND SCOPING REPORT FOR THE PROPOSED LARGE SCALE COAL MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN GWEMBE DISTRICT IN SOUTHERN PROVINCE BY SHIMABU MINING LIMITED.

The above matter refers.

Zambia Environmental Management Agency (ZEMA) has reviewed the Terms of Reference (ToRs) and Scoping Report for the proposed large scale coal mining activities in license no. 22912-hq-lel in Gwembe District in southern province by Shimabu mining limited. The "Agency" would like to inform you that the said ToRs and Scoping Report have been **approved**.

The approved ToRs and EIA team members are as follows:

1. Project Description

Shimabu Mining limited intends to undertake the large-scale coal mining project following the discovery of coal deposits in the license area No. 22912-HQ-LEL. The company proposes to undertake open cast mining. The coal belt in the area extends from the mid to western part of the license. The area exploration area number 1,2,3 and 4 reveal sufficient mineralization potential for the mining of coal in the area. The coal belt as per exploration results occur with 5m topsoil, 14.3m strongly weathered mudstone and beyond 17m occurs shales with Lamellar organic intercalated bed of coal. Operations will commence as an open pit mine exploiting material that extends from surface down-dip. Given the coal belt, seams and quality of the coal obtained at exploration, Shimabu mining limited will use open cast (surface mining) to extract the thermal and metallurgical coal in the license area. The Coal mine will then extend the open pit to a vertical depth of approximately 50 meters.

The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chipepo's chiefdom and it covers an area of approximately 3652.5970Ha of the total license area. Considering that in some drilled areas the coal seams are near the surface, it will be economical to extract the coal using open cut (also referred to as open cast, open pit, mountaintop removal or strip) mining methods. This method will help recover a greater proportion of the coal deposit in the license area to give Shimabu mining limited a longer mine lifespan.

Key Project Components

The proposed project will comprise of the following components:

- Open Pit Mining Operations
- Waste Rock Dumps (WRD) for overburden storage
- Ore crushing, sorting and grading station, workshops, ore transfer system and ROM pad
- Mine camp infrastructure: mine site administration office
- Engineering workshops
- Water supply facilities
- Power supply facilities
- Flood protection and drainage system
- Waste management area
- Materials Handling and Storage

2. EIA Team Members

Name	Qualification	Role/Responsibility
Gillan Simfukwe	• B.Sc., Metallurgical Engineering, University of Zambia, (1998), Certificate in Strategic Environmental Assessment (SEA), 2012, International Environmental Law.	Team leader, EIA advisor, Public Consultation, Impact Characterization, Impact Identification and analysis, Drawing Up the EMP. Description of the Fuel depot

	experience Experience in conducting Social economic studies impact studies, public hearing and RAP studies for project affected persons.	Economic baseline, social management plan. Public consultations. Air quality, dust and noise measurement studies in the project area
Wisdom Chasaya	BSW (Social Work)/Development Economics/Studies with upper Merit	Socio-Economic baseline, social management plan. Public consultations
Anthony Kunda	B.Eng Metallurgy and mineral processing. Mining expert	Analysis of Fluorite mining impacts of the project, Impact characterization. Metallurgical processes advisory and formulation of mitigation measures associated with mining and excavations of the ore pits.
Delax Chilumbu	Bsc, Msc in metallurgy & mineral processing, Postgrad MBA, Professional Registered Engineer	Analysis of Acid base Impacts of the mining operations including acid base accounting based on the open pit operation plan of the mine.
Shaitan Singh Chouhan	BSc. Mining and Geological Engineering (India)	- Managing a team of Geologists in greenfield and brownfield project. - Coordinating all geological activities, budgets, contractor services & plans relating to the maturation of upstream exploration & new growth projects. - Providing geologically based interpretation, analysis & exploration recommendations. - Ensure that the exploration geological database is up-to-date, accurate & appropriate for all geological and mining needs. - Liaising with various Government regulating body for statutory compliance in India & overseas assignment. Technical evaluation & commercial negotiation of all contracts related to exploration & mining activities.
Philip Chikasa	- MSc. Environmental Forestry • University of Wales, Bangor, United Kingdom - Bachelor of Agricultural Sciences University of Zambia, Lusaka, Zambia - Diploma in Agriculture Natural Resources Development College, Lusaka, Zambia.	Ecological studies: Identification of Flora and fauna species in the area including endangered species. Water Resources Mgt Plan, Planning, designing, supervision of water resources quality assessment and monitoring activities at the project. Mine dewatering and underground water resources utilisation study and Water quality evaluation.

3. Approved Terms of Reference

The approved ToRs include the following specialist studies:

- Topography, soil survey and land evaluation
- Noise and Vibration
- Air quality
- Soil quality
- Socio-economic studies
- Flora and fauna study
- Ground water quality and availability

Do not hesitate to contact the undersigned should there be issues herein that you wish to have clarified.

Yours faithfully,

Yours faithfully,



Mrs. Karen Banda Etondo
Acting Director General
ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

Appendix 3: Approval of the EBP for Exploration (22912-HQ-LEL)



ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

Head Office
Corner of Church & Suez Roads
P.O. Box 35131
Lusaka, Zambia
Tel: +260 211-254923/254959

*All Correspondence to be addressed to
The Director General*

info@zema.gov.zm www.zema.gov.zm

In reply please quote
ZEMA/EA/EPB/LSI/EPG-LS/626

December 8, 2023

The Executive Director
Shimabw Mine Limited
Plot No. 299B Mpanza Road
P.O BOX 366179
KAFUE

Dear Sir,

RE: DECISION LETTER IN RESPECT OF ENVIRONMENTAL PROJECT BRIEF FOR THE PROPOSED LARGE-SCALE EXPLORATION ACTIVITIES FOR COAL ON LICENCE NO.22912-HQ-LEL IN SIYAMULUWA VILLAGE CHIEF MUNYUMBE GWEMBE DISTRICT, SOUTHERN PROVINCE BY SHIMABU MINE LIMITED.

Reference is made to the above captioned Environmental Project Brief ("EPB") submitted to the Zambia Environmental Management Agency ("ZEMA") on **October 25, 2023** for consideration in accordance with the requirements of the Environmental Management Act No. 12 of 2011 as read together with the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, SI No. 28 of 1997.

ZEMA has since reviewed the EPB and based on the information provided by yourselves and taking into account written and verbal comments from interested and affected parties as well as our site verification inspection findings; the said EPB has been **approved** with conditions.

You are advised to fully acquaint yourselves with the conditions herein and to ensure compliance thereof.

Yours faithfully



Maxwell Nkoya
Acting Director General
ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

CC: The Council Secretary - **Quemba Town Council, GWEMBE**
 The Director - **Mines Safety Department, KITWE**
 The Commissioner - **National Council for Construction, LUSAKA**
 The Director - **Factories Department, LUSAKA**
 His Royal Highness - **Chief Munyumbwe, MUNYUMBE**
 The Director Legal Services - **ZEMA, LUSAKA**

Quemba Regional Office
P.O. Box 11251
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Mitankwena
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Tel: +260 216 222228

Lusaka
P.O. Box 301111
Tel: +260 211 832001

Appendix 4: Shimabu Mining Consent



HIS ROYAL HIGHNESS CHIEF CHIPEPO

OWN PALACE

Lake Kariba P.O Box 1 Gwembe

Cell: 260 972 789/260 955 789 054 Email: mwamichipepo@gmail.com

30th September 2025

The Director,
Shimabu Mining Limited
Plot No.299b Mapanza Road
Kafue District

Dear Sir,

**RE: CONSENT TO UNDERTAKE MINING ACTIVITIES IN MY CHIEFDOM IN
LICENSE No. 22912-HQ-LEL IN GWEMBE DISTRICT**

Reference is made to your request to conduct mining activities in my chiefdom in particular LICENSE No. 22912-HQ-LEL in Siamuluwa area (Sompani village) in Gwembe District

In view of your request, the chiefdom council hereby grants Shimabu Mining Limited to undertake exploration and mining activities in the above license in adherence to all applicable regulations regarding the mining activities and the requirements of the Chiefdom.

Yours In Traditional Leadership

HIS ROYAL HIGHNESS
HRH CHIEF CHIPEPO



"CHIEFDOM UNDER GOD"

**Psalm 33:12" Blessed is the Nation whose "IN GOD WE TRUST
God is the Lord"**

Appendix 5: Shimabu Mining Limited Approved Terms of Reference & Scoping Report

SHIMABU MINING LIMITED

Registered Office: Plot No. 299B Mapanza Road Kafue District

TERMS OF REFERENCE TO UNDERTAKE ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT

**FOR THE PROPOSED LARGE SCALE COAL MINING ACTIVITIES IN LICENSE No.
22912-HQ-LEL IN GWEMBE DISTRICT IN SOUTHERN PROVINCE**



Chief Chipepo's Chiefdom of Gwembe District

(Submitted to the Zambia Environmental Management Agency)

November, 2025

**Prepared by
GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED
1st Floor Suite F21 Kambendekela House Dedan Kimathi Road Lusaka
Office: +260 977 656 697 Mobile: +260 966 656 697
Email: environmentalgreenline@gmail.com**

EXECUTIVE SUMMARY

Overview

Southern Province is currently the only coal producing province in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzenze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coalfield within the Zambezi Valley includes Mulungwa, Siankondobo, Chisanga and Siambabala.

Southern Province has over the years seen increased mining activities. The status of the province has shifted from being predominantly agriculture to include mining. From the time of the liberalized economy in 1991 and the implementation of the 1995 Mining Policy through to the current Mineral Resources Development Policy of 2013, the Province has continued to experience increased participation in the mining sector with players in mineral exploration and exploitation.

In the recent years, the need to exploit mineral resource for the use of energy generation has become eminent following the climatic changes that have affected the long-time hydropower generation schemes in Zambia. Coal worldwide has been used as an alternative source of energy for many sectors of manufacturing industry including generation of electricity. Given this background, Shimabu Mining Limited (SML) envisages to exploit coal mineral resources in Gwembe district with the eventual goal of establishing a viable mine.

Shimabu Mining Limited (SML) is a Zambian company registered under PACRA on 13th March 2018 (PACRA No. 120180002053) with interests in coal mining. SML is a holder of a large-Scale Prospecting License No 22912-HQ-LEL which was offered by the Ministry of Mines with respect of Coal mineral in the Gwembe District of the Southern Province.

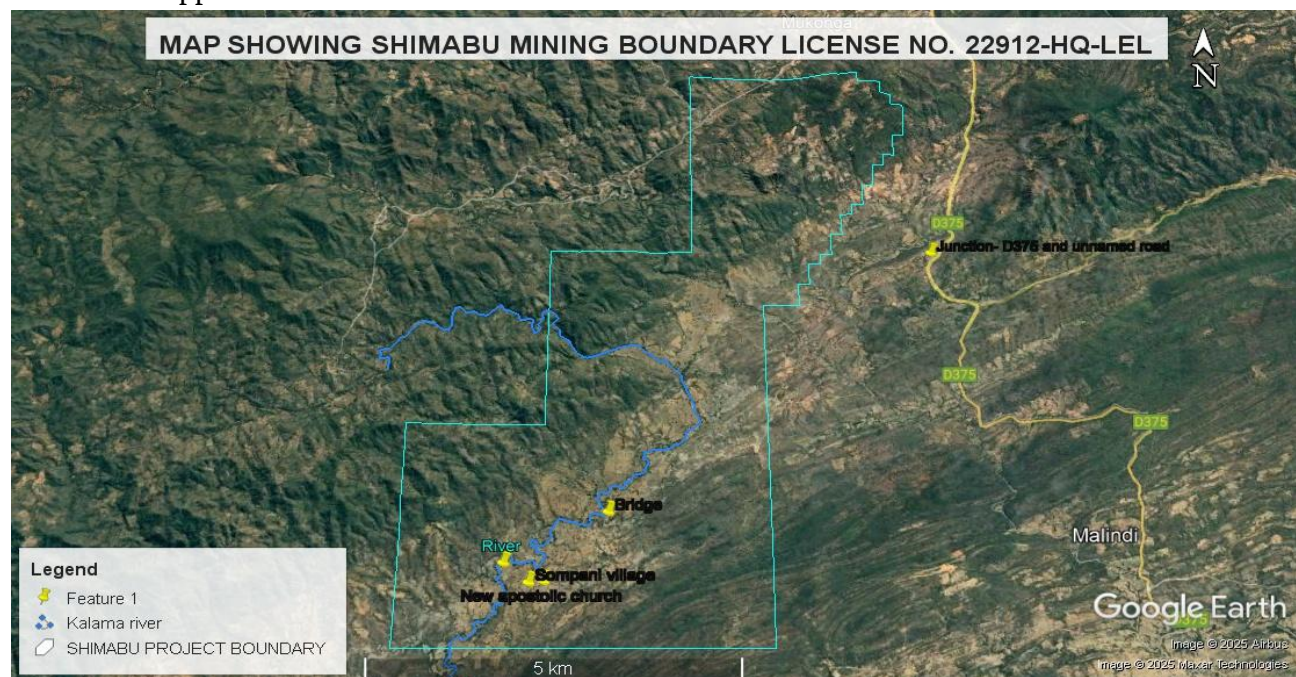
Following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in the project area. The large-scale mining license area which spans an area of 3652.597Ha is located in Gwembe Districts in the Southern Province of Zambia. Shimabu Mining Limited and its directors have years of experience in the management of mining related projects in Zambia.

Location

The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chipepos chiefdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license. The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD). The license can be accessed using T1 road (Kafue Road). From Lusaka to Chisankesi, a distance of 207km approximately. Then Join the D375 road to Gwembe from Chisankesi, for about 47.9km.

to the Junction between D375 and D500. Continuing in D375, move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area.

The coal deposit in the project area lies within the 3652.597Ha (License No. 22912-HQ-LEL). This is the major part of the license that will be developed into the mine encompassing the mine pit and associated support infrastructure.



Location map of the proposed mining area for Shimabu Mining Limited

Legal Framework

The Terms of Reference have been prepared in accordance with the legal framework on Environmental Management enshrined in the Environmental Management Act of 2011 of the Laws of Zambia, read together with the Environmental Impact Assessment Regulations S.I. No. 28 of 1997. Section 3 (1) of the EIA Regulations states that, “a developer shall not implement a project for which a project brief or environmental impact statement is required under these Regulations, unless the project brief or the environmental impact statement has been concluded in accordance with these regulations and the Zambia Environmental Management Agency has issued a decision letter.”

The proposed project is outlined in the Environmental Impact Assessment Regulations S.I. No. 28 of 1997, under the mining section. Therefore, the proposed project qualifies for a full Environmental Impact Assessment (EIA). Other relevant pieces of legislation to be adhered to include;

- ✓ The Environmental Management (Amendment) Act (EMA) No.8 of 2023.
- ✓ The Environment Management Act (Licensing) Regulations (SI No. 112 of 2013) *Part II*
- ✓ The Mines and Minerals Development Act, 2015, (Act No. 11 of 2015).
- ✓ Mines and Minerals Development (Amendment) Act No. 14 of 2016
- ✓ Gender equality and Equity Act No. 22 of 2025
- ✓ Pneumoconiosis Act No. 63 of 1996

- ✓ Land and Land Acquisition Act of 1995
- ✓ The Urban and Regional Planning Act No. 3 of 2015
- ✓ Water Resources Management Act No. 21 of 2011
- ✓ Metrology Act No.6 of 2017
- ✓ The Public Health Act No.22 of 1996
- ✓ The Local Government Act, No. 2 of 2019
- ✓ The Factories Act No. 13 of 1994
- ✓ The Petroleum (Exploration and Production) Act No. 15 of 1996
- ✓ The Investment Act No. 5 of 1996
- ✓ The Occupational Health and Safety Act No. 36 of 2010
- ✓ National Council for Construction Act No.10 of 2020
- ✓ The National Heritage Conservation Commission Act No. 19 of 2021
- ✓ The Forest Act No. 4 of 2015
- ✓ The National Pension Scheme Authority (NAPSA)
- ✓ The Zambia Development Agency Act No. 11 of 2006
- ✓ Public Roads Act No 12 of 2002
- ✓ Road Traffic Act No 11 of 2002
- ✓ International Agreements and Conventions

Project Description

SML intends to undertake the large-scale coal mining project following the discovery of coal deposits in the license area No. 22912-HQ-LEL. The company proposes to undertake open cast mining. The coal belt in the area extends from the mid to western part of the license. The area exploration area number 1,2,3 and 4 reveal sufficient mineralization potential for the mining of coal in the area.

The coal belt as per exploration results occur with 5m topsoil, 14.3m strongly weathered mudstone and beyond 17m occurs shales with Lamellar organic intercalated bed of coal. Operations will commence as an open pit mine exploiting material that extends from surface down-dip.

Given the coal belt, seams and quality of the coal obtained at exploration, SML will use open cast (surface mining) to extract the thermal and metallurgical coal in the license area. The Coal mine will then extend the open pit to a vertical depth of approximately 50 meters.

Considering that in some drilled areas the coal seams are near the surface, it will be economical to extract the coal using open cut (also referred to as open cast, open pit, mountaintop removal or strip) mining methods. This method will help recover a greater proportion of the coal deposit in the license area to give SML a longer mine lifespan. The proposed equipment will include but not limited to the following:

- ✓ Draglines which will operate by removing the overburden, power shovels, large trucks in which transport overburden and coal, bucket wheel excavators, and conveyors. The method will also include use of explosives first used in order to break through the surface or overburden, of the mining area. The overburden will then be removed by draglines or by shovel and truck.

- ✓ Once the coal seam is exposed, it will be drilled, fractured and thoroughly mined in strips. The coal will then be loaded onto large trucks or conveyors for transport to either the coal preparation plant or directly to the end use facilities.

The implementation plan of the mining activities by SML will be in a phased approach. Current planning includes the following phases:

- ✓ Phase 1: Site preparations and pre-production (Year 0-1);
- ✓ Phase 2: Mine production at the open pit site exploiting the Coal reserve (Year 1 –Year 25).
- ✓ Phase 3: Future expansion to start the exploiting of deep situated Coal Reserve and extending the mine pit boundary.
- ✓ Phase 4: Decommissioning and closure.

ESIA Study methodology

The study approach and methodology to be adopted shall include screening to determine the extent of the project and desktop data search and analysis for the baseline bio-physical and social environmental parameters of the project area. In addition, the consultant will consult with the project design group and will be briefed and obtain design reports which will make an input in the EIA process.

Public consultation process will include local interviews, household social and environmental surveys. Based on these findings and expert judgment, the consultant will compile the projected social and environmental impacts (positive and negative) likely to emanate from proposed project activities and also the Environmental and Social Mitigation and Management Plan (ESMMP) which details how adverse impacts will be reduced or eliminated and by whom. In addition, the consultant would draft an Environmental and Social Monitoring Plan (ESMP) to be implemented during construction and after project completion to evaluate and review actual impacts as they happen and the effectiveness/appropriateness of mitigation measures proposed.

In the event that exploration and mining operations cease, Shimabu mining Limited will implement the decommissioning and closure plan which will be part of the Environmental and Social Impact Statement of this proposed project.

ESIA Study Team

The Environmental Impact Assessment shall be undertaken by the team of specialized consultants that will undertake specialized studies of the project components. The ESIA will be coordinated by Greenline Environmental Solutions Limited.

No.	Name	Role in EIA	Qualification
1.	Gillan Simfukwe	Team leader, EIA advisor, Public Consultation, Impact Characterization, Impact Identification and analysis, Drawing Up the EMP. Description of the Fuel depot	B.Sc., Metallurgical Engineering, University of Zambia, (1998), Certificate in Strategic Environmental Assessment (SEA), 2012, International Environmental Law.
2.	Mubanga Mwansa	Environmental Impact specialist, Characterization of Waste streams, project EMP, Socio-Economic baseline, social management plan. Public consultations.	B.Eng. Environmental Engineering. Baseline Air quality training and experience Experience in conducting Social economic studies impact studies, public

		Air quality, dust and noise measurement studies in the project area	hearing and RAP studies for project affected persons.
3.	Wisdom Chasaya	Socio-Economic baseline, social management plan. Public consultations	BSW (Social Work)/Development Economics/Studies with upper Merit
4.	Anthony Kunda	Analysis of Fluorite mining impacts of the project, Impact characterization. Metallurgical processes advisory and formulation of mitigation measures associated with mining and excavations of the ore pits.	B. Eng Metallurgy and mineral processing. Mining expert
5	Delax Chilumbu	Analysis of Acid base Impacts of the mining operations including acid base accounting based on the open pit operation plan of the mine.	Bsc, Msc in metallurgy & mineral processing, Postgrad MBA, Professional Registered Engineer.
6.	Shaitan Singh Chouhan	- Managing a team of Geologists in greenfield and brownfield project. - Coordinating all geological activities, budgets, contractor services & plans relating to the maturation of upstream exploration & new growth projects. - Providing geologically based interpretation, analysis & exploration recommendations. - Ensure that the exploration geological database is up-to-date, accurate & appropriate for all geological and mining needs. - Liaising with various Government regulating body for statutory compliance in India & overseas assignment. Technical evaluation & commercial negotiation of all contracts related to exploration & mining activities.	BSc. Mining and Geological Engineering (India).
7.	Philip Chikasa	Ecological studies: Identification of Flora and fauna species in the area including endangered species. Water Resources Mgt Plan, Planning, designing, supervision of water resources quality assessment and monitoring activities at the project. Mine dewatering and underground water resources utilisation study and Water quality evaluation.	MSc. Environmental Forestry University of Wales, Bangor, United Kingdom Bachelor of Agricultural Sciences University of Zambia, Lusaka, Zambia Diploma in Agriculture Natural Resources Development College, Lusaka, Zambia.

In line with the Environmental Management (Amendment) Act No. 8 of 2023 read together with the Environmental Impact Assessment Regulations SI No. 28 of 1997 and other relevant pieces of legislature, the developer intends to submit the terms of reference (TOR) prior to undertaking the Environmental and Social Impact Assessment process. This is in order to incorporate all critical issues from interested and affected parties (stakeholders) into the Environmental Impact Assessment of the proposed project.



Juliet Sichobo Bushe

Director

Shimabu Mining Limited

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ACRONYMS AND ABBREVIATIONS

SML	- Shimaburu Mining Limited
ASL	- Above Sea Level
TORs	- Terms of Reference
EPB	- Environmental Project Brief
ESIA	- Environmental and Social Impact Assessment
EIS	- Environmental Impact Statement
EMP	- Environmental Management Plan
SMP	- Social Management Plan
ZEMA	- Zambia Environmental Management Agency
EMA	- Environmental Management Act
UNZA	- The University of Zambia
Mt	- Metric tonnes
IAP	- Interested and affected parties
IFC	- International Finance Corporation
N/A	- Not applicable
Ha	- Hectares
RHC	- Rural Health Centre
ZESCO	- Zambia Electricity Supply Company
NEAP	- National Environmental Action Plan
NCS	- National Conservation Strategy
GRZ	- Government of the Republic of Zambia
ECZ	- Environmental Council of Zambia
EPPCA	- Environmental Protection and Pollution Control Act
SI	- Statutory Instrument
ZAWA	- Zambia Wildlife Authority
CRB	- Community Resource Board CBU - Copperbelt University
GMA	- Game Management Area
WARMA	- Water Resources Management Act
FAO	- Food and Agricultural Organization
HIV	- Human Immune Virus
AIDS	- Acquired Immune Deficiency Syndrome
FRA	- Food Reserve Agency

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1.0 INTRODUCTION

Shimabu Mining Limited (SML) is a Zambian registered company with interests in coal mining. The company was registered by the government of Zambia as a limited liability company on 13th March, 2018. SML is a holder of a large-Scale Prospecting License No 22912-HQ-LEL which was offered by the Ministry of Mines with respect to Coal mining in Gwembe District of the Southern Province.

Following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in the project area. The large-scale mining license area which spans an area of 3652.597Ha is located in Gwembe District in the Southern Province of Zambia. Shimabu mining Limited and its directors have years of experience in the management of mining related projects in Zambia. The prospective mining activity will be undertaken by seasoned employees who have previously worked from the coal belt areas in Maamba, Sinazongwe and Maamba.

SML intends to establish and operate a large-scale Coal mine and in the long run provide jobs for the local people and infrastructure development to the project area. The developer intends to establish an operation office in Gwembe District for ease of operations, create project ownership for the local people and for implementation purposes. Shimabu Mining Limited Has undertaken exploration activities in the license area and the evaluated ore in the initial stage indicates high quality coal reserves. Follow up geological works will be carried out to explore other high grade coal rich reserves within the license area.

In view of the above, the project proponent commissioned *Greenline Environmental Solutions Limited* to conduct an Environmental and Social Impact Assessment and develop an Environmental Impact Statement (EIS) as required by the Environmental Management (Amendment) Act of 2023 read together with the Environmental Impact Assessment Regulations of SI No. 28 of 1997. The process of conducting an environmental impact assessment cannot commence unless Terms of Reference have been submitted to the Zambia Environmental Management Agency (ZEMA) and approved.

In line with these provisions, the consulting team identified relevant stakeholders in the project area, organized consultative meetings to get the views from the affected and interested parties District. Project consultative meetings were held which local stakeholder meeting and project scoping meeting at Sompani Primary School which is located within the License Area on Wednesday 6th November 2025 and the EIA scoping meeting was held on 19th November 2025 at Sompani Primary School.

The contributions that were obtained from the identified stakeholders consultative and scoping meetings have been included in the Terms of Reference (sections 7.0 and the minutes of the two meetings under section 13). The issues/ concerns raised during these meeting including many other issues identified by the developer/ consulting team and comments to be raised by the stakeholders and Zambia Environmental Management Agency will form part of the Terms of Reference (TOR) that will guide the consulting team in the carrying out of the ESIA of the proposed project.

1.1 Background of the Project

The background to the undertaking of the coal mining activities in the area emanates from the results of the exploration works that have been undertaken in the project area after the grant of the exploration license by the Ministry of Mines and Minerals Development to Shimabu Mining Limited (No. 22912-HQ-LEL) for a tenement in Gwembe District of Southern Province. The prospecting permit is valid for a period 4 years commencing on 8th day of June 2018 for minerals bearing Coal.

Further, SML envisages undertaking the mining activities for coal reserves in the license area which has a projected lifespan of 25-30years of active mining activities. This in the long run will help cushion the power deficit in the country by supplying power to the National Grid. Another key aspect of the plan is to help improve the status of the coal belt area in Gwembe by developing the social infrastructure in the project area, create employment, contribute to the local revenue base and also supply steady high-grade coal to the various industry as a source of energy for most combustion units.

1.2 Objectives of the Project

The main objective of the project is to exploit the coal orebody in License No. 22912-HQ-LEL using open cast mining methods. Support objectives will include;

- ✓ Explore the natural resource in the project area and develop, mine and manage the existing Coal ore deposit within the license area.
- ✓ Opening up the new open pit for accessing the orebody using the mining machinery and materials (excavators, loaders, bull dozers, explosives etc.).
- ✓ Construct and manage mine site infrastructure to support the mining activities in the project area.

1.3 Objectives of the Terms of Reference

- ✓ To incorporate all critical issues from interested and affected parties (stakeholders) into the Environmental Impact Assessment of the proposed project.
- ✓ To comply with legal requirement in the EIA Regulations for submitting a Scoping Report for approval before proceeding with other stages of the EIA process.
- ✓ To comply with internationally accepted best practices in environmental management.
- ✓ To provide the initial information of the project in order for a legal opinion to be made regarding the EIA process.
- ✓ To set out the extent (scope) and key elements of the EIA study.
- ✓ To place limits on the information that must be collected, thereby optimizing the use of resources during the study.
- ✓ To provide names and skills of the EIA study team for Environmental Management Agency (ZEMA)'s approval.
- ✓ To facilitate efficient utilization of the time, resources and expert knowledge on issues of environmental significance to the project.
- ✓ To avoid presenting irrelevant information in the EIS that may cause the report not to be a working document.

- ✓ To facilitate early consultation with the Zambia Environmental Management Agency and other Interested and Affected Parties (IAPs).
- ✓ To facilitate effective planning and smooth implementation of the EIA process by the consulting team.
- ✓ To eliminate chances of disagreement in terms of the EIA process and the detail of information and consultations required to complete the process.

1.4 Contact details of the developer

Table 1 provides the developer's physical details and contact person while Table 2 depicts the particulars of the shareholders and shareholding.

Table 32: Contact Details

Proponent	Shimabu Mining Limited
Contact person	Juliet Sichobo Bushe
Designation	Director
Mobile	Cell: +260977493455
Email	shimabumininglimited@gmail.com
Physical Address	Plot No.299B Mapanza Road Kafue District

Table 33: Share holders

Shareholders and directors					
NAME	NATIONALITY	ID No.	DESIGNATION	SHARES	%
Juliet Sichobo Bushe	Zambian	169574/11/1	Shareholder	5,000	50
Marshal Makundano Hosea Bushe	Zimbabwean	946574/11/2	Shareholder	5,000	50
Floating shares				5,000	
Total shares				15,000	100

1.5 Project Investment

Shimabu Mining Limited envisages undertaking the project in a phased approach using a 5-year implementation plan commencing in the 1st Quarter of 2026. SML intends to invest a total of **USD 930,000.00** in the project which will in turn create over 200 permanent jobs to the local and other people. The total project investment budgeted for the development, implementation and operation of the project. The project will be implemented using a phased approach with initial construction and operation works to commence in the 1st Quarter of 2026 upon obtaining approval from relevant regulatory authorities including the grant of the Mining License. Specific project implementation components of the investment cost include Open Pit mining activities, creation of explosive magazine, Waste Dump Rock, construction of administrative office block, Staff housing and support facilities, Maintenance yard and Coal stock pile platform.

2.0 PROJECT SITE LOCATION

The proposed coal mining site is located in Siamuluwa area (Sompani village), Chief Chipepos chiefdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license. The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD). The license can be accessed using T1 road (Kafue Road). From Lusaka to chisekesi, a distance of 207km approximately. Then Join the D375 road to Gwembe from chisekesi, for about 47.9km. to the Junction between D375 and D500. Continuing in D375, move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area. The coal deposit in the project area lies within the 3652.597Ha (License No. 22912-HQ-LEL. This is the major part of the license that will be developed into the mine encompassing the mine pits and associated support infrastructure.

Table 3: Shimabu Mining limited Proposed Site Coordinates

No	LATTITUDE	LONGITUDE
1	16°40'42.00"S	27°44'48.00"E
2	16°40'42.00"S	27°46'18.00"E
3	16°40'48.00"S	27°46'18.00"E
4	16°40'48.00"S	27°46'30.00"E
5	16°40'54.00"S	27°46'30.00"E
6	16°40'54.00"S	27°46'36.00"E
7	16°40'60.00"S	27°46'36.00"E
8	16°40'60.00"S	27°46'42.00"E
9	16°41'18.00"S	27°46'42.00"E
10	16°41'18.00"S	27°46'36.00"E
11	16°41'30.00"S	27°46'36.00"E
12	16°41'30.00"S	27°46'30.00"E
13	16°41'36.00"S	27°46'30.00"E
14	16°41'36.00"S	27°46'24.00"E
15	16°41'48.00"S	27°46'24.00"E
16	16°41'48.00"S	27°46'18.00"E
17	16°41'60.00"S	27°46'18.00"E
18	16°41'60.00"S	27°46'12.00"E
19	16°42'06.00"S	27°46'12.00"E
20	16°42'06.00"S	27°46'06.00"E
21	16°42'18.00"S	27°46'06.00"E
22	16°42'18.00"S	27°46'00.00"E
23	16°42'30.00"S	27°46'00.00"E
24	16°42'30.00"S	27°45'54.00"E
25	16°42'36.00"S	27°45'54.00"E
26	16°42'36.00"S	27°45'48.00"E
27	16°42'48.00"S	27°45'48.00"E

28	16°42'48.00"S	27°45'42.00"E
29	16°43'00.00"S	27°45'42.00"E
30	16°43'00.00"S	27°45'24.00"E
31	16°45'54.00"S	27°45'24.00"E
32	16°45'54.00"S	27°42'30.00"E
33	16°44'06.00"S	27°42'30.00"E
34	16°44'06.00"S	27°43'36.00"E
35	16°42'30.00"S	27°43'36.00"E
36	16°42'30.00"S	27°44'48.00"E



Landmarks leading to the license area in Gwembe District



Figure 8: Map Location

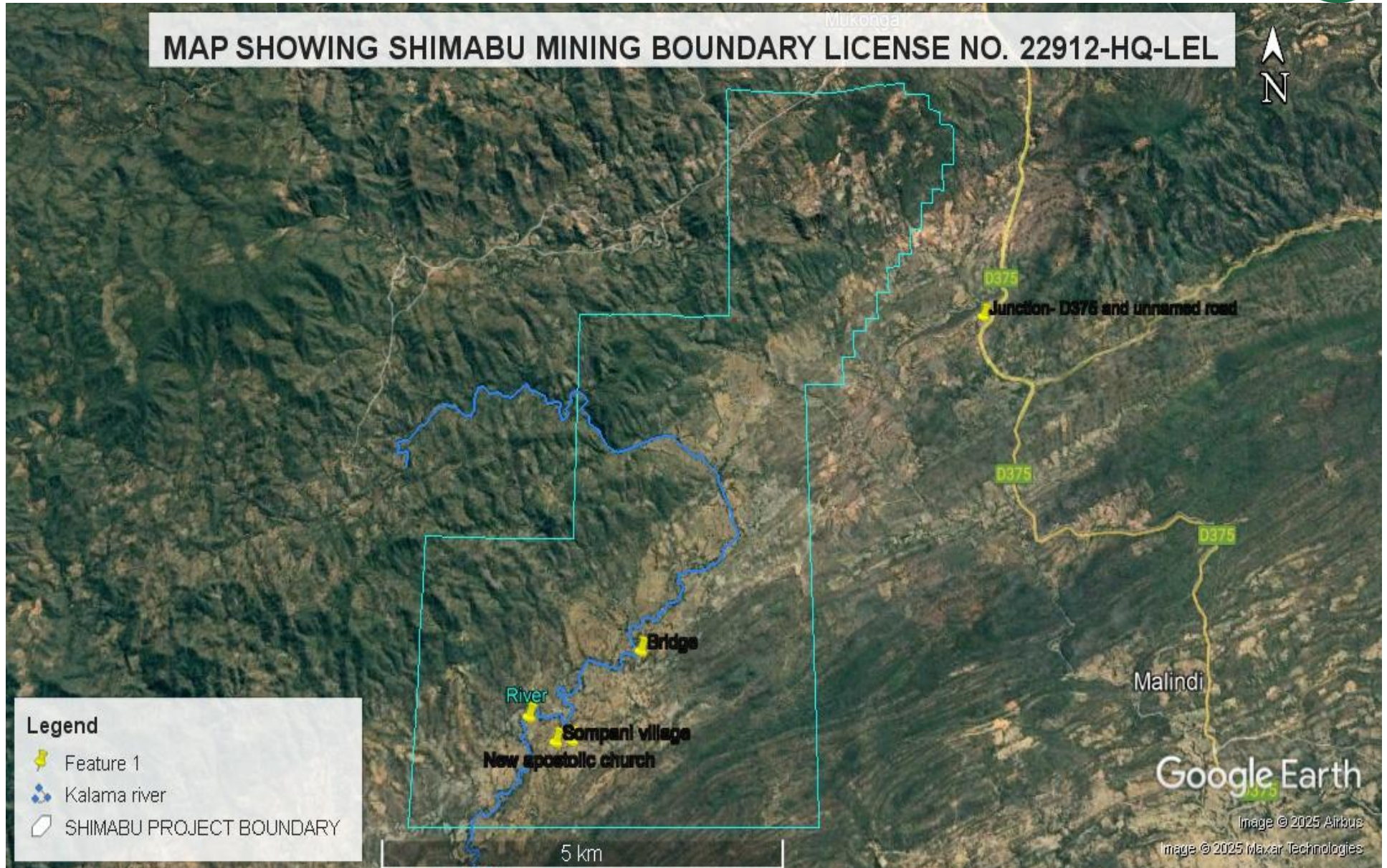


Figure 9: Project Site Boundary Map

3.0 DESCRIPTION OF THE PROJECT

The project under review is a greenfield project as no coal mining activities have been undertaken in the area although License No. 22912-HQ-LEL is surrounded by other exploration licenses that other companies are interested to explore. Though Greenfield, several companies have held the exploration rights in the surrounding area outside of the extent of this license. Prior to the interests of SML, the site remained idle since no mineralization potential drilling was undertaken.

Shimabu Mining Limited proposes to implement phase 1 of the coal mining project utilizing 200.00Ha for the mine pit and support structures installations within the limits of the 3652.597Ha License area 22912-HQ-LEL in Sompani village located on the southern part of the license area. Exploration activities are a going concern in the license area. SML has completed prospecting (or exploration) activities in parcels of land within the area to determine the economic viability of the mineral deposits within the tenement. Sampling points 1,2,3 and 4 including the ones along Kalama River have revealed available coal reserve for the mining activities to be undertaken in the license area. The geological investigations' objectives were to provide details of the mineralization, extent and shape of the deposit and consequently the reserves for eventual mining. The exploration results were satisfactory indicating low to medium grade of coal deposit and now the developer would like to implement the coal mining project.

The proposed project involves the large-scale open pit coal mining. The mining will be conducted using the hydraulic excavators to mine the coal reserve. Where the rocks are hard, the rocks will be drilled. The mined coal will then be transported from the open pit to the mineral processing plant where it will be crushed into required sizes ready for stock piling with the eventual goal of sale.

3.1 Project life cycle activities

The Major project activities will include Coal mining and crushing. The project flow regime will undertake the project implementation in a four (04) phases approach as detailed below:

- ✓ Phase 1: Mine Planning, Site preparations, construction and pre-production (Year 0-1);
- ✓ Phase 2: Mine production at the open pit site exploiting the manganese reserve and Manganese washing (Year 1 – Year 25 with a possibility of an operation extension).
- ✓ Phase 3: (Year 25 – Year 50 Mining extension)
- ✓ Phase 4: Decommissioning and closure.

Phases	2025-2026	2026-2031			2031-2056	2056-2057
Phase 1	PREPARATIONS					
Phase 2		OPERATIONS	MAINTENANCE	OPERATIONS		
Phase 3					OPERATION EXTENSION	
Phase 4						DECOMMISSIONING

Table 4: Project Execution Plan

Over the current planned life of the mine approximately 1.5million Mt of material will be removed. All operations will be by open pit mining methods in all the phases of the project. Waste rock from the open pits will be deposited in waste rock dumps adjacent to the pits.

3.1.1 Preparation phase

The project under review is a Greenfield project which has only undergone exploration since 2018. The site thus has not been developed before.

The phase will involve obtaining of all relevant authorization from regulatory agencies such as;

- ✓ Zambia Environmental Management Agency (ZEMA): EIA approval for the mining activities. SML will further undertake the relocation, resettlement and compensation of the project affected persons within the license area as per IFC and National Resettlement Policy (Zambia) Standard prior to project implementation. This will be done progressively in the active area of the proposed mining activities.
- ✓ Ministry of mines and minerals development: obtaining of the large-scale mining Licenses including ZEMA and other regulatory authorities.
- ✓ Obtaining local authority licenses within the operation district
- ✓ Engaging the local chief and traditional leadership and disclosure of the commencement of the mining activities.

The operation phase will be preceded by engaging with the relevant authorities in which the proposed mining activities are to be undertaken by the developer and obtain consent and right to conduct the mining. This will be achieved through the customary engagement with Chief Chipeco of the project area and other affected inhabitants of the areas to be mined within the license.

3.1.2 Construction Phase

Being a Greenfield project, construction and commissioning of the project will involve the clearing of the site in preparation for the construction activities to be conducted. The clearing will involve the removal of vegetation to pave way for the construction of project facilities. Apart from the coal storage shades, other facilities to be constructed include mine site offices, engineering workshop to cater for both heavy and light vehicle repairs at the mine site, store rooms, security checkpoint to control and monitor activities at the mine site, weigh bridge, change house, stockpile area and fuel storage facility. A boundary security wall fence will also be constructed around the office areas and mining pits. Specific project implementation components of the investment cost include Open Pit mining activities, creation of explosive magazine, Waste Dump Rock, construction of administrative office block, Staff housing and support facilities, Maintenance yard and Coal stock pile platform. Creation of access routes for haulage of raw material, machinery and transfer of coal mined from the site. The construction phase will comprise the setting up of workers houses and logical support infrastructure. During construction, the following will be done:

- ✓ A fire break around the camp site will be maintained
- ✓ Demarcation of a kitchen and dining area
- ✓ Construction of bathing shelters and pit latrines

- ✓ Setting up of a Sample Storage Area
- ✓ Demarcation of and digging of a Waste Disposal Pit
- ✓ Grid connection of power or use of Solar Panels for basic night lighting during mine site construction
- ✓ Setting up of Radios for communication
- ✓ Maintain fire-extinguishers at the camp site

Precautionary measures will be taken during construction to ensure environmental protection and safety and occupation health.

Construction activities will generally comprise of land clearing, digging and earthworks to prepare foundations, compacting of foundations, setting of concrete footing and basements, fabrications and installation of fuel storage tanks, setting and erection of block walls, partitioning, roofing, painting and installation of fittings.

Other infrastructure to be constructed will include piped water facilities connected to the water mains. Apart from materials specifically mentioned above other materials to be used in construction will comprise of laterite, river and building sand, crushed stones, steel bars and pipes, concrete blocks or burnt clay bricks, paint, planks, nails, wires, wire gauze, roofing sheets and fittings. Others will include pumps, meters, valves etc. Equipment and tools to be used will include bulldozers and excavators, tippers, concrete mixers, wheelbarrows, shovels, picks, axes, hoes, compaction rollers and lifting devices. The raw materials will generally be sourced locally.

3.1.3 Operation phase

The operational phase will involve mining, crushing and stock piling of the coal mineral resource on the mine site. The operation phase of the mine development will be the exploitation of the surface Coal mineral deposit goes down to a depth of approximately 75m below surface. The actual depth will be controlled by the depth of weathering which varies across the strike of the ore body outcrop. Based on the drill results to date, it is estimated that this phase 1 resource may amount to approximately over 1, 000,000Mt. The deposit will be mined initially using conventional open pit mining methods and pit designs, viz. excavators and diesel-powered trucks for transport.

SML will undertake surface mining which will be essentially classified as open-pit mining and will include quarrying, strip mining, contour mining, dredging, and hydraulic mining of the mineral resource within the mining License area. Topography and the physical characteristics of the deposit area will strongly influence the choice of method that the company will use. Like any other mineral ore, the coal deposit will be blasted by explosives to fragment the insitu rock prior to excavation. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Loaders into trucks. The trucks will transport the mined coal deposit directly to the Primary Crusher for crushing into similar required sizes before taking it to the Run-Off Mine (ROM) Pad for storage.

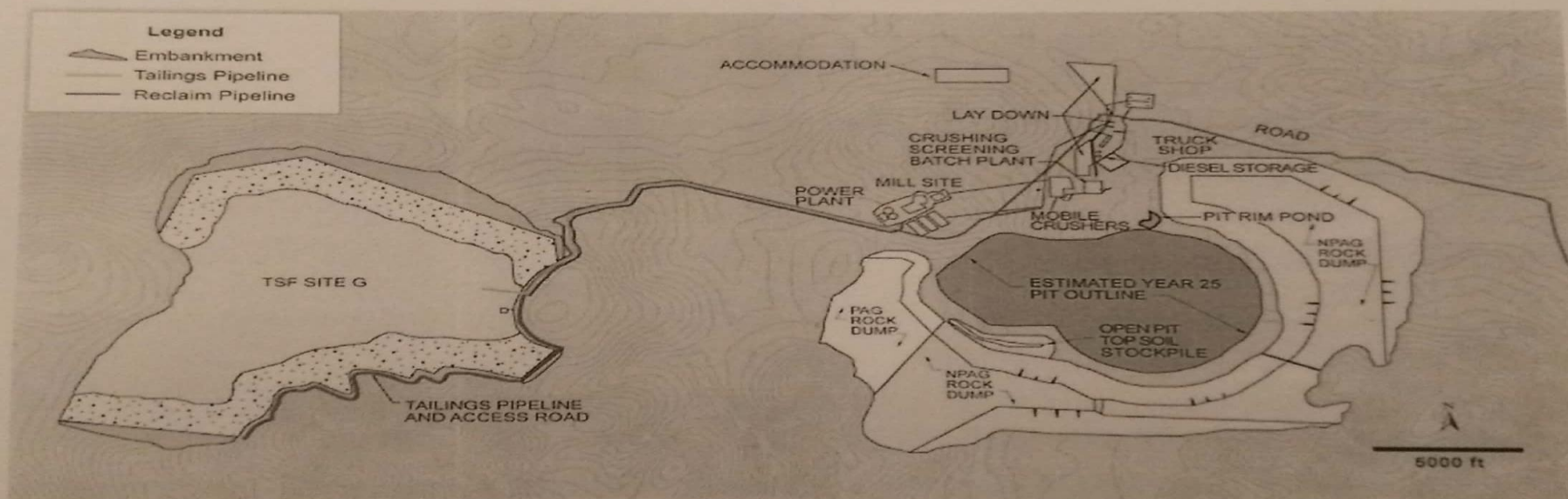
3.1.3.1 Mining Operations

The project will contain a number of components which will include open pit mine, waste rock dumps, Ore stockpiles, plant area and Mine Offices.

Coal deposits will be mined from the open pit. The mining method that will be used for the open pit is the conventional selective open pit mining, where deposits will be delineated through benching and drilling of the deposits. Like any other mineral ore, the coal deposit will be blasted by explosives to fragment the insitu rock prior to excavation where necessary. The maximum mined depth below surface is approximately 75m. The overall stripping ratio (overburden/ore) is approximately 2:3. The design pit wall slope angles vary between 50° in extremely weathered rocks to 75° in fresh rock. Bench heights are planned at 5m with nominal 4.0m to 4.5m wide berms. The final slope angle will vary between 30o to 43.1o. The gradient adopted for the ramp is 10o. Storm water cut-off drains constructed alongside the pit perimeter haul roads will prevent surface runoff flowing into the pit. The designed pit is 100m along strike and 190m across strike and 55m dip from an average topographic elevation of 1325m a.m.s.l. De-pressurization of the pit slopes to permit safe mining will be achieved by a combination of in-pit pumping and vertical dewatering wells positioned behind the pit rim. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Front – end Loaders and Shovels into Dump trucks. The Dump trucks will transport the mined coal deposit, either directly to the Primary Crusher or the Run-Off Mine (ROM) Pad for storage.

The diagram below shows the proposed infrastructure for the mining project. Basically, the project will comprise the following:

- Open pit
- Explosive magazine
- Waste rock dump
- Administration office block
- Maintenance yard
- Stock pile platform



Mine plan

Figure 3: Typical mining activity plan (refer to Appendix for detailed mine plan)

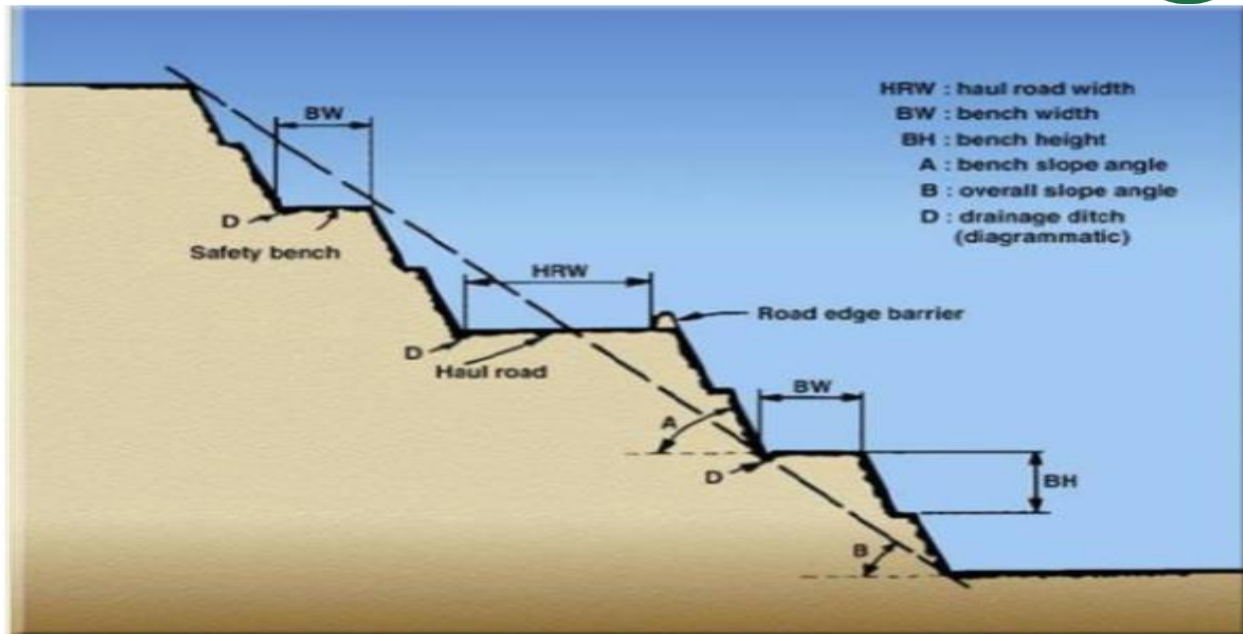


Figure 3-1: Pit Benching methodology

Mining Infrastructure

The Project will contain the following principal production facilities:

- ✓ Open Pit Mining Operations
- ✓ Waste Rock Dumps (WRD) for overburden storage
- ✓ Ore crushing, sorting and grading station, workshops, ore transfer system and ROM pad

And the following auxiliary facilities:

- ✓ Mine camp infrastructure: mine site administration office
- ✓ Engineering workshops
- ✓ Water supply facilities
- ✓ Power supply facilities
- ✓ Flood protection and drainage system
- ✓ Waste management area
- ✓ Materials Handling and Storage

Mine Life and Mine Production

Pit Optimization studies indicate an optimum mine life of 25 years at an ore production rate of 50,000 Mtpa at average insitu grade of 0.21% Coal. Average overburden stripping will be 2.089 Mtpa giving a total material movement of over 20.9 Mt for the life of the mine.

3.1.3.2 Waste Management

Solid waste generated during the operation phase at the mine site to be set up in the license area will be disposed of at the dumpsite within the mine area (license to be obtained from ZEMA). The quantity of solid waste to be generated will be significant owing to the number of people that will be at the mine and the duration of the mining activities. Hazardous waste generated from

machinery if any such as used oil will be stored in metal drums and transported to licensed disposal facilities for disposal in Gwembe District.

SML will manage water across the mine site in order to prevent any adverse impact on adjacent watercourses and groundwater, and to conserve natural resources. To achieve this, the company will develop and implement a Site Water Management Plan. The Water Management Plan will focus on the following: -

- ✓ Conduct mine dewatering activities in the mine pits
- ✓ Separation of clean and dirty water;
- ✓ Treatment of mine effluent and surface runoff prior to discharge to the environment;
- ✓ Where practicable, reduce raw water consumption, maximize re-cycling of waste water and reduce the volume of effluent discharged to the environment;
- ✓ Regular inspection and maintenance of the mine site drainage system and pollution control facilities; Regular monitoring of surface water, effluent streams and flow rates, and groundwater quality;
- ✓ Compliance with the Zambian ambient water quality standards and other relevant guidelines for effluent discharge to surface waters;
- ✓ Preparation of formal emergency response procedures in the event of a plant spill; and
- ✓ Development and regular updating of the site water balance in order to effectively and efficiently manage the water resources across the mine site.

Solid waste generated during the operation phase at the mine sites to be set up in the license area will be disposed of at the Gwembe Town Council Dumpsites using licensed solid waste collectors. The quantity of solid waste to be generated will be minimal and manageable owing to the number of people that will be at the mine and the scale of operation. Overburden will be kept to a minimum by utilising it in filling up previously mined open pits.

3.1.4 Mining Operation Extension

The mining operations Extension Phase of the operation marks the expansion of the coal mining activities from the current pit to another pit within the large-scale licensed area extending the mine pit life span and that of the mine. The overburden and waste rock removed from the new pit will be used to fill the exhausted pits.

4.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Shimabu Mining Limited will implement this project in accordance with the relevant regulations, policies and legislation of Zambia and other international conventions such as the IFC to ensure compliance thereof. This section briefly describes laws, regulations, treaties and or conventions that have relevance and bearing on the proposed project.

4.1 History of the Environmental Regulatory Framework in Zambia

The Government of the Republic of Zambia (GRZ) adopted the National Conservation Strategy (NCS) in 1985. This was due to the need for balancing environmental requirements, economic activities and social needs. The NCS was upgraded to the National Environmental Action Plan (NEAP) in 1992 with the same aim of fostering sustainable economic and environmental development. The NCS and NEAP are the foundation pillars of environmental laws in Zambia.

The NCS facilitated development of the Environmental Protection and Pollution Control Act (EPPCA) in 1990 which also facilitated formulation of the Environmental Council of Zambia (ECZ) in 1992. The EPPCA was repealed in 2011 into the Environmental Management Act No. 12 of April 2011, which is the current supreme environmental management law. Consequently, the name of the mother environmental regulatory body changed from Environmental Council of Zambia (ECZ) to Zambia Environmental Management Agency (ZEMA).

4.2 The Environmental Management (Amendment) Act, No. 8 of 2023

The Environmental Management Act; provide for the prevention and control of pollution and environmental degradation.

Applicable Regulations under the Environmental Management Act No. 12 of 2011 and the Environmental Management (Amendment) Act, No. 8 of 2023 are described below.

a) Environmental Impact Assessment Regulations, SI No. 28 of 1997. These Regulations provides the main framework under which EIAs are conducted, submitted to ZEMA and considered for either approval or rejection.

These regulations are relevant as a guide to Shimabu Mining Limited implementation of the project. The requirements of conducting an EIA are all stipulated under these regulations and the developer shall ensure compliance at every stage. The EIA regulations also give a guide line as to how much review fee will be paid to ZEMA for purposes of reviewing the EIA for the proposed project and that development shall not be undertaken by a developer without an approval letter from ZEMA.

b) Statutory Instrument No.112 of 2013–Environmental Management (Licensing) Regulations.

These Regulations provide standards and guidelines for mitigating air, waste water, hazardous waste, pesticides and toxic substances and ozone depleting substances.

The provisions of the EMA will be adhered to by SML during all the phases of the project including post operation monitoring of the project impacts.

Relevance: The Project will generate air pollution in terms of Particulate matter and fumes from machinery on site during construction and operation.

Compliance thereof: An air emission license will be required and conditions attached adhered to. Thus, this legislation is important to the project because SML to operate will need to keep dust emission monitored and supervised by the regulatory agency ZEMA.

4.3 The Mines and Minerals Development Act (MMDA) No. 11 of 2015

The Zambian Regulation applicable to the development of a mine is the Mines and Minerals Development Act of 2015. This legislation regulates activities relating to mine and minerals operations including quarrying and provides for regulations for environmental protection during prospecting and mining activities and construction of the areas mined. Further to that, the MMDA provides for the duties and powers of officers authorized to enforce the provisions of the Act and its subsidiary SIs with respect to environmental impact.

Assessments. The Mines Safety Department (MSD) of the Ministry of Mines and Minerals Development is responsible for enforcing the provisions of the Act.

This includes enforcing compliance with regulations for the conservation and protection of the environment and protection of human health and safety during prospecting, exploration and mining operations. Below are the subsidiary SIs of the MMA that are relevant to SML project:

(a) Statutory Instrument No 29 of 1997 – Mines and Minerals (Environmental) Regulations – provides the framework for conducting and reviewing environmental impact assessment for the mining sector. Further to that, it provides regulations for auditing project implementation.

(b) Statutory Instrument No 102 of 1998 – Mines and Minerals Environmental Protection Fund Regulations – provides the mechanism of setting up and operating the Environmental Protection Fund. Thus, the mine will have to contribute to the fund so that if the mine owners left or abandoned the project, funds could be used to clean up the environment.

(c) Statutory Instrument No.7 of 2016- Mines and Mineral development (general) regulations-provides for the application of a license for exploration, mining, mineral processing to the Director of the Cadastre unit of the Ministry of Mines and Minerals Development.

(d) Mining Regulations (1971)

The exploration activities shall be guided by the Mining Regulations which in essence are safety regulations. In accordance with the regulations' requirements SML 'Holder' of the Prospecting Permit and Mining License shall appoint a Manager who shall be responsible for the day to day running of operations at the site including enforcing of the Mining Regulations and shall report incidences to relevant authorities such as the Mines Safety Department (MSD). The Holder shall provide the necessary resource to the Manager for the safe running of operations.

Relevance: The Act is relevant in ensuring the project activities are in line with the required standards as prescribed by the Zambian Law.

Compliance thereof: The Manager will subsequently appoint competent persons or supervisors in charge of various functions like trenching and core drilling to ensure compliance for issues like safe working procedures and use of proper Personal Protective Equipment by workers.

4.4 Pneumoconiosis Act No. 13 of 1994

This Act (No. 13 of 1994) provides for the medical examination and standards of physical fitness to be required of persons exposed or likely to be exposed to the risk of pneumoconiosis. All mine employees that work in scheduled mine and scheduled places will be required to undergo periodical medical examinations to ascertain their fitness to work in areas where humans are likely to be exposed to free silica in respirable dust, with particle sizes less than 5 microns, which become harmful when inhaled for over a long period of time.

The Project work places and its immediate surroundings will be in the scheduled mine and scheduled places. Therefore, employees will be subjected to periodic examinations to ensure that they are physically fit to work.

Relevance: Due to the nature of the project workers will be exposed to the risk of pneumoconiosis.

Compliance there of: The developer will endeavor to act within the provisions of this law in the implementation of the project by ensuring all workers are medically examined every year.

4.5 The Zambia Wildlife Act No. 14 of 2015

The Act provide for the establishment, control and management of National Parks, bird and wildlife sanctuaries and for the conservation and enhancement of wildlife eco-systems, biological diversity and objects of aesthetic, pre-historic, historical, geological, archaeological and scientific interest in National Parks; provide for the promotion of opportunities for the equitable and sustainable use of the special qualities of public wildlife estates;

Relevance: The project site does not fall within a GMA or near a known game Management Area. The proposed site is a green field with no major anthropogenic activities except for settlements and farming activities by the local inhabitants. The site may harbor some small fauna species thus the Act is relevant to the project.

Compliance there of: Shimabu Mining Limited will follow the requirements of this Act in order to conserve the animal and bird life within the vicinity of the mine area.

4.6 The Explosives Act No. 10 of 1974

The Act defines explosives and the raw material used for manufacturing of explosives. It further provides guidelines for manufacturing, storage, transportation, distribution and use of all explosives and related products/accessories in Zambia. Safety issues are the most outstanding in this Act.

Relevance: The mining methods adopted require procurement, transportation, storage and use of explosives.

Compliance there of: Shimabu Mining Limited will conduct its operations in accordance with provisions of this Explosives Act and also ensure that the regulatory institution (MSD) is fully aware.

4.7 The National Heritage Conservation Commission (Amendment) Act No. 19 of 2021

The National Heritage Conservation Commission Act No. 19 of 2021 stipulates preservation and protection of ancient cultural and natural heritage resources and objects of aesthetic, historical and archaeological value. In this Act, “Ancient Heritage is defined as being among other things, any structure, settlement previously inhabited, land mark, burial place or any other item designated by the

commission which is known or believed to have been erected, constructed or used before 1st January 1924. The Act also provides for the formation of the National Heritage and Conservation Commission which is the responsible institution.

Relevance: This act is relevant since bush clearing; construction of mine infrastructure may alter and/or damage heritage sites if there are any.

Compliance there of: This act will guide Shimabu Mining Limited on the reporting, preservation and protection of heritage sites on the mine site.

4.8 The Water Supply and Sanitation Act No. 28 of 1997

The Water Supply and Sanitation Act provides for the regulation and standards applied in the provision of public water and sanitation services. It also provides for permitting of water supply and sanitation service provision. Water supply and sanitation at the Mine site will follow the guidelines and standards as stipulated in this act. The Mine site and the workers compound will be supplied with potable water from boreholes and sanitation will employ septic soak way arrangement. Water quality of the portable water will be monitored as required by the water supply and sanitation act to make sure quality water is supplied to the workers.

Relevance: Sanitation of the project area will depend on the management of sewer waste at the Mine site in order to protect the water resources.

Compliance there of: Shimabu Mining Limited will follow the guidelines and requirements of this act to make sure that the health of the workers and the communities around the Mine site are safe guarded. All potable water will be treated to ensure no outbreak of waterborne diseases on the Mine site.

4.9 Lands Act Cap 184 of 1995

The Lands Act controls all matters pertaining to the management/use of land and land tenure systems. The process of acquiring the Mining land title exhausts part of the applicable land acquisition laws. Shimabu mining limited is under 99-year lease from the Zambian government.

Relevance: The Act is relevant because all land in Zambia is vested in the state and the project site falls within state land.

Compliance there of: Shimabu Mining Limited will utilize the land in accordance with the intended purpose and provisions of this Act. The developer has so far complied with this act and it will strive to comply with any provisions under this act.

4.10 The Road Traffic Act No. 11 of 2002

The Road Traffic Act No. 11 of 2002 was enacted to cover issues of road safety in Zambia. The Act provides for establishment of the Road Transport and Safety Agency (RTSA) and defines functions of RTSA. It also provides for a system of road safety and traffic management.

Relevance: - Access to the site is through feeder roads that are used by other road users. There are also settlements along these feeder roads, which is common for all rural roads in Zambia. It is therefore necessary to adhere to road traffic requirements in order to safeguard the health and safety of other road users. This means compliance to the Act.

Compliance there of: Shimabu Mining Limited will operate in accordance with the provisions of this Act.

4.11 The Petroleum Act Cap 439 and the Energy Regulation Act Cap 436

The Petroleum Act provides for control of conveyance and storage of petroleum products such as diesel and petrol. The Act further provides for control measures regarding production, transportation, handling, distribution, re-sale and use of energy in Zambia. The Energy Regulation Act of 1995 makes provision with respect to the production and distribution of energy in Zambia and establishment of the Energy Regulation Board (ERB) for purposes of control and licensing of energy undertakings. In accordance with this Act, ERB shall, in conjunction with other Government agencies, formulate measures to minimize the environmental impacts of transportation, storage and use of fuels and enforce such measures by attachment of appropriate conditions to licenses held by such undertakings.

Relevance: - Mining machines and the generators shall require fuel in large quantities. This fuel shall be obtained from Shimabu Mining Limited in a fuel bowser. Even if an above ground fuel storage facility shall not be constructed, the use of the fuel bowser for transportation and refueling has to comply with provisions of the Energy Regulation Act hence the relationship.

Compliance there of: Shimabu Mining Limited will operate in accordance with the provisions of this Act.

4.12 Employment Code Act No. 3 of 2019

This Act provides conditions under which employees should work in Zambia. The Act covers both temporary and permanent employees. Generally, this Act stipulates employee protection and social security requirements. Major provisions include:

- a) Minimum contractual age;
- b) Establishment of employment contracts;
- c) Settlement of disputes arising from such contracts of employment;
- d) The appointment of Labour Officers and other staff for the administration of the Act;
- e) Certain conditions of employment such as ordinary leave, sick leave, maternity, redundancy and welfare of employees.

Relevance: The project will create employment in form of short- and long-term contracts throughout its lifecycle; during preparation, construction, operation and decommissioning phases.

Compliance thereof: SML will comply with this act by employing the required age, establishing contracts, conditions of service and settling disputes in accordance with this act. The relevance of this Act to the project will serve as guide to equal and formidable employment conditions at the mine.

4.13 The Urban and Regional Planning Act No. 3 of 2015

The Act establishes procedures for integrated urban and regional planning in a devolved system of governance so as to ensure multi-sector cooperation, coordination and involvement of different levels of ministries, provincial administration, local authorities, traditional leaders and other stakeholders in urban and regional planning; ensure sustainable urban and rural development by promoting environmental, social and economic sustainability in development initiatives and controls at all levels

of urban and regional planning; ensure uniformity of law and policy with respect to urban and regional planning;

Relevance: The Act does not however apply to Trust Land and land in Reserve and Mining Areas, which fall under regional plans.

Compliance there of: Shimabu Mining Limited will comply with the conditions set by the local authority in the construction and operations of the infrastructure by obtaining building permits.

4.14 Local Government Act, No. 2 of 2019

An Act to provide for an integrated local government system; give effect to the decentralization of functions, responsibilities and services at all levels of local government; ensure democratic participation in, and control of, decision making by the people at the local level; revise the functions of local authorities; provide for the review of tariffs, charges and fees within the area of a local authority; provide for the proceedings of the council and committees; provide for the role of traditional leadership in democratic governance and provide for matters connected with, or incidental to, the foregoing

Relevance: Shimabu Mining Limited shall abide by the Bye Laws established by the Local Authorities.

Compliance there of: Acquisition of Local Authority permits and compliance with other environmental regulations shall be as stipulated therein.

4.15 The Public Health Act of 1996

The Act empowers the Council (Gwembe Town Council) to prevent unhealthy activities at the project site. It provides for the prevention of disease and provision of drainage, latrine and disposal of sewerage and treatment systems.

Relevance: The activities to be undertaken will entail public interaction through workers and other visitors to the project area which is situated in Gwembe District. This will require adequate public health facilities and conditions.

Compliance there of: The project proponent shall comply with the provisions of the Act in order to safeguard human life. The project shall also ensure that measures to prevent diseases and pollution dangerous to human health and to any water supply on site.

4.16 The Chiefs Acts Cap 287 of 1994

An Act to make provision for the recognition, appointment and functions of Chiefs and Deputy Chiefs; for the exclusion of former Chiefs and Deputy Chiefs from specified areas in the interests of public order; for the appointment and functions of kapasus; and for matters incidental to or connected with the foregoing.

Relevance: The project lies in the rural part of Gwembe district in the area falling under Senior Chief Chipepo of Gwembe District.

Compliance thereof: SML will comply with the provisions of the act by considering the traditional leaders as key stakeholders in any developmental undertaking.

4.17 The Workers Compensation Act No. 10 of 1999

Provides for the establishment and administration of a Fund for the compensation of Workers disabled by accidents to, or diseases contracted by, such Workers in the course of their employment, and for the payment of compensation to dependents of workers who die as a result of such accidents or disease.

Relevance: Shimabu Mining Limited employees risk incurring injuries or death during the discharge of their duties due to occupational accidents at the workplace.

Compliance thereof: The company management will contribute to the fund as is legally prescribed and its management will reach a legally binding agreement pertaining to the issue of the compensation fund in case of such eventualities.

4.18 The Occupational Health and Safety Act No.36 of 2010

Provides for preventing work related injuries, illnesses, and death by issuing and enforcing workplace health and safety standards. Hundreds of OHS safety standards, covering everything from first aid to fire protection, apply to most federal and private workplaces. OHS allows employees to question unsafe conditions, request inspections, and file lawsuits to correct unsafe conditions without retaliation

Relevance: Provisions in this Act are more inclusive than the Mining Regulations and it is a legal requirement for all industries to comply with these provisions hence the relevance to SML

Compliance thereof: The developer will come up with programs to educate its workers on workplace safety, health and environmental best practices. A Health and Safety Policy will be put in place.

4.19 International Finance Corporation Performance Standards

International Finance Corporation (IFC) applies the Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. The Performance Standards may also be applied by other financial institutions electing to apply them to projects in emerging markets.

4.20.1 IFC PS 1: Social and Environmental Assessment and Management

Performance Standard 1 underscores the importance of managing social and environmental performance throughout the life of a project (any business activity that is subject to assessment and management). An effective social and environmental management system is a dynamic, continuous process initiated by management and involving communication between the client, its workers, and the local communities directly affected by the project (the affected communities). Shimabu Mining Limited will adhere to the below objectives of the PS1;

- ✓ To identify and assess social and environment impacts, both adverse and beneficial, in the project's area of influence.
- ✓ To avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment
- ✓ To ensure that affected communities are appropriately engaged on issues that could potentially affect them

- ✓ To promote improved social and environment performance of companies through the effective use of management systems.

4.20.2 IFC PS 5: Land Acquisition and Involuntary Resettlement

Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or means of livelihood) as a result of project-related land acquisition. Resettlement is considered involuntary when affected individuals or communities do not have the right to refuse land acquisition that results in displacement. Shimabubu Mining Limited will adhere to the objectives of the PS5 as below;

- ✓ To avoid or at least minimize involuntary resettlement wherever feasible by exploring alternative project designs
- ✓ To mitigate adverse social and economic impacts from land acquisition or restrictions on affected persons' use of land by:
 - iii. providing compensation for loss of assets at replacement cost; and
 - iv. Ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.
- ✓ To improve or at least restore the livelihoods and standards of living of displaced persons.
- ✓ To improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.

4.21 The National Resettlement Policy of 2015

Assist Government in creating stable and sustainable human settlements on the principles of equity and growth by facilitating the creation of human settlements which are economically productive, socially just and environmentally sustainable. The Policy also assist to put in place operational instruments to guide resettlement and compensation of Internally Displaced Persons (IDPs) in the country in line with the African Union Convention for the Protection and Assistance of IDPs in Africa (Kampala Convention) which Zambia is Party to.

Relevance: The site has some people settled in the areas that live and farm in this area, whose livelihood will be disturbed by the implementation of the coal mine project by SML.

Compliance there of: The developer will relocate people in accordance with the guidelines of this policy and ensure that the livelihood of the reallocated people is made better than their current status. The company will involve the Disaster Management and Mitigation Unit (DMMU) under office of the Vice President for the implementation of the RAP for the compensation and resettlement of the affected persons.

4.22 The Solid Waste Regulation and Management Act, No. 20 of 2018

An Act to provide for the sustainable regulation and management of solid waste; general and self-service solid waste services; the incorporation of solid waste management companies and define their statutory functions; the licensing and functions of solid waste service providers, operators and self-service solid waste providers and provide for their functions; the regulation, operation, maintenance

and construction of landfills and other disposal facilities; the setting and approval of tariffs for management of solid waste and provision of solid waste services; and matters connected with, or incidental to, the foregoing.

Relevance: Operations of the SML coal mine will produce solid waste that if not properly handled can disturb public health at the mine and surrounding areas.

Compliance there of: The developer will store, manage, transport and dispose solid waste in accordance with the guidelines of this act.

4.23 International agreements and conventions

Zambia is a signatory to a number of international conventions. Conventions of significance to the proposed project are briefly described below.

- a) **Ramser Convention:** - The general objective of the Ramser Convention is to curtail the loss of wetlands and to promote wise use of all wetlands. The convention addresses one of the most important issues in Southern Africa, namely the conservation of water supplies and use of the natural and the human environments in an intergenerational equitable manner.
- b) **African Convention on the Conservation of Nature and Natural Resources (Algiers, 1968), (Maputo, 2003):** - The objective of the convention is to encourage individual and joint actions for the conservation, utilization and development of soil, water, flora and fauna for the present and future welfare of mankind. This must be done from an economic, nutritional, scientific, educational, cultural and aesthetic point of view.
- c) **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** - The objective of this agreement is to ensure that international trade of wild flora and fauna does not endanger their existence. The convention is customized through the Zambia Wild Life Act No. 12 of 1998 and the implementing body is Zambia Wildlife Authority.
- d) **Kyoto Protocol to the United Nations Framework Convention on Climate Change:** - The aim is to further reduce greenhouse gases by enhancing the national programs of developed countries aimed at this goal and by establishing percentage reduction targets for the developed countries.
- e) **Convention on Biological Diversity (CBD):** - The major aim of the CBD is to effect international cooperation in the conservation of biological diversity and to promote sustainable use of living natural resources worldwide. It also aims at bringing about sharing of the benefits arising from utilization of natural resources. A number of plans in this convention fall under the Department of Agriculture, Forestry, Fisheries and ZAWA.
- f) **Basel Convention on the Control of Trans-Boundary Movements of Hazardous Wastes and their Disposal:** - The objective is to control import and export of hazardous wastes. It also aims at ensuring that any trans-boundary movement and disposal of hazardous waste, when

allowed, is strictly controlled and takes place in an environmentally sound and responsible manner.

- g) Convention on Migratory Species and the African –Eurasian Water Bird Agreement: - Like other migratory species, water birds cross several international borders during their migration, facing a wide range of threats. Without international cooperation, conservation efforts of one country can be meaningless if these birds are not protected in another country.
- h) The United Nations Framework Convention on Climate Change (UNFCCC):- It was signed by Zambia in 1992. The main objective is to achieve stabilization of greenhouse gas concentrations in the atmosphere. Zambia recognizes that the largest source of one of the main greenhouse gases, carbon dioxide, is from burning wood fuel and the use of coal and oil.
- i) The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC), dealing with greenhouse-gas-emissions mitigation, adaptation, and finance, signed in 2016. The Paris Agreement's long-term goal is to keep the increase in global average temperature to well below 2 °C above pre-industrial levels; and to limit the increase to 1.5 °C, since this would substantially reduce the risks and effects of climate change.

Relevance: Zambia is party to the international agreement that promote sustainable development and protection of the environment through reduction in carbon emissions Shimabu mining limited is compelled to adhere to these provisions being located in Zambia.

Compliance thereof: Shimabu Mining Limited will take all precautions to make sure that the contributions to greenhouse gases from the Mining operations are minimal and that the best environmental and social practices are undertaken during operations in conformance with international norms.

5.0 SCOPE OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

The Environmental Impact Assessment work to be conducted will include stakeholder identification (screening, scoping, incorporate concerns/ critical issues from the affected/ interested parties into the Terms of Reference). Once finalized, the draft TORs will be submitted to ZEMA and await comments. Upon receiving comments and incorporating them into the TORs, submission of final copy to ZEMA will be done then await approval and or further incorporation of issues into the TORs. The Terms of Reference will be submitted together with the Scoping Report.

Once approved, the consulting team will conduct project impact assessment, EIS draft report writing and project disclosure to the relevant and affected stakeholders. Concerns, vies and comments from the stakeholder disclosure of the project will be incorporated in the draft Environmental Impact Statement to be submitted to ZEMA for review and comments. On receipt of comments, the consulting team and developer will address the comments and incorporate appropriate changes in the final EIS for submission to ZEMA for review and payment of review fees.

The table 5, below describes the activities and particular tasks that will be undertaken in the process of conducting the Environmental Impact Assessment for the proposed development of Shimabu Mine.

The following activities will be undertaken during Shimabu mining limited scoping meeting;

- ✓ Identify stakeholders and affected/and or interested parties to the project development considering that is being implemented on greenfield where no previous industrial or Mining activities have been undertaken.
- ✓ Deliver invitation letters for stakeholder meeting to interested and affected parties.
- ✓ Hold stakeholder and scoping meeting for the project.
- ✓ Obtain views (as minutes) of the affected and interested parties as regards the proposed project.

Activity	Task	Comments	Status	
Screening	▪ Consultant to discuss with developer and ZEMA to determine whether a full ESIA or a less detailed study is required. ▪ Consult from ZEMA, the category or schedule in which the proposed project falls under. ▪ Determination of the possibility undertaking a Resettlement Action Plan	Shimabu Mining limited intends to conduct coal mining activities Therefore, Shimabu Mining Limited requires a full ESIA for all proposed operations. This is enshrined in the Mines and Minerals Development Act and further under 2 nd schedule of the EIA regulations SI No. 28 of 1997.	Done JUNE 2025	
		A Resettlement Action Plan for Project Affected people within Shimabu mining limited proposed mining activities will be undertaken. The proposed Large Scale Mining Activity in License No. 22137-HQ-LEL has a number of inhabitants within the license area.	In Progress	
Scoping and public consultative meetings	▪ Identify stakeholders and affected/and or interested parties to the project development considering that is being implemented in a virgin Greenfield area. ▪ Deliver invitation letters for the scoping meeting to interested and affected parties. ▪ Hold scoping and stakeholder consultative meeting. ▪ Get views (As minutes) of the affected and interested parties as regards the proposed project.	Key stakeholders were identified and written to concerning Shimabu Mining Limited's acquisition and intention to develop a coal mine in Chief Chipepo's Area. Stakeholders included: Local stakeholders, local Authority, Government Ministries and Departments. Others are the Royal establish of chief Chipepo, and local residents of the project Area. Stakeholder meetings was held at Sompani primary School. Stakeholder meeting was held on 6 th November 2025 and the EIA scoping meeting was held on 19 th November at Sompani Primary School. Representation in the two consultative meetings were from local stakeholders and relevant government within the district and project area.	Done Wednesday 6 th November 2025 and Wednesday 19 th November 2025	
Scoping report	▪ Compile a scoping meeting report. ▪ Screen critical issues to include in the TORs. ▪ Submit the scoping meeting report as draft terms of reference for conducting the EIA to ZEMA. ▪ Wait for comments from ZEMA. ▪ Incorporate comments into the scoping meeting report (TORs) and resubmit to ZEMA. ▪ Wait for approval or further comments by ZEMA.	This is the outcome of the Scoping Activities and it is the current stage. ZEMA will comment on the Scoping Report and advise what other critical issues should be included when conducting the ESIA.	November 2025	

	▪ Explore and describe the proposed project in detail. ▪ Explore and describe the project alternatives in detail in terms of location and processes. ▪ Characterize all identified impacts. ▪ Identify both the potential positive and negative impacts. ▪ Suggest possible mitigation measures against the potential impacts. ▪ Document environmental management plan and the social management plans for the project. ▪ Draw or come up with the closure and decommissioning plan. ▪ Draw or come up with an environmental monitoring plan for both operational and closure & post closure periods.			
Preparation of the draft EIA report	Conduct Environmental Baseline studies for the project undertaking for Soil, Water, Air quality, noise, terrestrial Flora & Fauna ▪ Each expert to write a report on findings during the EIA study. ▪ Compilation (putting together) of the reports into a draft EIS report.	The report shall be prepared in accordance with the format in this Scoping Report as well as comments from ZEMA. Conduct population census of the project area and include asset inventory of the affected persons. Indicate the cutoff date for purposes of the RAP to the PAPs. Conduct a socio-economic impact assessment of the project on the local inhabitants and ensure guidance of the National Resettlement Policy when undertaking the RAP negotiations with the affected persons.	December 2025	
Public disclosure of the draft EIA report	• Disclosure of the draft document to the affected and/or interested parties. • Deliver invitation letters for the disclosure meeting to interested and affected parties. Get the concerns/ issues from the affected and interested parties which may have been left out in the draft EIS report	All stakeholders will be informed of the progress and stage of the EIA process and obtain their views on the project undertaking by the developer.	December 2025	

Revising the draft EIA report to include concerns from the public and Submission to ZEMA	• Asses and evaluate the concerns/ issues about the project. • Include the concerns/ issues that are critical and had been omitted in the EIS report. Submitting the draft EIA report to ZEMA for internal review.	The EIA team shall revise the draft report to ensure that necessary concerns from the public are included and addressed. The report shall be submitted to obtain further regulatory advice on the quality and adequacy of the report as indicated by ZEMA.	Dependent on ZEMA	
Preparation of final EIA report	• Receive comments on the EIS report from ZEMA ✓ Incorporate the comments in accordance with ZEMA requirements and recommendations Submit final EIS report to ZEMA.	The EIA team shall revise the report to ensure that comments from ZEMA are addressed Once comments from ZEMA are addressed, final copies of the EIA report shall be prepared and 12 hard copies and an electronic copy shall be submitted for review upon payment of review fee. The EIA Report will incorporate an accompanying RAP document.	Dependent on ZEMA	
Decision making and issuance of a Decision Letter by ZEMA	Developer awaits decision from ZEMA Developer receives decision letter.	After review in accordance with legal provisions, a decision shall be made by ZEMA.	Dependent on ZEMA	

The process of writing the Environmental and Social Impact Assessment will constitute two major activities;

I. Preparation of the draft EIS report and preparation of the final EIS report.

The tasks involved in these activities have been outlined in the table above. Each expert, after conducting their respective areas of study will compile specialized reports which shall be used to prepare the draft EIS report. The preparation of the EIS report will be done in accordance with the guidelines and formats required by ZEMA.

A disclosure meeting with identified stakeholders will be held in respect of the project after preparation of the draft EIS report. The meeting will address concerns and comments raised in the stakeholder's submissions prior to submission of TOR's and also determine if these concerns have been adequately addressed by the developer and consulting team. When fresh comments have been incorporated, the draft report will then be submitted to ZEMA for internal review.

II. Submission of final EIS.

After receiving the comments, issues raised by ZEMA will be addressed and incorporated into the report. A final report will then be submitted upon satisfying the comments resulting from the ZEMA internal review.

5.1 Spatial extent of the Environmental Impact Assessment work to be undertaken

The EIA study will be undertaken to cover primarily the environmental, socio-economic and cultural impacts of the project undertaking on the immediate environment in Shimabu Mining Limited area covered by License No. 22912-HQ-LEL.

The consulting team will study the social and cultural impacts of the development on the local people as well evaluate the positive impacts of developing Shimabu Mining Limited to a large-scale Coal mine. The study will also determine the impacts of the project on social amenities located in the area resulting from the likely influx of population seeking employment. This may also extend to the impact of the spread of HIV/AIDS as result of the creation of employment at the Mine site.

During the operation of the Mine site, excavations effect on air quality and ground water will be studied and reported on by the consulting team especially effects on the surrounding Mine sites and settlements.

The study will also consider the extent of ecological disturbance by agricultural and exploration activities which estimated to be minimal considering that the Mine site is a Greenfield project with No prior Mining experience.

Prior to project implementation, the consulting team together with the developer, will hold a disclosure meeting with relevant identified stakeholders to obtain views, concerns and questions regarding the project to be undertaken.

5.1.1 Baseline Data and Information collection

Data and information on climate will be collected through review of historical data from different sources. These sources may include internet, available literature and data collected over a long period of time from established weather stations. Historical climatic information will be obtained from this source and cited.

Air Quality

To collect data on ambient air quality measurements, the Accuro dragger pump will be used to determine the presence and quantitative levels of gases. If historical data is also present it shall be reviewed and used (*Sources shall be quoted accordingly*).

Ground and surface water quality

For ground water quality and hydrology of the area, ground water samples will be collected from the two existing boreholes and analyzed by recommended laboratories. Ground water flow regimes & rates and quantities will be studied by the water resource expert of the consulting team. Surface water sampling will be done on the nearest water body in the area of influence.

Noise measurement

The noise level meter (*toptronic T325-IEC651 type II*) will be used to measure noise levels within and around the proposed project site to determine the noise levels and the noise buffer zone.

Geological data

Available data and information on the geology of the area will be reviewed and studied by the lead consultant who is also a mining /environmental engineer.

Soils

Soil studies will be conducted by the soil expert who is also an agricultural expert. A physical inspection and soil laboratory test will be conducted to determine the necessary soil parameters that shall be vital and necessary to this study. The developer had engaged a consultant to carry out a soil analysis and survey of the Mine site and consequently a soil survey report has been produced and submitted to the developer by the consultant.

Ecology

The team's ecological specialist will carry out an ecological study of the proposed project site and its vicinity. This shall be done by a physical inspection of the area to determine the flora and fauna species available. He shall identify all the species and single out the endangered and non-endangered species.

A Floristic Survey will be conducted to determine the flora type and population by making transects in the proposed site area to cover 30% of the area this will help the ecologist to assess the following:

Population of trees still available given that the land is a greenfield and anthropogenically disturbed.

Density and determine the shrub cover of the vegetation in the proposed project site area.

This methodology will help determine the type of vegetation and trees in the project area and possible calculation by estimate of how many trees were cut during the lifespan of the Mine site under the

previous owner. The Fauna assessment will be done to check if there is any disturbed and endangered species due to the proposed project.

These fauna species will be captured by different methods for identification, insect pit-fall traps, and Lamp traps will be set up. Flora and fauna assessment will include desk study of relevant information, habitat characterization, interviews with local people and actual findings in the proposed project site area. Vegetation structure, composition due to historical land use practices, mining will be used to assess and identify endangered, non-endangered species and invasive species.

For land use, cultural set up and socio-economic activities, the social scientist will use questionnaires, checklists and personal interviews to collect the necessary data and information in these areas. The social component of the EIA study will incorporate population census and characteristics of the project area, socio- economic activities of the people the area and cultural setup. The impacts (both negative and positive) resulting from the project undertaking will be determined and evaluation made of the positive impacts against the negative ones. Mitigation measures of the negative impacts will be recommended and positive impacts enhanced. The proposed project will require undertaking of the

5.1.1.1 Use for Baseline Data and Information

To compare the data and information with standards established by ZEMA and any other relevant laws regarding the Environmental Impact Assessment in particular and the entire proposed project in general. To know, establish and document the current status of the proposed project site and its vicinity. To determine the area of influence of the project impacts relating to the proposed mining activities.

5.1.1.2 Goals for the Baseline Data and Information

To evaluate compliance to the EIA after the project is implemented. To relate how the proposed project site and its vicinity will be impacted by the activities of the proposed project.

To relate as to what measures could be implemented to mitigate against the potential impacts.

6.0 METHODOLOGY IN ANALYSIS OF ENVIRONMENTAL IMPACTS

6.1 Summary of baseline data and information required

The data and information on climate, air quality, surface water quality, noise & vibrations, geology, hydrology, topography, land use, soil, land tenure, fauna, flora, social economic and cultural set up shall be collected by respective expert team members.

a) Baseline study methodologies

- i. Flora and fauna study: This study will incorporate composition of tree species, populations, and concentrations of the various flora within the project area. Flora study will entail use of the transect method to determine the flora population of the area. Fauna studies will include field walks and observations of the various animal species within the project area as well as interviews with the locals of the existence of various animal species.
- ii. Soil analysis: soil analysis studies will be undertaken to determine the suitability of the soils for agricultural use through nutrition content tests from soil samples to be obtained from selected points on the Mine site. Trial runs have so far been undertaken through planting of the proposed crops on a pilot scale.
- iii. Air quality analysis: Ambient air quality analysis will be undertaken using a dragger pump to determine the concentration levels of CO, SO₂, NO_x and dust dispersion rates within the occupied areas, proposed active Mining land and near active areas of the Mine site. Ambient air concentration limits from ZEMA will be used as a guide to determine whether results are within allowable range.
- iv. Noise and vibrations: predictive noise levels and vibration analysis will be undertaken using the vibrometer and sound level meter (*lastron type II*). IFC noise and vibration limits will be used as guide to determine maximum allowable levels for Mining Activities.
- v. Water quality analysis: Water sampling will be undertaken from selected points on the nearest water bodies within the mine license area. Analysis will include bacteriological, chemical and physical tests to determine suitability for consumption by the various users of the rivers downstream of Shimabu Mining License.

Table 34: Noise Level Guideline

Noise Level Guideline ⁵⁴		
Receptor	One Hour L _{Aeq} (dBA)	
	Daytime 07:00- 22:00	Night time 22:00 -7:00
Residential; institution; education ⁵⁵	53.5	41.4
Industrial; Commercial	59.6	46.3

Adopted from IFC EHS general guidelines.

Baseline climatic data is presented below. Climatic, geological, topographical, hydrological data will be collected through desktop reviews of existing conditions of the project area. Existing data of the project area is presented below.

b) Social economical study

The social economical study will be conducted by a sociology expert who has highlighted those interviews with locals as well as data from the local social welfare offices will be utilised.

c) Methodology for the Resettlement Action Plan

The development of the Coal mine may result in the relocation, resettlement and compensation of project affected persons residing within the proposed mine area in Sompani Village. In line with National Resettlement Policy and adoption of the IFC performance standard 5 (IFC-PS 5) on involuntary resettlement, Shimabu Mining Limited will work with the Disaster Management and Mitigation Unit under the Office of the Vice President to ensure the Resettlement activities are undertaken in fulfilment of the requirements and to further ensure livelihood restoration for the project affected Households. The planned RAP activities will include;

- ✓ Identifying the number of people, structures, source of livelihood and duration settlement in the project area by observations, interviews and consultations with the local people, the social welfare department and Chief Chipeco's royal establishment.
- ✓ Undertaking an inventory of immovable and movable assets for the affected families within proposed the mine area and generate a valuation report to compute the compensation cost per household.
- ✓ Find options that have a minimal impact on the livelihoods of the settlers and establish good community relationships.

Resettlement options will include:

- (a) Land for land compensation which will entail relocation to a new host community with replacement of the land currently economically occupied. Compensation for the loss of fixed assets in the form of total replacement of the dwellings and other structures affected.
- (b) Land for land compensation for agreed size of land and monetary compensation for the rest of the land that is economically occupied with replacement of all fixed assets that will be lost.
- (c) Monetary compensation to the value of the assets currently owned and relocation package and the PAP will choose their alternative settlement area.

The specific objectives of this Resettlement Action Plan will be:

- ✓ To Avoid and Minimize involuntary resettlement resulting from all components of project.
- ✓ Adversely affected people are fully compensated for the loss of assets, livelihoods, access rights, etc. before eventually relocating them and implementing the project
- ✓ The livelihoods of displaced people are re-established and the standard of living improved.
- ✓ Ensure no impacted person is worse off as a result of the project.
- ✓ Assist adversely affected persons in dealing with the psychological, cultural, social and other stresses caused by compulsory land acquisition.
- ✓ Make all affected persons aware of processes available for the redress of grievances that are easily accessible and immediately responsive.
- ✓ Have in place a consultative, transparent and accountable involuntary resettlement process with a time frame agreed to by the sub-project.

6.1.1 Climate

The Southern Province has a tropical climate with three distinct seasons: the warm-wet, cold and hot season. for Gwembe's coldest month is July at 14.8°C on average and the hottest dry season is experienced during the months of September and October, with October being the hottest month of the year with an average of 23.7°C and the annual average temperature of 20.0°C. The annual averages rainfall for Gwembe is 840mm, most of which falls in the months of December to February. The driest month is July.

Rains in Southern Province like the rest of the country are caused by the convergence of the North-east and South-east Trades that form the Inter-Tropical Convergence Zone (ITCZ). The rainy season of the province is relatively long and the mean annual rainfall is relatively high. The average length of the rainy season is just over five months with the December, January and February period experiencing greatest rainfall while November and March have less.

Table 35: Southern Province Temperatures

SEASON	MONTHS	Min Temperature{°C}	Max Temperature{°C}
Cool dry season	May to July	8	21
Hot dry season	August to October	21	32
Hot wet season	November to April	16	24

6.1.1.1 Relative Humidity

Relative humidity varies throughout the year, reaching peak in the wet season. Wet season humidity levels are about 83%, dry season humidity levels are 41%, with mean relative humidity of the area recorded as an average of 65.0%. of the Lusaka climatic conditions. The annual relative humidity of the area is 65%, while the average monthly relative humidity ranges from 40.9% in September to 83% in February. The table below shows the summary of relative humidity of the project area.

Table 36: Relative Humidity

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Relative humidity %	82.5	83	79.7	73.4	65.9	61.1	54.6	46.6	40.9	47.3	64.9	80.4

6.1.2 Geology

The geology of the Southern Provinces is of a complex nature. The basement rocks are overlaid by the Muva, Lower and Upper Roan, Mwashia Upper and Lower Kundelungu series. Large parts of these have been irregularly deposited and irregularly eroded over time.

The Basement complex and the Muva system comprise a series of Schist, Quartzites, Gneisses and intrusion of Granite. On the Muva and Basement rocks are sedimentary rocks of the Katanga system which are considered to be of the late Pre - Cambrian age. The rocks of the Katanga System are widespread on the Kafue and parts of the Mazabuka District and are divided into three groups, which have a fairly well-defined sequence throughout the study area. The lowest of the three is predominantly arenaceous and is formed of conglomerates, sandstones and quartzites, where all the mineral ore deposited are said to occur.

The second and upper group comprises dolomites, shales and limestones with thin beds of sandstones while the uppermost group comprises inter-bedded argillites and dolomites. The above-mentioned

rock groups have undergone the process of structural folding forming a series of north-west/south-east trending anticlines and synclines plunging generally to the north-west. The subsequent erosion has removed the higher parts of these structures and the Katanga sedimentary rocks are now represented by a series of pedi-plains composed of synclinal basins and anticlines.

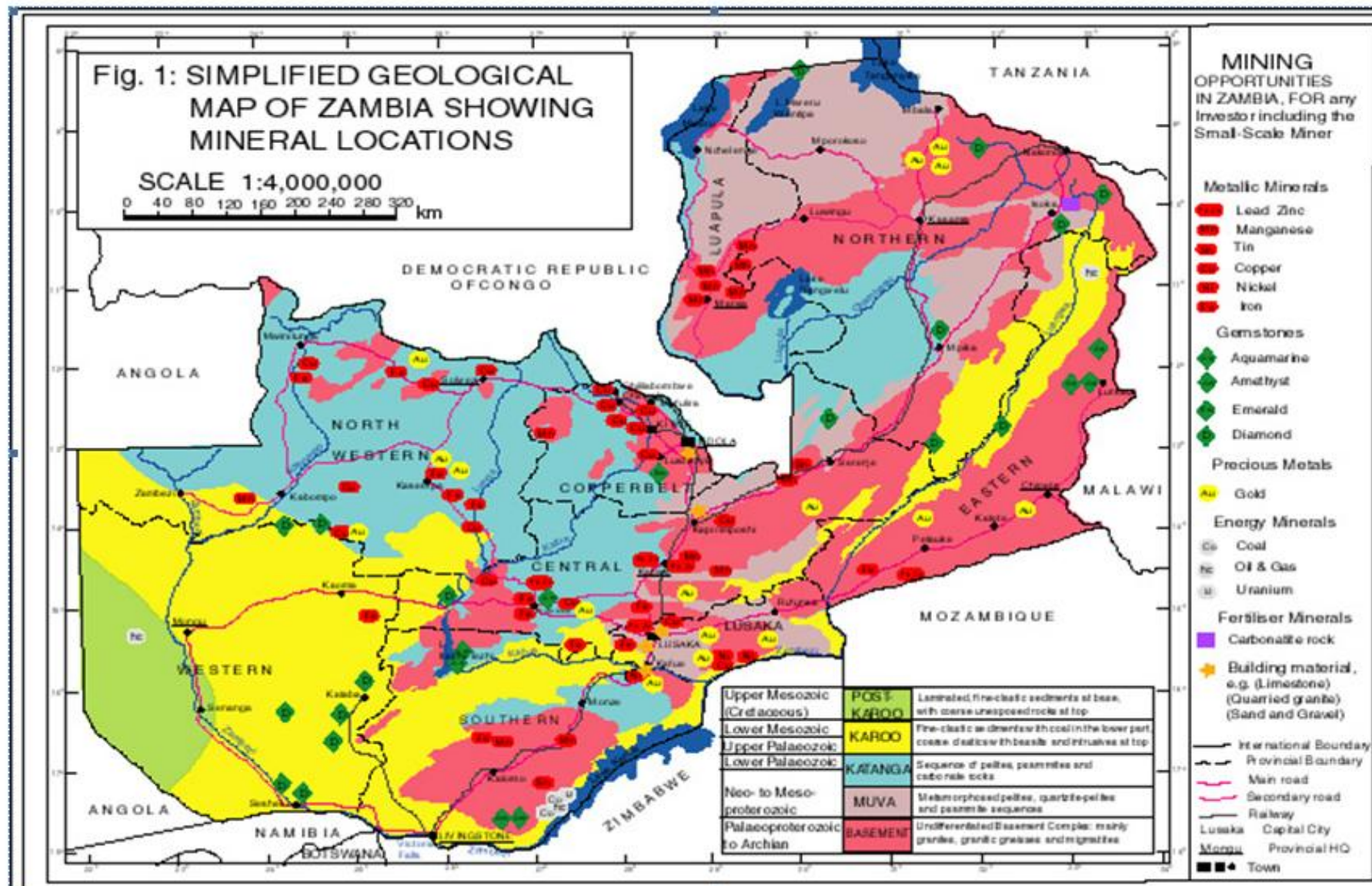


Figure 4: Geological map of Zambia

6.1.3 Topography

Southern Province and Gwembe District are situated at an average elevation of about 1200m above sea level. The area forms a gently undulating plateau rising to low hills of about 1400m in Kafue – Mazabuka and dropping area to about 1,130m to the south. The plateau is broken by isolated low ranges of granite or quartzite hills rising to heights of 100m above the general level of the plateau. A widely occurring and very noticeable characteristic of the greater part and one arising from a combination of topography and hydrology are the flood plains and dambos. The headwater dambos are a very common feature occurring on all gently sloping valleys. The headwater dambos are significant for the hydrology of the project area. The area has steep sided valley of high relief and represents the topographic boundaries between the plateau and the Zambezi Rift valley. The plateau area has elevations ranging from 1000m and 1100m above sea level.

6.1.4 Hydrogeology

6.1.4.1 Surface and Ground Water

The project area mainly drains towards the east into lake Kariba located approximately 17 km East of the site.

6.1.4.2 Drainage

The project area is immediately drained by tributaries to the Lake Kariba in the East and South. The lake Kariba is the main and ultimate drainage of the project area and its surrounding.

6.1.4 Land tenure and land use

All land in the country is vested in the hands of the president who holds it on behalf of the citizens. The Commissioner of Lands administers land on behalf of the president of the republic of Zambia.

There are two main forms of land tenure in the district, which are Trust and Traditional Land tenure systems. Trust Land is state land under the control of the President through the Commissioner of Lands, leased to various establishments. The Traditional Land tenure is the dominant system in the district where Chiefs allocate occupancy and use rights. However, since all land is vested in the President, this land can still be converted to state land through consultations with the Chiefs. Mountains dominate the land so much that land for settlement is only found in isolated pockets. However, most of the habitable land is used for agriculture. Traditionally, men control most of the land. They decide on the use of the land While women have limited say over what to do with the land. Land uses include mining, individual/residential, industrial and commercial, parks and open spaces and urban agriculture.

The above-mentioned land uses, with the exception of reserve land, can be leased to individuals for a period of ninety-nine years. The president reserves the right to allocate and withdraw rights to own land in the country. The license area falls within Chief Chipepo's chiefdom and is currently under customary tenure.

6.1.5 Built Environment

The proposed project site consists of virgin land with minimal anthropogenic disturbance and therefore has few built structures found within the periphery of the license area. Notable infrastructure within the exploration sites includes New apostolic church and bridge as well. The area has a significant number of settlers with diverse construction type of dwellings and social infrastructure such as churches and cattle holding facilities.

6.1.6 Social Economic environment

Southern province boasts of the many coal mine sites in Zambia. The mine area has enough coal reserves, to supply both local and international markets. However, the operating viability is threatened by inadequate production equipment, working capital and has huge company liabilities. Traditionally, the project area falls within Chief Chipeco's area whose major economic activity is subsistence farming and rearing of animals. The prominent ethnic group here is the Valley Tonga. The population distribution follows the physical characteristics of the district.

6.1.7 Population characteristics

Southern Province has a population of 1,589,926 accounting to 12.08% of the total Zambian population of 13,092,666 (CSO 2010 Census). There were 779,659 males and 810,267 females, making the sex ratio to 1,039 for every 1,000 males, compared to the national average of 1,028. The literacy rate stood at 71.20% against a national average of 70.2%. The rural population constituted 75.33%, while the urban population was 24.67%. The total area of the province was 85,283 km² and the population density was 18.60 per km².

The project area falls within Siamuluwa of Gwembe Constituency. Gwembe has a population of 53117 inhabitants of which 51.2% are females and 48.8% are males with a population density of the project area in Siamuluwa of 5.07/km². The project area is predominantly a rural setup and is located 58.8km NW of Sinazeze as the main access point to the proposed mine site.

6.1.8 Cultural setup and heritage

Southern Province has a diverse mix of ethnic or tribal groupings with their corresponding Bantoid languages. The principal ethnic groups and their languages are given in the table 8 below;

Table 37: Ethnic Groups of Southern Province

Ethnic Group	Language
TONGA The Tonga people are found in Mazabuka, Choma, Monze, Pemba Namwala, Sinazeze and Livingstone Also spoken in Zimbabwe and to a lesser extent in Mozambique	There are two distinctive dialects of Tonga; Valley Tonga and Plateau Tonga. Valley Tonga is mostly spoken in the southern areas of southern province (Tonga people) while Plateau Tonga is spoken more around Monze District.

The main tribe in the area is Tonga and to a less extent lozi. The main language spoken is Tonga. The Tonga language is officially taught in schools. It is also used in literacy campaigns, agricultural

extension services, newspapers and radio programmes. Tonga is also widely used. Intermarriages across tribal lines are common and people usually live together in harmony.

The Lwiindi Traditional ceremony of the Tonga people is an annual festival of thanks giving which is held in Monze district of the Southern Province.

The Ceremony is the main annual ceremonial event observed in to thank God and ancestors for the land and harvest. The Lwiindi traditional ceremony encompasses several ceremonies; all of them are connected to praying for rain. The main ones are the Lwiindi Gonde, held southwest of Monze town, and the Maanzi Aabila Lwiindi, in Chief Siachitima's area in Kalomo. They are held annually. The Tonga lwiindi ceremony are performed at the shrines called Gonde, which means thick bush. The Tonga visits these shrines to ask for rains from their ancestors or assistance with eliminating disease.

At the shrines there are two huts built on top of the graves of the sacred Tonga chiefs, Mayaba and Nchete Ilya Mabwe. In praying for the rains, the Tonga brew beer, slaughter a black goat or chicken or even a cow.

While in shrines there are rules to follow such as: Women are not allowed if they have their menstrual period, an animal slaughtered at the shrine should be roasted and eaten without adding salt, and consumed right at the shrine, everybody must remove their shoes and socks, any person going to the shrines must be clean of mind and body, one should not have sex the night before going to the shrine and a thousand and one rules! This is the main ceremony which takes place in July. The Reason is that chief Monze is considered to be the most senior leader. The ceremony is held at Gonde, where it is claimed the first Chief Monze just disappeared but did not die. The place became the burial place for all chiefs but so far only two have been buried there.

Lwiindi means thanks giving for the harvests. These thanks are directed to Tonga ancestors, especially the first Chief, Monze Mukulukulu. It is believed that Monze Mukulukulu was blessed with wisdom, was a rain maker and could eradicate diseases. The Tonga people would travel long distances to come and seek his advice. Before they spoke to him, they would present him with traditional hoes (maamba) made from smelted iron.

6.3 Impact Evaluation and Analysis

6.3.1 Environmental Inventory

The first step in evaluating the environmental impacts that the proposed project will have will be to establish an inventory of factors that may be affected by the proposed action. Such an inventory may include but not limited to;

- ✓ Hydrology, geology, climatology, and archaeology.
- ✓ Land/ soil, surface and ground water, air, noise and transportation.
- ✓ Plant and animal life.

- ✓ Socio-economics of the surrounding community.
- ✓ Risks to both animals and the environment from accidents that may occur as a result of implementing the proposed project.

6.3.2 Environmental Assessment

This is the process of estimating the effects that a proposed action will have on both the biophysical and socio-economical environments. This process shall be methodical, reproducible and reasonable to both effects of the proposed action and its alternatives.

A number of semi quantitative approaches, among them the checklist, the interaction matrix, and the checklist with weighted rankings, have been used.

In this study the interaction matrix shall be used. Interaction matrixes are interactions of the proposed actions and the existing environment and are used to predict potential environmental impacts, both primary and secondary. Primary effects occur as a direct result of the proposed project, such as the effect of applying fertilizers and pesticides on aquatic life. Secondary effects occur as an indirect result of the action. For example, the proposed project may not directly affect the socio-economic pattern of all the people in that area, but indirectly it will result into an improved welfare.

Two key terms from the categories are direct or indirect, and cumulative; their definitions are as follows (*Council on Environmental Quality 1987*):

Direct or Indirect Effects (or impacts):

Two broad categories of effects are direct and indirect. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and occur later or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Cumulative impact: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

Based on these categories of impacts, several simple to more structured options can be used to determine impact significance.

The interaction matrix that will be used to assess the impacts for this proposed project will be divided into four phases:

- ✓ Preparatory/ Planning Phase
- ✓ Construction Phase
- ✓ Operational Phase
- ✓ Decommissioning and Closure Phase

During planning, consideration is given to the environmental effects of the proposed action involving acquisition and transportation of raw materials to the proposed project site. The construction phase checklist will include, noise, soil erosion, air and water pollution, and energy use.

Finally, the operation phase will list direct impacts owing to noise, water pollution resulting from runoff, energy use, etc., and indirect impacts owing to regional development, housing, lifestyle, and economic development.

The interaction matrix technique is a two-dimensional listing of existing characteristics and conditions of the environment and detailed proposed actions that may affect the environment. The interactions are measured in terms of magnitude and importance. The magnitudes represent the extent of the interaction between the environmental characteristics and the proposed actions and typically may be measured. The product of the magnitude and importance defines the significance of impact associated with that magnitude and importance (*Ruth Weiner & Robin Matthews, 2003*).

The matrix method developed by Leopold et al. 1971, is good example of an interactive matrix. The method involves the use of a matrix with one hundred specified actions and eighty-eight environmental items. Where an impact is anticipated, the matrix is marked with a diagonal line in the interaction box. The second step in using the Leopold matrix is to describe the interaction in terms of its magnitude and importance. The magnitude of an interaction is the extensiveness or scale and is described by assigning a numerical value from one to ten, with ten representing a large magnitude and one a small magnitude. Values near five on the magnitude scale represent impacts of intermediate extensiveness. Assigning a numerical value for the magnitude of an interaction is based on an objective evaluation of facts.

The characterization of impacts will be done in terms of defining the magnitude, geographical extent, frequency, duration and likelihood of these impacts. Further, social and environmental impacts shall be identified prioritizing them according to the associated environmental risk.

Table 38: Definition of Impact Analysis Factors

Impact Factor	Meaning
Magnitude	Refers to the strength with which an impact will have on the receptor.
Likelihood	The probability of the impact taking place.
Extent	The scope in space or geographical cover of the impact.
Frequency	The number of times or how often the impact shall occur.
Duration	The extent in terms of time.

Table 39: Impact Significance Analysis Scale

Scale	Magnitude	Likelihood	Extent	Frequency	Duration
1	Negligible	Impossible	Activity specific	Annual	6 months
2	Minor	Highly unlikely	Project Site	Bi-annual	1 year
3	Marginal	Unlikely	District	Monthly	3 years
4	Significant	Possible	Province	Weekly	6 years
5	Catastrophic	Definite	National	Daily	>6 years

Table 40: Significance Analysis Matrix Table

	(Magnitude) X (Extent) X (Duration)														
(Likelihood) X (Frequency)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150

Table 41: Impact Significance Rating

Significance	Matrix Value	Negative Impact Measure	Positive Impact Enhancement Measure
Very Low	1 – 30	Propose mitigation measure	Enhance
Low	31 – 60	Propose mitigation measure	Enhance
Medium	61 – 90	Propose mitigation measure	Maintain
High	91 – 120	Propose mitigation measure and pay more attention	Maintain
Very High	121 – 150	High risk area, propose mitigation measures and have high monitoring frequency	Maintain

A scale of 1–5 will be used to score each of the environmental impacts in terms of magnitude, extent, duration, likelihood and frequency. The figures shall then be added and multiplied as shown in the table below.

Table 42: Example of how the matrix above will be used

Air Pollution Due to Dust Generation from Access Roads on the Mine site	
Magnitude (M)	Significant (4)

Duration (D)	>6 years (5)
Extent (E)	Local (1)
Frequency (F)	Daily (5)
Likelihood (L)	Definite (5)
Total Score (M x D x E) + (F x L)	45
Proposed mitigation measures	
✓ Water shall be sprayed using a water bowser ✓ Appropriate dust masks, goggles and work suites shall be provided to workers operating machinery on dusty roads ✓ New employees shall be inducted on safety requirements when working in dust prone areas and safety talks shall be conducted frequently. ✓ Signs shall also be installed to educate workers about the health dangers of inhaling small particles of dust.	
Air pollution after applying mitigation measures	
Magnitude (M)	Marginal (1)
Duration (D)	>6 years (5)
Extent (E)	Local (1)
Frequency (F)	6 months (1)
Likelihood (L)	Definite (5)
Total Score (M x D x E) + (F x L)	10

7.0 STAKEHOLDERS AND AFFECTED PARTIES CONTRIBUTIONS

The historical background about the grant of the exploration area by SML. Relevant stakeholders and prospective affected people and other interested parties were invited for the project scoping meeting. The stakeholders identified both at local and district level that may have interest in the project undertaking and those directly affected by the proposed development. Two consultative stakeholder meetings were held in respect of the proposed coal mining activities. Stakeholder engagement included disclosure of the proposed mining activities through invitations to the scoping meetings. Summary details of the stakeholder engagement meetings are presented below;

Table 43: Meeting Details

Meeting date	Meeting details	Venue & Total attendance
6 th November 2025	SML Management Meeting with HRH Chief Chipepo and Chief Representative and local headmen to discuss the proposed project and the details, rationale and agreements as regards the company CSR and mitigation measures for the anticipated impacts of the project undertaking.	Sompani Primary School. A total of 23 stakeholders attended the meeting
19 th November 2025	ESIA stakeholders scoping meeting to discuss the proposed development of SML large scale coal mine, the area to be covered by the proposed mining activities, project benefits and impacts of the project on the local people. Land acquisition and ownership issues as well as Resettlement preliminary activities that form part of the scope of the ESIA.	Sompani Primary School: Sompani primary School. 59 stakeholders attended the scoping meeting and diverse views were exchanged during the meeting.

NB: minutes of the two meetings are attached in the appendices of the report



SUNDAY MAIL, November 16, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) **SCOPING MEETING**

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

IN LINE WITH THE ENVIRONMENTAL MANAGEMENT (AMENDMENT) ACT NO. 8 OF 2023, READ TOGETHER WITH THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION OF 1997, SHIMABU MINING LIMITED INTENDS TO UNDERTAKE THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY FOR THE PROPOSED PROJECT AS PER REQUIREMENT.

IN VIEW OF THE ABOVE, SHIMABU MINING LIMITED HEREBY INVITES YOU TO THE PROJECT EIA SCOPING MEETING FOR THE PROPOSED PROJECT TO OBTAIN INCLUSIVE VIEWS AND CONCERNS FROM ALL STAKEHOLDERS.

DATE: WEDNESDAY 19TH NOVEMBER 2025

TIME: 09:00HRS

VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED

Office line: +260 211 222 029 Mobile Line : +260 966 656 697 and +260 979 609484

Email : environmentalgreenline@gmail.com

RSO398322/16.18.11

5
ZAMBIA DAILY MAIL, Tuesday, November 18, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) SCOPING MEETING

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

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TIME: 09:00HRS

VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED

Office line: +260 211 222 029 Mobile Line : +260 966 656 697 and +260 979 609484

Email : environmentalgreenline@gmail.com

8.0 SPECIALIST STUDIES

Various specialist studies will be conducted and consultations with the affected people shall also be conducted through a public disclosure meeting with the affected people, surrounding communities and other interested stakeholders.

From the stakeholder responses through written submissions and oral interviews/consultation conducted, the need to undertake some specialist studies was identified and others studies shall be done by secondary information.

The scope of specialist studies is presented in the table below as developed through scoping consultation and review of relevant EIA guidelines.

Table 44: Scope of Specialised Studies

No.	Specialist study	Scope of study
1	Topography, soil survey and land evaluation	✓ Physical characteristics of soil. ✓ Chemical characteristics of soil. ✓ Topography.
2	Noise and Vibration	✓ Baseline vibration in the area. ✓ Baseline noise levels in the area. ✓ Sources of vibration in the area. ✓ Sources of noise in the area
3	Air quality	✓ Baseline air quality in terms of pollution and potential pollutants and their sources in the area.
4	Soil quality	✓ Baseline soil quality in terms of pollution and potential pollutants as well as their sources.
5	Socio-economic studies	✓ Population and distribution. ✓ Existing social facilities and services. ✓ Sanitation services and facilities in the area. ✓ Identification of major economic activities.
6	Flora and fauna study	✓ Ecological assessments to evaluate potential for wild animals. ✓ Tree species diversity and distribution. ✓ Classification of vegetation types
7	Ground water quality and availability	✓ Ground water quality and availability. ✓ Hydrology and drawdown

9.0 POTENTIAL IMPACTS

The mining activities by Shimabu Mining Limited will result in both positive and negative impacts preparation, construction and operation phases of the undertaking.

9.1 Positive project impacts

Positive project impacts anticipated from the undertaking will include but not limited to the following;

- ✓ Project affected people will obtain security of tenure of land currently occupied once demarcation is undertaken.
- ✓ Increased employment and business opportunities for the local people.
- ✓ Socio-economic change through increased revenue, disposable income and availability of goods for the local people.
- ✓ Increased revenue for the local authorities in the district as well as central government through taxes, export charges and levies.
- ✓ Enhanced Standard of living resulting from increased socio-economic activities in the area.

9.2 Negative project impacts

Negative impacts may occur during the project implementation lifecycle. These will be mitigated in accordance with applicable regulatory requirements. Anticipated impacts include;

- ✓ Possible ground water contamination resulting from chemical, oils usage.
- ✓ Flooding of other subsistence Mine sites as a result of drainage blockages along the boundary of the Mine site and the road.
- ✓ Dust generation during the construction phase, through access roads and during mining activities.
- ✓ Changes in air quality due to mining activities
- ✓ Generation of noise by Mine site equipment.
- ✓ Loss of flora and fauna due to land clearing
- ✓ Damage to Cultural, historical and heritage sites (if any).
- ✓ Mushrooming of illegal settlements.
- ✓ Increased Crime, HIV/AIDS prevalence and Sexually Transmitted Diseases (STD's).
- ✓ Solid waste generation (Hazardous and non-hazardous).

10.0 THE EIA OUTPUTS AND DELIVERABLES

A draft copy of the EIS shall be prepared for consideration by ZEMA before preparation of the final report. The draft shall be a single hard copy that shall be submitted with a cover letter. Deliverables for the final EIS shall be twelve hard copies bound using durable material and an electronic copy on a Compact Disk. The EIS report shall comprise the Sections and Sub-sections presented below.

EXECUTIVE SUMMARY

This will describe the project background, the Mining objectives, location, shareholders, investment cost, project description, technology, project alternatives, potential impacts, mitigation/enhancement measures and lifespan of the proposed project. This will be signed by the by the developer and the study team.

NON-TECHNICAL SUMMARY *(The non-technical summary will be in English and in Tonga which is the local language commonly understood in the project area in Gwembe).*

A **summary (not detailed)** description of the proposed project in a layman's language including:

- The project
- Location of the project area
- Investment cost of the Mining Activity
- Major potential impacts
- Positive: e.g., Employment opportunities, boosting of local economy, infrastructure development,
- Negative: e.g., damage to land, plants and animals; pollution of water & air; displacement of people;
- Mitigation for negative impacts and enhancement measures for positive impacts

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background of the project

1.2 Summary description of the project including project rationale

1.3 Objectives the project

1.4 Brief description of the Location

1.5 Particulars of Shareholders/Directors

1.6 Percentage of shareholding by each shareholder

1.7 The developer's physical address and the contact person.

1.8 Track Record/Previous Experience of Enterprise Elsewhere

1.9 Total Project Cost/Investment

1.10 Proposed Project Implementation Date

2.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

2.1 Policy, legal and institutional framework relevant to the project

- Policy, legal and institutional framework relevant to the project
- Specific sections of the cited policy, legal and institutional framework relevant to the proposed project.
- Relevance of cited sections to the proposed development
- Compliance (how the development complies/will comply to the cited sections)

2.2 International agreements and Conventions

- *International agreements and conventions relevant to the proposed project.*
- *Specific sections of the agreements and conventions relevant to the proposed project.*
- *Relevance of cited sections of the agreement or convention to the proposed development*
- *Compliance (how the development complies/will comply to the cited sections)*

3.0 PROJECT DESCRIPTION

3.1 Location

- *This will include the spatial extent of the proposed project site (i.e. Southern Province, Gwembe area etc.)*
- *Land marks and their distances from the proposed site to help identify proposed project site*
- *Identify surrounding developments*
- *Provide coordinates of the proposed site where applicable*

3.2 Nature of the Project

- *Raw materials (including hazardous materials and their storage on site)*
- *Process and technology (including flow diagrams)*
- *Products and by-products*
- *Production capacity*
- *Schedule and life time of the project*

3.3 Main activities

- *Site preparation phase*
- *Construction phase*
- *Operation phase*

4.0 Project Alternatives

4.1 Identification of alternatives such as but not limited to:

- i. *Product/service*
- ii. *Site of the ponds*
- iii. *Design of the ponds*
- iv. *Technologies of mining operation*
- v. *Process*
- vi. *Raw material of construction and Operations.*

4.2 Analysis of each of the identified alternatives

4.3 List of chosen alternatives in order of preference

4.4 Reasons for choosing the preferred alternatives and rejecting the other alternatives

5.0 Environmental Baseline Study

Baseline data will include but not limited to the following:

5.1 Climate

- *Rainfall, Temperature, Humidity, Sunshine, etc.*

5.2 Air quality

5.3 Geology

5.4 Hydrology

- *Surface water quality*

- Groundwater quality

5.5 Hydrogeology

5.6 Topography

5.7 Soils

5.8 Land use and land tenure

5.9 Built Environment

5.10 Noise and vibration

5.11 Fauna

- Terrestrial species (Include common names and respective scientific names)
- Aquatic species (Include common names and respective scientific names)
- Identification of rare or endangered species (Include common names and respective scientific names)

5.12 Flora

- Terrestrial species (Include common names and respective scientific names)
- Aquatic species (Include common names and respective scientific names)
- Identification of rare or endangered species (Include common names and respective scientific names)

5.13 Birds

- Field survey of bird species (Include common names and respective scientific names)
- Identification of rare and endangered bird species

5.14 Archaeological and cultural environment

- Identify and discuss cultural practices
- Identify and provide location for significant historical or archaeological features

5.15 Social-economic set up

- Population
- Growth rate, population density and distribution
- Administration
- Social services and amenities
- Market availability on various commodities
- Literacy levels, health and gender equity
- Traditional and religious practices and rites
- Assess vulnerability and/or need for resettlement and compensation

6.0 Impacts

6.1 Biophysical Environment

- Positive – direct, indirect, short term, long term, reversible and irreversible, local, regional
- Negative – direct, indirect short term, long term, reversible and irreversible, local regional

6.2 Socio-economic and cultural

- Positive – direct, indirect, short term, long term, reversible and irreversible, local, regional
- Negative – direct, indirect short term, long term, reversible and irreversible, local, regional

6.3 Evaluation of impacts **significance** should combine:

- the **frequency** of occurrence of the impact
- the **duration** of the impact
- the **severity** of impact
- the **spatial extent** of the impact

- The **sensitivity** of the element being impacted.

7.0 Environment and Social Management Plan

7.1 Environment and Social Monitoring Plan (These will include environmental management cost estimates, responsible personnel and the frequency of monitoring)

Aspect*	Impact	Mitigation/ Enhancement measure	Frequency of Monitoring	Time frame	Performance indicator	Responsible person	Cost

*NOTE: Aspect is an activity, service or product that is likely to cause an impact due to interaction with the environment.

8.0 Decommissioning and Rehabilitation Plan

State environmental management commitments and associated costs

9.0 Bibliography

Full references of the main documents cited in the report should be given

10.0 Declaration of authenticity of report contents

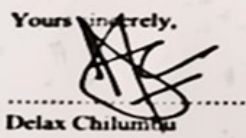
11.0 Appendices

- Letter of approval of ToR's;
- Approved ToR's with respective attachments (including the scoping report, Minutes of the consultative meeting/s and signed list of meeting attendees);
- Maps and satellite images;
- Figures (tables, charts, graphs, models, photographs);
 - Proof of Public consultation (Minutes and comments from the public during disclosure) and adverts;
 - Specialised study Reports (e.g. water, soil, air, flora, fauna, archaeology, geotechnical)
 - Raw data for the studies of baseline information gathered (water, soil, air, flora, fauna)
 - Any relevant legal documents (title deeds or lease agreements, certificates of Incorporation, agreements, asset valuation reports, approval documents, Investment License etc.);
- Bibliography
- Any other relevant supporting documents or information that cannot be presented in the main report

11.0 THE EIA STUDY TEAM

The table below presents the EIA team of experts who shall work together to ensure that the information requirements are met and presented accordingly. The table below presents names of the EIA team and their responsibilities. The curriculum Vitae of the EIA team members is attached in the Appendices.

Table 45: EIA Study Team

Name	Specialization/role	Signature
Gillan Simfukwe	Team leader, EIA advisor, Public Consultation, Impact Characterization, Impact Identification and analysis, Drawing Up the EMP. Description of the mining	
Mubanga Mwansa	Mining environmental Impact Analysis, Characterization of Waste streams, project EMP, Socio-Economic baseline, social management plan. Public consultations. Air quality, dust and noise measurement studies in the project area	
Anthony Kunda	Analysis of Fluorite mining impacts of the project, Impact characterization. Metallurgical processes advisory and formulation of mitigation measures associated with mining and excavations of the ore pits.	
Delax Chilumbu	Analysis of Acid base Impacts of the mining operations including acid base accounting based on the open pit operation plan of the mine.	
Wisdom Chasaya	Socio-Economic baseline, social management plan. Public consultations and stakeholder engagement. Socio-Economic baseline, social management plan. Public consultations. Coordination of the RAP activities in collaboration with the DMMU regional coordinator in Southern Province and Department of Social Welfare and in accordance with the National Resettlement Policy.	
Philip Chikasa	Water Resources Mgt Plan, Planning, designing, supervision of water resources quality assessment and monitoring activities at the project. Mine dewatering and underground water resources utilization study and Water quality evaluation.	
Shaitan Singh Chouhan	- Managing a team of Geologists in greenfield and brownfield project. - Coordinating all geological activities, budgets, contractor services & plans relating to the maturation of upstream exploration & new growth projects. - Providing geologically based interpretation, analysis & exploration recommendations. - Ensure that the exploration geological database is up-to-date, accurate & appropriate for all geological and mining needs. - Liaising with various Government regulating body for statutory compliance in India & overseas assignment. Technical evaluation & commercial negotiation of all contracts related to exploration & mining activities.	

12.0 PLANNED ACTIVITIES

Table 46: Planned Activities

No.	Activity	Timeline
1	Conducting stakeholder identification, scoping consultation meetings within the project site	Within two weeks from the date the contract was signed. This period facilitated consultations and necessary announcements
2	Preparation and submission of the Scoping Report to ZEMA	Within Six days from the date of the stakeholder meeting and obtaining views and/or concerns.
3	Approval of the Terms of References	Dependant on ZEMA
4	Draft Report and holding a public consultation meeting before submitting the draft report to ZEMA	Within three weeks from approval of the Scoping Report by ZEMA
5	Preparation of comments on the Draft Report by ZEMA	Dependant on ZEMA
6	Revising the draft report to incorporate comments from ZEMA	Depending on the gravity of comments, but tentatively within two weeks from date comments received from ZEMA
7	Public review of the final EIA report	Dependant on ZEMA
8	Decision Making on the project by ZEMA	Dependant on ZEMA. Maximum of 90 working days within which they should make a decision.

13.0 DECLARATION OF THE AUTHENTICITY OF THE REPORT CONTENTS

To the best knowledge of Greenline Environmental Solutions Limited (consultant) and Shimabu Mining Limited, the content of this report is the work of the consulting team and any work done by others have been quoted and referenced accordingly.

A handwritten signature in black ink, appearing to read "Juliet Sichobo Bushe". The signature is fluid and cursive, with a large initial 'J'.

Juliet Sichobo Bushe

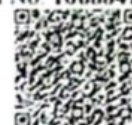
Director

Shimabu Mining Limited

14.0 APPENDICES

14.1 PACRA certificate of incorporation for Shimabu Mining Limited

Companies Form 7
Companies Registration No. 120180002053
Serial No. 1068841



SCAN TO VIEW
COMPANY REGISTRATION DETAILS



Republic Of Zambia

CERTIFICATE OF INCORPORATION OF COMPANY LIMITED BY SHARES

(Section 10)

This is to certify that SHIMABU MINING LIMITED is on and from the 13th day of March 2018 incorporated as a COMPANY LIMITED BY SHARES.

Given under my hand and seal at Lusaka, Zambia, this 13th day of March 2018.



N.J. Moola
Assistant Registrar of Companies

For further details relating to this business visit
<http://www.pacra.org.zm>

14.2 Shimabu Mining Limited Consent_Chief Chipepo



HIS ROYAL HIGHNESS CHIEF CHIPEPO

OWN PALACE

Lake Kariba P.O Box 1 Gwembe

Cell: 260 972 789/260 955 789 054 Email: mwamichipepo@gmail.com

30th September 2025

The Director,
Shimabu Mining Limited
Plot No.299b Mapanza Road
Kafue District

Dear Sir,

**RE: CONSENT TO UNDERTAKE MINING ACTIVITIES IN MY CHIEFDOM IN
LICENSE No. 22912-HQ-LEL IN GWEMBE DISTRICT**

Reference is made to your request to conduct mining activities in my chiefdom in particular LICENSE No. 22912-HQ-LEL in Siamuluwa area (Sompani village) in Gwembe District

In view of your request, the chiefdom council hereby grants Shimabu Mining Limited to undertake exploration and mining activities in the above license in adherence to all applicable regulations regarding the mining activities and the requirements of the Chiefdom.

Yours In Traditional Leadership


HIS ROYAL HIGHNESS
HRH CHIEF CHIPEPO



"CHIEFDOM UNDER GOD"

**Psalm 33:12" Blessed is the Nation whose "IN GOD WE TRUST
God is the Lord"**

14.3 Shimabubu Mining Limited Pegging Certificate

Form XXIX
(Regulation 58 (3))



REPUBLIC OF ZAMBIA
The Mines and Minerals Development Act, 2015
(Act No. 11 of 2015)
The Mines and Minerals Development (General) Regulations, 2016
PEGGING CERTIFICATE

Side	Distance (Metres)	Angles of Direction (deg, min, sec)	CO-ORDINATES SYSTEM: Geographical Coordinates Systems			
			Point	Latitude	Longitudes	Diagram No.
			SEE COORDINATES ATTACHED	SEE COORDINATES ATTACHED	COORDINATES ATTACHED	151/2022
Scale: 1:80000						
FIGURE: 1-2-3-4-5-6-7-8-9-10-36-1 REPRESENTS 3652.5970 HECTARES OF LAND FOR Shimabubu Mining Limited SITUATED IN Gwembe DISTRICT OF SOUTHERN PROVINCE OF ZAMBIA.						
SURVEYOR: A. Mwambwa		DATE: April 2022		SIGN:		
EXAMMINER: E. Chisenzi		DATE: April 2022		SIGN:		
LICENCE NO: 22912-HQ-LEL		BEACONS DESCRIPTION: Poles painted blue				



14.4 Exploration License 22912-HQ-LEL

Gwembe



REPUBLIC OF ZAMBIA

The Mines and Minerals Development Act, 2015
(Act No. 11 of 2015)
The Mines and Minerals Development (General) Regulations, 2016

LICENCE NO. 22912-HQ-LEL

LARGE SCALE EXPLORATION LICENCE
(Section 23 of the Mines and Minerals Development Act, No. 11 of 2015)

Holder's name: Shimabu Mining Limited

Address: Plot No. 229/B, Mapanza Road, Kafue, Lusaka

The Prospecting area shall be the area described in the Schedule and annexed hereto and bordered Blue on the Plan.

The licence relates to the following minerals: Coal

The licence is granted for a period of 4 years commencing on the 21st day of June, 2018

The conditions of grant of the licence are as shown in the Annexures attached hereto.

Issued at Lusaka this 5th day of May, 2024.


.....
Samuel C. Maango
Director

ENDORSEMENT OF REGISTRATION

This Large Scale Exploration Licence has on this 21st day of June, 2018 been registered in the Register.


.....
Samuel C. Maango
Director

14.6 ZEMA Approval Letter for the Exploration activities in License No. 22912-HQ-LEL

	Head Office Corner of Church & Suez Roads P.O. Box 35131 Lusaka, Zambia Tel: +260 211-254023/254059	<i>All Correspondence to be addressed to The Director General</i>  info@zema.gov.zm  www.zema.gov.zm
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In reply please quote
ZEMA/EA/EPB/LSI/KAC/LA/626

December 8, 2023

The Executive Director
Shimaba Mine Limited
Plot No. 299B Mepanza Road
P.O. BOX 360179
KAFUE

Dear Sir,

RE: DECISION LETTER IN RESPECT OF ENVIRONMENTAL PROJECT BRIEF FOR THE PROPOSED LARGE-SCALE EXPLORATION ACTIVITIES FOR COAL ON LICENCE NO.22912-HQ-LEL IN SIYAMULUWA VILLAGE CHIEF MUNYUMBE GWEMBE DISTRICT, SOUTHERN PROVINCE BY SHIMABU MINE LIMITED.

Reference is made to the above captioned Environmental Project Brief ("EPB") submitted to the Zambia Environmental Management Agency ("ZEMA") on **October 25, 2023** for consideration in accordance with the requirements of the Environmental Management Act No. 12 of 2011 as read together with the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, SI No. 28 of 1997.

ZEMA has since reviewed the EPB and based on the information provided by yourselves and taking into account written and verbal comments from interested and affected parties as well as our site verification inspection findings; the said EPB has been **approved** with conditions.

You are advised to fully acquaint yourselves with the conditions herein and to ensure compliance thereof.

Yours faithfully


Maxwell Nkoya
Acting Director General
ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

Cc: The Council Secretary – **Gwembe Town Council, GWEMBE**
The Director – **Risks Safety Department, KITWE**
The Commissioner – **National Council for Construction, LUSAKA**
The Director – **Factories Department, LUSAKA**
His Royal Highness – **Chief Munyumbwe, MUNYUMBE**
The Director Legal Services – **ZEMA, LUSAKA**

Gwembe Regional Office P.O. Box 37101 Tel: +260 214 89 0000/0001	Kafue P.O. Box 115144 Tel: +260 214 831421	Lusaka P.O. Box 10100 Tel: +260 211 822270	Kabwe P.O. Box 110027 Tel: +260 211 822218	Likwinda P.O. Box 101111 Tel: +260 211 822201
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15.0 CURRICULUM VITAE FOR EIA STUDY TEAM MEMBERS

A. CURRICULUM VITAE FOR PHILIP CHIKASA

PERSONAL DETAILS

Name:	Phillip Chikasa
Date of birth:	15 th July 1961
Place of birth:	Isoka
No. of children:	Three
Marital status	Married
Nationality:	Zambian
SADC driver's license No.:	130340, Code: C
Contact address:	PathMark Rural Development Consult, Plot No. 545/401a, St. Bonaventure, Makeni, P.O. Box 39231, Lusaka.
Cell phone Nos.:	+260 966688414/+260 979725488
E-mail:	pchikasa@gmail.com

EDUCATIONAL QUALIFICATIONS

Year	Qualification	Institution
1995	MSc. Environmental Forestry	University of Wales, Bangor, United Kingdom.
1991	Bachelor of Agricultural Sciences	University of Zambia, Lusaka, Zambia.
1985	Diploma in Agriculture	Natural Resources Development College, Lusaka, Zambia.
1981	School Certificate	Mbala Secondary School, Mbala, Zambia.

Short Courses

Year	Qualification	Institution (s)
October, 2015	Leadership Course	SNV – Maputo, Mozambique
May, 2010	Resource Development Course	LPCB, USAID, PEPFAR, Management Systems International, Centre on AIDS and Community Health, Lusaka, Zambia
May, 1999	Basic First Aid Course	Red Cross Society of Namibia, Windhoek, Namibia
May, 1997	Design of Agroforestry Experiments	ICRAF House, Nairobi, Kenya.
April, 1993	Regional Course on Agroforestry Research for Development	ICRAF House, Nairobi, Kenya.

PROFILE OF WORK EXPERIENCE

PathMark Rural Development Consult: *Nov. 2012 to date*

Senior Consultant

I am responsible for research design, development and testing of data collections tools (questionnaires), data collection and analysis as well as report writing.

Key achievements

I was involved in the provision of consultancy services listed below individually or as a team member;

S/N	Name of Client	Donor (S)	Assignment Description	Assignment Period
I	SNV – Zambia	Swedish international corporation Agency (SIDA)	Development of an E4A Biodigester Mobile to Web Data Tool Kit and Provision of Training on the use of the developed tool to Key E4A SNV staff	9 th October to 27 th November 2018
Ii	SNV – Zambia	Swedish international corporation Agency (SIDA)	Facilitate the establishment of a National Association of Biogas digester builders, biogas appliances suppliers and other related service providers in Zambia (through Mamaju Training Centre, Kasama)	29 th July to 4 th September 2017
Iii	SNV – Zambia	Swedish international corporation Agency (SIDA)	Provide Business Development and Leadership Training for Bio digester Construction Companies and Masons in Zambia (through Mamaju Training Centre, Kasama)	7 th November 2016 to 7 th January 2017
iv	SNV – Zambia	Department for International Development (DFID), United Kingdom	Development of a Sanmark Sanitation Marketing Mobile to Web Data Tool Kit	8 th to 24 th September 2016
v	SNV – Zambia	Department for International Development (DFID), United Kingdom	Sanitation Marketing (Sanitation Supply Chain Development; Sanitation Marketing)	27 th July to 13 th November 2015
vi	SNV – Zambia	Department for International Development	Water, Sanitation and Hygiene Consumer Study in Kasama, Mungwi, Mporokoso and Luwingu Districts of Zambia	5 th – 12 th January 2015

		(DFID), United Kingdom		
vii	SNV – Zambia	Department for International Development (DFID), United Kingdom	Sanitation Supply Chain Study in Kasama, Mungwi, Luwingu and Mporokoso Districts of Zambia	10 th – 28 th November 2014
viii	SNV – Zambia	Department for International Development (DFID), United Kingdom	Addendum for Sustainability Indicators 3 and 4 - Private Sector Engagement in Sanitation and availability of affordable technology options	10 th – 28 th November 2014
ix	Development Aid from People to People (DAPP)	Stitching Humana Holland (HPP Holland /MFS), The Netherlands	Impact Assessment Study for Humana People To People Holland/MFS – Supported Child - Aid Project in Serenje, Mkushi and Kapiri Mposhi Districts	15 th to 19 th December 2014
x	Development Aid from People to People (DAPP)	African Water Facility (AWF) & African Development Bank (AfDB)	Final Evaluation of the Community Water Improvement Project for Traditional Farmers in Chingola, Masaiti, Mkushi and Kapiri Mposhi Districts	Oct.2013 - Jan. 2014
xi	WaterAid Zambia	EU, Big Lottery Fund, AusAid	Documentation of WaterAid Zambia's Community Total Sanitation in Monze and Mwense Districts	Jan and March 2013
xii	Forum For African Women Educationalists of Zambia (FAWEZA)	Unisex, NORAD, SIDA, EU	Final Evaluation of Transit Schools and Back-to-Back Community Groups in Livingstone, Namwala, Chirundu, Chongwe, Chipata, Kapiri Mposhi, Masaiti, Ndola, Solwezi, Samfya, Nchelenge and Nakonde districts	Nov. Dec. 2012 & Jan. 2013
xiii	Forum For African Women Educationalists (FAWEZA)	UNICEF, NORAD, SIDA, EU	Profiling Best Practices and Lessons on Transit Schools and Back – To- Back Community Groups in Zambia	May - July 2013

**Relevant Environmental Research and Management consultancy services undertaken in Zambia
July, 2018**

Contracted as Consultant by Lake Oil Petroleum through Global Environmanagement Consulting Company to identify and facilitate the establishment of a game ranch and an air strip in Serenje District, Zambia.

January, 2018

Contracted as Consultant by Weye Construction Materials Limited through Global Environmanagement Consulting Company to undertake an Environmental Impact Statement for the Proposed Quarry and Cement Manufacturing Project in Chilanga District, Zambia.

June, 2017

Contracted as Consultant by Graduare Property Development (Z) Limited through Global Environmanagement Consulting Company to undertake an ENVIRONMENTAL AND Social Impact Assessment for the Proposed Expansion of the existing Eastpark Shopping Mall in Lusaka, Zambia.

October, 2016

Contracted as Consultant by Forli (Z) Limited through Global Environmanagement Consulting Company to undertake an Environmental and Social Impact Assessment for the Proposed Development of City of Lusaka Shopping Mall in Woodlands, Lusaka Zambia.

April, 2016

Contracted as Consultant by Amatheon Agri through Global Environmanagement Consulting Company to Map and Collect Data on the relocation of Community members from Amatheon Agri Farm (Nkulumazhiba Area) to other sites within or outside Amatheon Agri Farms in Mumbwa District, Zambia

February, 2016

Contracted as Consultant by Amatheon Agri through Global Environmanagement Consulting Company to undertake an Environmental Audit of Amatheon Agri Farm in Mumbwa District, Central Province, Zambia

January, 2016

Contracted as Consultant by Amatheon Agri (in Mumbwa District, Central Province, Zambia) through Global Environmanagement Consulting Company to undertake an assignment on the Progress of relocating community households (after water reservoir/dam construction) from various places within Amatheon Agri Farms to other suitable sites under phases I and II of the Company's relocation programme.

October, 2015

Contracted as Consultant by Amatheon Agri through Global Environmanagement Consulting Company to undertake an Environmental impact study (on Soils, Terrestrial and Aquatic Eco-systems) and prepare a report for the proposed Lutale Farm Block in Mumbwa District.

October, 2015

Contracted as Consultant by Amatheon Agri through Global Environmanagement Consulting Company to undertake an Environmental impact study (on Soils, Terrestrial and Aquatic Eco-systems) and prepare a report for the proposed Mushingashi Farm Block in Mumbwa District.

January, 2015

Contracted as Consultant by Amatheon Agri through Global Environmanagement Consulting Company to undertake an Environmental impact study (on Soils, Terrestrial and Aquatic Eco-systems) and prepare a report for the proposed Kafue Farm Block in Mumbwa District.

June 2014

Contracted as Consultant by Sinozoncho Mining Company through Global Environmanagement Consulting Company to collect biodiversity and soil data on the proposed mining site for analysis as a contribution to the environmental impact assessment study in Petauke District.

July, 2013

Contracted as Consultant by Zambeef Products Limited Plc Company through Global Environmanagement Consulting Firm to prepare a Final Environmental impact statement for the proposed construction of free stall barns at Zambeef's Kalundu dairy farm in Chisamba.

July, 2012

Contracted as Consultant by Bologna property development through Global Environmanagement Consulting Firm to prepare an Environmental impact statement on the Proposed remodelling of existing theme park 'adventure city' into an integrated multi-use development off leopard's hill road in Lusaka.

December, 2013

Contracted as Consultant by ACM Products Limited through Global Environmanagement Consulting Firm to prepare an Environmental impact statement report for the proposed construction of hotel & kids park behind Copperhill Complex in Kitwe.

June 2013

Contracted as Consultant by Mutanda Farms through Global Environmanagement Consulting Company to collect biophysical data at Mutanda farm in Solwezi District.

April 2009

Contracted as Consultant by Zambeef Limited Plc Company through Global Environmanagement Consulting Company to characterise the topographic features of Nanga Farms (in Mazabuka District), then document an Environmental Management Plan.

May 2009

Contracted as Consultant by Zambeef Limited Plc Company through Global Environmanagement Consulting Company to assess, select and recommend a suitable site for the construction of a fuel depot at the main nursery site of Zampalm in Mpika District.

Positions held/responsibilities

HODI, Lusaka, Zambia: *October 2010 to April 2011*

Acting Country Director

I led the organisation's programmes and operations (water, sanitation and hygiene included) in Zambia by providing overall leadership and direction of all programmes. I was responsible for leading,

developing and management of long-range strategic plans in-line with the organisation's vision, mission and strategies. Recruitment and direct supervision of senior management staff and was ultimately responsible for all financial matters in the organisation. I was the principal point of contact with the donors, government, media and other implementing partners.

Some key achievements

- Mobilization of funds for new projects (Zambia-led Prevention Initiative) to the tune of US\$ 74,998.02
- Commencement of new projects worth £388,512 (strengthening of Community based HIV prevention and reproductive health Service for adolescents) in Southern province.

HODI, Lusaka, Zambia: March 2010 to October 2010

Country Coordinator – STOP AIDS NOW

Some key achievements

- Coordination of a Global HIV and AIDS Project in Zambia aimed at increasing quality of existing life-skills programmes in Zambia.
- Coordination of eight (8) consortium partners on improving the scale and quality of Youth Life Skills and HIV&AIDS Work in Zambia
- Capacity Building Initiative on HIV Prevention & life skills

HODI, Lusaka, Zambia: March 2010 to October 2010

Head of Programmes

Some key achievements

- Developing Hodi programmes (which included; Water, Sanitation and Hygiene, Agriculture, Education, HIV & AIDS and Gender based violence), planning and monitoring their implementation in conformity with the organisation's overall development vision and goals and ensuring that strategic alliances were maintained for effective contributions to the achievement of programmes' objectives.

NAMIM Agro and Environmental Management Consultant, Lusaka, Zambia: April 2009 to March 2010

Consultant

Some key achievements

- Conducting research (including data analysis and interpretation) on, Agriculture and Rural Development, Agro-eco-tourism, Agroforestry, Forestry
- Education and Training
- Natural Resource Management
- Environmental Impact Assessment

Natwange Multipurpose Cooperative Society Limited, Kalulushi, Zambia August 2007 to November 2009

Chairman

I was technically and administratively in-charge of the Cooperative Society.

Some key achievements

- Sourced funding for the construction of the cooperative shed and offices.

- Initiated a micro finance scheme for the members of the cooperative.

Copperbelt University, Centre for Lifelong Education, Kitwe, Zambia: April, 2005 to March, 2007
Assistant Director

I coordinated the effective and efficient implementation of Copperbelt University policy on distance education. I was also a Copperbelt University nominee to the National Adult Literacy Technical Committee – Ministry of Education.

Some key achievements

- Developed and provided support through the development and distribution of study materials. I published two monographs for use by research students. Coordinated the Registration of students and maintenance of records
- Competently represented the Copperbelt University/Centre for Lifelong Education on Education Sector Advisory Group Reference meetings at the Ministry of Education Headquarters in Lusaka, Zambia. Ultimately, the Centre became a recipient of donor funds.
- Coordinated and administered examinations, assignments and processing of examination results. I developed a computer programme for processing examination results. Ultimately, Copperbelt students' results were published on time and the University management awarded me an honorarium of ZM 500,000 for the job well done.

Copperbelt University, School of Natural Resources and Centre for Lifelong Education, Kitwe, Zambia: April, 2005 to March, 2007

Lecturer

Lectured Agroforestry to 4th year Bachelor of Forestry Degree students, Research Methodology to 4th year Bachelor of Arts Degree students, Research Methodology to 3rd year Diploma students in Marketing, Business Administration and Human Resource Management.

Some key achievements

- Supervised and examined students for their final year research projects in the School of Natural Resources and at the Centre for Lifelong Education.

Ogongo Agricultural College, _ Namibia-Finland Forestry Programme, Namibia: December, 2002 to December, 2004

Agriculture Training Officer/Lecturer

Lectured at both BSc. Degree and National Diploma levels in Forestry and Agriculture to students of Ogongo and Neudamm Campuses of the University of Namibia and VISTA University, South Africa in various courses including; Basic Statistics, Environmental Studies, Integrated Land-use Management, Farming Systems, Forestry Research Methods, Soil formation and chemistry, Agroforestry, Bio-resource Ecology, Nursery Techniques, Agricultural Research Methods and Adaptive Research and Computer Skills.

Some key achievements

- Trained Namibian Forestry and Agricultural College Lecturers in conducting Agroforestry, Forestry and Agricultural Research, Teaching methodologies, Curriculum Development (Knowledge and Skills Transfer to Namibian Lecturers).

- Conducted Agroforestry and Forestry research: Tree screening trials for agroforestry and forestry purposes. Forestry nursery trials, laboratory trials on seed and cuttings. Research activities were conducted alone or at times in collaboration with the Directorate of Forestry as part of the University of Namibia Research Agenda.
- In-charge of a Forestry nursery at Ogongo Campus in Oshakati from December 1997 to December 2004. The Forestry nursery was for Research, Training, Education and Commercial purposes.
- Contact Scientist for Agroforestry research in Namibia.
- National coordinator in Namibia for Biological and Agricultural Practicals for VISTA University, South Africa. I was also responsible for the recruitment and supervision of all the lecturers teaching on the programme
- Member of the College Management Committee at Ogongo Campus.

Ogongo Agricultural College, _ Ministry of Agriculture, Water and Rural Development, Oshakati, Namibia: *December 1997 to December 2002*

Agriculture Training Officer

I Lectured at both BSc. (University of Namibia and VISTA university of South Africa) and National Diploma levels in Forestry and Agricultural Programmes in courses as mentioned earlier.

Administratively, I served as Acting Head of the Forestry Department and as a member of the College Management Committee.

Some key achievements

- Member of the National Task Force Committee for the Development of Curricula for the National Diploma in Agriculture and National Diploma in Forestry.
- Developed curricula for both formal and informal (in-service) training programmes
- National coordinator in Namibia for Biological and Agricultural Practicals (as indicated earlier)
- Actively engaged in Agroforestry and Forestry research including research on domestication of mopane caterpillars/worms. I was on the team that pioneered the first Forestry research Conference in Namibia. Apart from presenting and publishing scientific papers, I also co-edited the proceedings of the first Forestry Research Conference in Namibia.
- Worked with the Directorate of Forestry in rural areas of north-central Namibia on Community based natural resources management projects. This resulted into the empowerment of the local communities with regard to natural resources conservation and sustainable utilisation.

SADC/ICRAF Agroforestry Research Project, Ministry of Agriculture and Cooperatives Chalimbana-Lusaka and Chipata, Zambia: *April, 1992 to December, 1997*

Agricultural Research Officer-National Scientist

Carried out socio-economic surveys in places where agroforestry trials were to be conducted. I also experimented on nursery techniques and various ways of raising tree seedlings for use in Agroforestry and Forestry technologies. I also conducted research on the Domestication of Indigenous Fruit Trees as a member of the Agroforestry Research Team.

Some key achievements

- Designed and laid out both on-station and on-farm agroforestry research experiments on multipurpose tree management for improved rural livelihood in the unimodal ecozone of the SADC region and co-authored and published several scientific research reports.
- Conducted Tree Screening trials on both indigenous and exotic tree species as candidate trees for use in various Agroforestry and Forestry technologies for utilisation and income generation by small-scale farmers.
- Developed training materials on agroforestry and trained research personnel in the Ministry of Agriculture on the management of agroforestry trials.

Ministry of Agriculture and Cooperatives, Zambia: *October, 1991 to April, 1992*

Assistant Provincial Crop Husbandry Officer

Supervised district based agricultural extension staff and ensured that all extension messages on improved crop and tree crop varieties and their management were disseminated to farmers following the Training and visit system.

Key achievement

- Designed mechanisms for ensuring that district-based staff submitted their budgets and reports on time.

Mwense; Ministry of Agriculture and Cooperatives, Zambia: *October, 1985 to October, 1991*

Agricultural Supervisor/District Animal Husbandry Officer

I was In-charge of all animal husbandry activities in the district.

Key achievement

- Was a permanent member of the District Development Committee and represented the Department of Agriculture in Mwense district.

SELECTED PUBLICATIONS

- Chongo, R. M. and **Chikasa, P.** 2019. Mid – Term Evaluation of Development Aid from People to People (DAPP) Zambia Family Activity South – Central (ZAMFAM SC) Project Report. DAPP-ZAMFAM SC, Kabwe, Zambia
- **Chikasa, P. (2018).** *Report on the Development of an E4a Mobile-To-Web Based Biodigester Mapping Tool.* SNV – Zambia, Lusaka, Zambia
- **Chikasa, P. (2018).** *Training Report: Comprehensive Practical Course on Mobile-To-Web ODK Collect Biodigester Mapping Tool.* SNV – Zambia, Lusaka, Zambia
- **Chikasa, P.,** Chongo, R.M. and Chanda, M. (2018). *Quick ODK Collect User Guide: An Interactive Participatory Training Guide for the ZAMFAM MTE Research Assistants.* PathMark Rural Development Consult, Lusaka, Zambia
- **Chikasa, P. (2016).** *Report on the Development of a Sanmark Mobile to Web Data Tool Kit.* SNV – Zambia, Lusaka, Zambia
- Chongo, R.M and **Chikasa, P.** (2015). *Sanitation Supply Chain Development; Sanitation Marketing.* SNV – Zambia, Kasama, Zambia

- Chongo, R.M, **Chikasa, P.** and Kapapa, C. (2014). *Sanitation Supply Chain Study in Kasama, Mungwi, Luwingu And Mporokoso Districts Of Zambia*. SNV – Zambia, Kasama, Zambia
- Chongo, R.M and **Chikasa, P.** (2014). *Impact Assessment Study for Humana People To People Holland/MFS – Supported Child - Aid Project in Serenje, Mkushi and Kapiri Mposhi Districts*. Development Aid from People to People, Lusaka, Zambia
- Chongo, R.M and **Chikasa, P.** (2014). *Final Evaluation of the Community Water Improvement Project for Traditional Farmers in Chingola, Masaiti, Mkushi and Kapiri Mposhi Districts*. Development Aid from People to People, Lusaka, Zambia
- Chongo, R.M and **Chikasa, P.** (2014). *Final Evaluation of Transit Schools and Back to Back Community Groups in Livingstone, Namwala, Chirundu, Chongwe, Chipata, Kapiri Mposhi, Masaiti, Ndola, Solwezi, Samfya, Nchelenge and Nakonde districts*. Forum For African Women Educationalists of Zambia (FAWEZA), Lusaka, Zambia
- Chongo, R.M and **Chikasa, P.** (2014). *Profiling Best Practices and Lessons on Transit Schools and Back – To- Back Community Groups in Zambia*. Forum For African Women Educationalists of Zambia (FAWEZA), Lusaka, Zambia
- **Chikasa, P.** (2006). *HRM 400: Research Methodology*. Monograph/Study Material for Distance Learning students. Centre for Lifelong Education (CLLE). Copperbelt University, Kitwe, Zambia.
- **Chikasa, P.** (2006). *A guide to the preparation of final year research project reports: First edition*. Monograph for CLLE students. Centre for Lifelong Education. Copperbelt University, Kitwe, Zambia.
- **Chikasa, P.** (1998). *Proceedings of a Curriculum Development Workshop on Ogongo Agricultural College, Diploma in Forestry Programme, Otjiwarongo, Namibia, 27-29 January, 1998*. SADC AAA 5.9 Mutare, Zimbabwe, 60pp.
- Mateke, S.M., Kamara, C.S., and **Chikasa, P.** (1995). Ripening periods of edible indigenous fruits in Zambia: implications for utilization and domestication. In: J.A. Maghembe, Y. Ntumpanyama and P.W. Chirwa, (eds.), *Improvement of indigenous fruit trees of the miombo woodlands of Southern Africa*. ICRAF, Nairobi, Kenya, 138 pp.
- Hamid, O.Y. and **Chikasa, P.** (1998). *Current status and future plans for agroforestry in Namibia*. Paper presented at the Regional planning meeting for ANAFE 1-4 December 1998, Botswana College of Agriculture, Gaborone, Botswana, 13pp.
- **Chikasa, P.**, Horn-Ngishikungu, L.N and Hamid, O.Y. (2002). *The effect of Acacia nilotica and Colophospermum mopane on pearl millet (Pennisetum glaucum) production*. P37. In: E. Lusepani-Kamwi and P. Chikasa (Eds.), *Proceedings of the first national forestry research workshop held on 12 and 13th March 2002 at Safari Hotel, Windhoek, Ministry of Environment and Tourism, Directorate of Forestry, Windhoek, Namibia*, 120pp.
- **Chikasa, P.**, Hamid, O.Y and Horn-Ngishikungu, L.N. (2002). *Potential of Imbrasia belina droppings to be used as manure for crop production*. p 53. In: E. Lusepani-Kamwi and P. Chikasa (Eds.), *Proceedings of the first national forestry research workshop held on 12 and 13th*

- March 2002 at Safari Hotel, Windhoek, Ministry of Environment and Tourism, Directorate of Forestry, Windhoek, Namibia, 120pp.
- Lusepani-Kamwi, E. and **Chikasa, P.** (2002). *Eds: Proceedings of the first national forestry research workshop held on 12 and 13th March 2002 at Safari Hotel, Windhoek, Ministry of Environment and Tourism, Directorate of Forestry, Windhoek, Namibia, 120pp*
 - **P. Chikasa**, B. Claasen and O.Y. Hamid. (2002). *Nutrient composition of Imbrasia belina worm droppings and their potential as feed additive for lactating cattle in north central Namibia. In: Ministry of Agriculture, Water and Rural Development, (ed.), Proceedings of the Annual Agricultural Research Reporting and Farming Systems Implementation Conference, 21st to 25th October 2002, Alter Brücke, Swakopmund, Namibia*
 - Kamara, C.S. and **Chikasa, P.** (1992). *SADC/ICRAF Agroforestry Research Project 1992 Annual Report, Chalimbana, Lusaka. AFRENA Report No. 56. ICRAF Nairobi, Kenya, 77pp.*
 - Kamara, C.S., **Chikasa, P.**, and Mateke, S.M. (1993). *SADC/ICRAF Agroforestry Research Project 1993 Annual Report, Chalimbana, Lusaka. AFRENA Report No. 70. ICRAF Nairobi, Kenya, 77pp.*
 - Kamara, C.S., **Chikasa, P.**, and Mateke, S.M. (1994). *Compiled Report on Training Workshop on Agroforestry for Farmers and Camp Officers from Lusaka Province. SADC/ICRAF Agroforestry Research Project, Chalimbana Agricultural Research Station, Lusaka, Zambia. 21pp.*
 - Kamara, C.S., **Chikasa, P.**, and Mateke, S.M. (1994). *SADC/ICRAF Agroforestry Research Project 1994 Annual Report, Chalimbana, Lusaka. AFRENA Report No. 80. ICRAF Nairobi, Kenya, 186pp.*
 - **Chikasa, P.** and Chintu, R. (1996). *Introduction to On-farm research. ISTC-MAFF Training Guide. In-service Training Centre, Natural Resources Development College, Lusaka, Zambia.*
 - **Chikasa, P.** and Chintu, R. (1996). *Farmers' participation in technology generation. ISTC-MAFF Training Guide. In-service Training Centre, Natural Resources Development College, Lusaka, Zambia.*
 - **Chikasa, P.** and Chintu, R. (1996). *Introduction to surveys. ISTC-MAFF Training Guide. In-service Training Centre, Natural Resources Development College, Lusaka, Zambia.*
 - **Chikasa, P.** and Chintu, R. (1996). *Cowpea and soyabean cropping systems in sustainable agriculture. ISTC-MAFF Training Guide. In-service Training Centre, Natural Resources Development College, Lusaka, Zambia.*
 - **Chikasa, P.** (1994 to Date). Various consultancy publications which can be sourced from the Institutions that I have provided consultancy services for or can be sourced from the internet by typing "Phillip Chikasa"

STUDENT SUPERVISION

Degree Students

Bachelor of Science Degree in Agriculture

- Horn-Ngishikungu, L.N. (2001). Effect of *Colophospermum mopane* and *Acacia nilotica* on pearl millet growth and yield. Faculty of Agriculture and Natural Resources, Department of Crop Science, University of Namibia, Namibia

Bachelor of Science Degree in Forestry

- Manda, G.A. (2006). The potential use of *Gliricidia sepium* and *Tithonia diversifolia* leaf biomass for *Brassica napus* production. School of Natural Resources, Department of Forest Resource Management, Copperbelt University, Kitwe, Zambia.
- Malikopo, A.C. (2006). *Moringa oleifera* an agroforestry tree and its potential as human food for the people of Kasisi. School of Natural Resources, Department of Forest Resource Management, Copperbelt University, Kitwe, Zambia.
- Kaleya, J. (2005). Empowerment of rural women for sustainable forest resources management: A case study of Mukutuma, Lumpuma and Chipepo areas of Lufwanyama district. School of Natural Resources, Department of Forest Resource Management, Copperbelt University, Kitwe, Zambia.

Bachelor of Arts Degree in Human Resource Management

- Kasongo, J. (2006). The impact of labour laws on an organisation: A case study of the University of Zambia. Centre for Lifelong Education, Copperbelt University, Kitwe, Zambia.
- Kauseni, G. (2006). Unprofessional use of firearms in the Zambia Police Service: A case study of Lusaka, Kitwe and Ndola Central Police Stations. Centre for Lifelong Education, Copperbelt University, Kitwe, Zambia.
- Mutema, M. (2006). The role of training in human resource development for Copperbelt based Immigration Officers. Centre for Lifelong Education, Copperbelt University, Kitwe, Zambia.

National Diploma Student supervision

National Diploma in Agriculture

- Nhoni, P. (1999). *The role of Agroforestry in sustainable land - use system in Ekolola area*. Department of Agriculture, Ogongo Agricultural College, Oshakati, Namibia.
- Hamwaama, P. (1999). The effect of *Cajanus cajan*, *Leuceana leucocephala* litter and NPK fertiliser on the pearl millet production. Department of Agriculture, Ogongo Agricultural College, Oshakati, Namibia.
- Ashikutuwa, A. (1999). A survey on indigenous trees and shrubs for fodder and soil fertility improvement in Ekolola area, Northern Namibia. Department of Agriculture, Ogongo Agricultural College, Oshakati, Namibia.

National Diploma in Forestry

- Mbongo, W. (2000). Approaches to fruit tree promotion in Northern Namibia. Department of Forestry, Ogongo Agricultural College, Oshakati, Namibia.

SKILLS

- Computer literate. Able to competently use Microsoft Office (MS Word, MS Excel, MS PowerPoint), Data Chain, SPSS, Genstat and Mstat.

- Driving (SADC driver's license Code C)

LANGUAGES

- I am fluent in English and Bemba languages (both written and oral).

EXTRA CURRICULA ACTIVITIES

- Travelling, swimming, playing table tennis.

REFEREES

1. Mr Gillan Simfukwe

Director

GLobal Environmanagement Consulting

P.O. Box 35958

Lusaka, Zambia

Mobile: +260 966450218 or +260 977388010

Email: gillan_simfukwe@yahoo.com

2. Dr Jonathan Kamwi

Lecturer

Namibia University of Science and

Technology

Faculty of Natural Resources and Spatial
Sciences

Department of Agriculture and Natural
Resources Sciences

P/Bag 13388

Windhoek

Namibia

Tel.: +264 61 207 2568/61 284 22963

Mobile: +264 81 204 4179

Email: mutauk@yahoo.co.uk

3. Dr Katungu Mukelabai

SNV Project Manager

Field level Observation and Mapping

Rural Water Supply Services Programme

7 Nkachibiya Road, Rhodes Park

P.O. Box 31771

Lusaka, Zambia

Tel.: +260 211 255174/5, 251336

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Mobile: +260 977413761

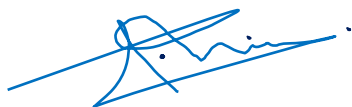
Email: kmukelabai@snvworld.org

Skype: katungu.mukelabai

www.snvworld.org

**I DECLARE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE
INFORMATION GIVEN IN THIS DOCUMENT IS CORRECT**

Signed



Date: 16th August 2024

B. CURRICULUM VITAE-MUBANGA MWANSA

PERSONAL DETAILS

NAME : Eng. Mwansa
Mubanga
SEX : Male
DATE OF BIRTH : 16th July 1984
PLACE OF BIRTH : Mufulira
NATIONALITY : Zambian
NRC NUMBER : 294596/66/1
MARITAL STATUS : Married
CONTACT NUMBER : +260-966-656697 or +260-977-656697
POSTAL ADDRESS : Private Bag E891 Manda Hill
Lusaka.
EMAIL ADDRESS : mwansa.mubanga@yahoo.com

VISION

To develop and contribute to an insight that will help achieve sustainable development through production and to reduce pollution of the environment.

OBJECTIVES

- ☐ To contribute to sustainable economic development through efficient resource use and pollution prevention.

QUALIFICATIONS

1. Currently studying for Master of Environmental Engineering at the University of Zambia.
2. **Bachelor of Engineering Degree in Environmental Engineering.**

Major: Cleaner Production and Environmental Management

CURRENT POSITION: Managing Partner -: GREENLINE ENVIRONMENTAL SOLUTIONS

EDUCATION

<u>Year</u>	<u>Name Of Institution</u>	<u>Qualification</u>
2017 Class	University of Zambia	Studying M.Eng . Environmental Engineering
2005-2009	Copperbelt University	B.Eng. Environmental Engineering
1999-2001	Butondo High School	Senior Secondary School Certificate
1997-1998	Chankwa Junior Secondary	Junior Secondary School Certificate
1990-1996	Mutamba Primary School	Primary school Certificate

RELEVANT WORK EXPERIENCE

1. Greenline Environmental Solutions Limited- Managing Partner

Responsibilities:

- Environmental Baseline studies, RAP, relocation plans and monitoring
- Conducting Environmental Impact Assessment for new projects as per EMA of 2011.
- Environmental Project Brief (EPB) assessments and reports.
- Conducting site inspections for new projects and assessing likely environmental impacts.
- Stack emission monitoring, ambient monitoring, Air quality modelling, dust fall & respirable dust measurements and reporting.
- Environmental auditing and formulation of environmental management plans for existing facilities.
- Design and planning effluent management systems and irrigation dams for farms, abattoirs and processing plants. Water quality, testing and reporting.
- Effluent, waste water and potable water analysis and reporting

2. Zambeef Products Plc as Area Manager- Safety, Health, Environment and Quality (SHEQ) from January 2010 to July 2014. Reporting to the Head of Environment and Technical Services. In charge of Zambeef group's manufacturing and processing plants.

Responsibilities include:

- Implementation of Zambeef Products Plc's Policies, Procedures, and Systems to maintain and enhance Safety, Health, Environmental and Quality performance.
- Implementation of General and specific IFC guidelines on Environment, Health Sanitation, sustainable energy and product manufacturing.
- Prepare and submit required Environmental status and Food Safety reports. In house training in GMP, EMS and HACCP.
- Conduct plant and farm energy audits for the Zambeef group. Conduct Environmental and Social Impact assessment for new projects. Preparation and submission of Environmental Project Brief (EPB), Environmental Management Plans (EMP) and Environmental Impact Assessment (EIA)

for submission to ZEMA prior to development. Monitoring of mitigation measures for project environmental impacts.

- Provide professional and technical support and expertise to all Zambeef subsidiaries, including review of capital projects for environmental impacts.
- Planning and implementation of Pest Control Programs for all operation centres.
- Designing and implementation of water quality systems, management of waste water through treatment and monitoring against effluent standards.
- Monitor Water, Food Quality and Safety in compliance with prevailing food Standards.
- Monitor the quality of soil, effluent, and air emissions in line with relevant regulations.
- Assist plant management in developing, implementing and maintaining Environmental compliance measures required under State and Local regulations.
- Assist management in interpreting and applying technical regulatory requirements on the production operation.
- Auditing the Environmental, Occupational Health & Safety compliance and Food Safety status of the entities as per supplied ISO 14001 EMS Self-Assessment Checklist and other relevant regulations and conventions.
- Planning, execution and monitoring of effluent treatment and drainage systems for Zambeef manufacturing plants.
- Social and community liaison and inclusion in Zambeef's operation areas throughout Zambia.

3. Zambia Environmental Management Agency (formerly Environmental Council of Zambia), Ndola as an intern from January, 2009 to April, 2009. Reporting to the Zone Manager.

Duties included:

- Inspections of industries for compliance prior to issuance of Environmental licences. Conducting licensing inspections for various facilities and industries. Site verification for intended proposed projects.
- Reviewing of Environmental management returns from industries to check for compliance. Comments on Environmental project briefs submitted to ECZ.
- Attending to environmental complaints from the public and hearings regarding environmental issues.
- Responding to emergencies and accidents leading to spills, pollution and contamination of the environment.

4. White Cross Investments limited Kitwe, from May, 2009 to January 2010 as a part time Assistant Environmental Officer. Reporting to the Senior Consultant.

Duties included:

- Conducting assessment and preparation of Environmental Project Brief (EPB), Environmental Impact Assessment (EIA) and Environmental Management Plans (EMP) for developmental project for submission to ZEMA.
- Site verification of Proposed projects before EPB submission to ZEMA.
- Environmental monitoring and compliance audits for clients.

- Advertising for Environmental Management Service providers through Print media.

COMPUTER PROFICIENCY

- MS excel MS power point, MS publisher, MS project and MS word.

TRAINING AND OTHER SKILLS

- Environmental Management and Occupational Health & fire rescue training. ☐ Good
- Manufacturing Practices (GMP) training.
- Driving (in possession of a valid Zambian driver's license).
- Occupational First –Aid and Emergency Rescue certified provider.

AFFILIATIONS

- Professional Engineer of the Engineering Institution of Zambia (EIZ). Certificate No.01261726223.
- Registered Engineer of the Engineers Registration Board No. 006261
- Member of the Zambia Red Cross Society.

ENVIRONMENTAL PROJECTS

- ESIA for the proposed Development of an irrigation earth dam by Goldenlay Agri Limited on Fisenge stream-Luanshya.
- ESIA for the proposed development of an integrated farming unit by SFEL in Mbala district
- EPB for the construction of irrigation channels and abstraction of water from Saise River in Mbala district.
- Resettlement Action Plan (RAP) for the proposed relocation of PAPs in Fisenge area.
- ESIA for the proposed development of Kafubu farm by Goldenaly Agri Limited in Ndola District.
- ESIA for the proposed Development of an irrigation dam by Apollo Agricultural Holdings Chingola.
- ESIA for the proposed development of integrated farming project in Mpongwe by GoldenLay Agri Limited-Agricultural sector.
- EPB for the proposed operation of manganese mine in Milenge District.
- EPB for the development of a grain storage facility in Mpongwe by NWK grain handlers Ltd.
- EPB for the proposed operation of a quarry and crusher plant by Avex Technical Ltd in Chadiza District.
- EPB for the proposed development of incinerator by Cardinal Memorial Hospital ☐ EPB for the proposed development of an opaque beer plant by Midlands (PVT) Limited.
- EPB for the mineral prospecting & mining of Copper in Kafue National Park by Easifuels Limited.
- Environmental audit for Amatheon Agri in Mumbwa District
- Resettlement Action Plan for Amatheon Agriculture Lutale & Mushingashi farming Blocks

- ESIA for Chicken Processing plant in Ndola by Goldenlay Agri Limited. ESIA for fertilizer blending plant by Goldenlay Limited in Ndola □ EPB for Copper prospecting by Manto Mining Resources in Solwezi.
- ESIA for the proposed ultra-modern Housing Complex by Hawai Real Estate in Lusaka
- ESIA for the proposed development of an integrated farming unit by KFE in Mbala
- RAP for Dam construction by Goldenlay Limited in Luanshya district
- EPB for abstraction of water from Kalambo river in Mbala by SFEL
- EPB for grains storage facility in Lufwanyama by NWK Grain Handlers Limited
- Resettlement Action Plan for the Katito Farm Mbala District
- Resettlement Action Plan for the Relocation of people in Mushingashi and Lutale Farm blocks in Mumbwa by Amatheon Agri Limited
- Resettlement Action Plan for the Relocation of people in Farm V farm block in Mumbwa by Amatheon Agri Limited
- Appointed Community Liason Officer for Katito Farming Enterprises for the Resettlement of PAPs in Katito Farm in Mbala District 2016 to 2018.
- Facilitate ESIA public hearing for ZEMA for the Muchinga Hydro Power Project
- Facilitate ESIA public hearing for ZEMA for the NFCA tailings Dam Project
- Resettlement Action Plan and ESIA for the development of Serenje Properties in Serenje
- Resettlement Action Plan Audit for Mt. Meru Millers (Z) Limited by AATIF, 2018
- Environmental and Social Audit for African Milling Co. in Lusaka, 2018

REFEREES

Mr. Christopher Kanema-Acting Manager South Zambia Environmental Management Agency P.O Box 35131 Lusaka Contact number: 0977 747 106/0969 747 106 E-mail: ckanema@zema.org.zm	Mr. Gillan Simfukwe-Director Global Environ management Consulting Zecco Building Lusaka Contact:0966 450218;0977368010;0955 450218 Email: gillan_simfukwe@yahoo.com
Mr. Seveliano Phiri HOD/Senior Lecturer- Civil Engineering Copperbelt University P.O Box 21692 Kitwe. Contact number: 0976-340133/0699-660 600 Email: seveliano@yahoo.co.uk	Jones C. Kayawe Head-Environment and Technical Services Zambeef Products Plc Private Bag 17 Woodlands, Lusaka Contact number: 0977 999 221 Email: joneskc@zambeef.co.zm

Signed: Mubanga Mwansa



Date: 06 May, 2025

C. CURRICULUM VITAE FOR WISDOM CHASAYA

Wisdom Chasaya

C/O House number 1- 50, Parklands, Kitwe, Zambia

Cell Phone No: - +260 - 977- 545818 / 966- 545818/0955545818

E-mail Address: - wisdomzm@yahoo.com or wisdomzm3@gmail.com

Date of Birth	:	13 th November, 1976
Nationality	:	Zambian
Specialty	:	Social Communication Specialist/ Project Management
Years of Experience	:	Seven (13) Years
Geographical Preference	:	Zambia and Other Environs
Remunerations	:	Negotiable
Driving License	:	SADC Driver's License 'Code B'
Passport	:	Zambian Citizen's Passport - ZN160746

Goal:- To be part of Social and economically just, responsible and self reliant generation, working toward a transparent, just and healthy society through objective research with an aim of achieving sustainable development through participatory inclusive methodologies.

Membership to Professional Bodies:-

- *2011 to Date* - Member of Impact Assessment Association of Zambia (IAAZ).
- *1999 to date* - Member of Southern Africa Toastmasters Club, Pretoria RSA
- *2006 to Date* - Member of the International Association for Impact Assessment (IAIA).
- *2005 to Date* - Member of the Consultants recognized by ZEMA to Conduct Environmental Impact Assessment Studies in Zambia.

Key Qualifications:-

Accomplished development practitioner with a proven ability to design, and implement projects and programmes through sustaining community participatory inclusive methods like Training for transformation, Social marketing with an aim of attaining integral human development.

Experienced and knowledgeable in social economic development work with strong social analytical skills rooted in both qualitative and quantitative research. Have been involved in Environmental Impact Assessment for many mining and construction projects around Zambia.

An outstanding institutional Social Economic specialist and once a supporting and accompanying officer for ten provincial offices for Caritas Zambia in institutional policies, structures and human resource strengthening. Strong manager with skills to build and maintain highly motivated focused management teams with common goal of achieving the intended objectives. Emotionally balanced and excellent leader with high level expertise in HIV and AIDS and Gender Mainstreaming skills.

Skilled in public Speaking being a member of Southern Africa Toastmasters Club, Pretoria, Republic of South Africa.

Have experience working in Zambia, Botswana, South Africa, Ireland and Kenya.

Education and Professional Qualifications: -

- Bachelors of Arts in Religious Studies,
- Diploma in Social communication for development
- Diploma in Project Management
- Diploma in Theology
- Diploma in philosophy
- **Short Courses:-**
- Certificate in Environmental Impact Assessment of Zambia; UNDP Sponsored Programme
- Certificate in Environment Assessment Practitioners on Rollout of Guideline on Integrating HIV and Gender- related issues into the Environmental Assessment Processes
- Certificate in Impact Assessment Association of Zambia (Affiliated Member)
- Certificate in Education for Life Behavior Change Programme
- Certificate in Project Planning, Monitoring and Evaluation
- Certificate in Public Speaking
- Certificate in Desktop designing; Adobe page maker

Career / Employment and Consultancy Record: -

Consultancy

Global Environ Management Consultants

Social Economic Specialist and Researcher for Environmental Impact Assessments of Construction and Mining Projects in the following areas:

2018 February - Contracted by Zambia Environmental Management Agency to do a public hearing for the Muchinga Hydro Power project in Central Province. The job required facilitating the Public Hearing on behalf of ZEMA to get views from the public of the project area. Reporting to ZEMA on the outcome of the meeting and making recommendation to ZEMA.

2017 August - contracted by Grizzly Copper Mining to carry out Environment Impact Assessment for a large scale mining project in the Lunga-luswishi game management area of Kasempa District in North Western Province. The work involved going on the ground to collect data on the Social economic impact on the people of Kasempa and compiling the report for presentation to ZEMA.

2016 December - contracted by Zambia Environmental Agency to carry out a public hearing on the NFC expansion mining project in Chambishi of Kalulushi district of Copperbelt Province. The work involved facilitating a meeting between the developer NFC mining and the affected People of Chambishi town.

2016 August contracted to do an Environmental Impact Assessment for the Rehabilitation and construction of Copperbelt roads by AVIC International. The work involved going on site to investigate effects of the project will bring on the local community and environment.

2015 January- Environmental Impact Assessment and Relocation of squatters in the AMATHEON big concession farm project in Mumbwa District. This involved compiling of data of affected families and their livelihood; negotiating relocation packages and report presentation to ZEMA

2014 March- Environmental Project Brief for expansion of Chapa Classic Lodge, Livingstone

2014 June- Environmental Impact Assessment for SINOZONCHUO RESOURCES Ltd mining prospecting in Petauke District Eastern Province. The work involved studying the social economic impacts the project was bringing to the area; conduction public meetings with the affected communities to assess how best the negative impacts would be minimized. Report writing for presentation to ZEMA.

2013 June - Environmental impact assessment for construction of Copperhill mall in Kitwe. The work involved studying the social economic impacts the project was bringing to the area; conduction public meetings with the affected communities to assess how best the negative impacts would be minimized. Report writing for presentation to ZEMA.

2013 June -Environmental Impact Assessment for construction of AVITECH Farm project in Solwezi. This involved carrying out a Social economic assessment for the affected people and report writing.

2013 August - Environmental Impact Assessment for ZAMBEEF Mpongwe expansion project. This involved going on the ground to assess how the already existing farm infrastructure is affecting the people in the area and how the expansion project will further impact the affected communities.

2013 August - Environment Project Brief for Dolomite Aggregates Mine in Lusaka west. The work involved negotiating the relocation package of affected people and compiling data on the livelihood of the affected community.

2013 September -Environmental Impact Assessment for construction of Adventure City Mall and Recreation center, Lusaka. The nature of work was to carry out a social economic awareness for the affected people and compilation of data for report presentation.

2013 October- Environmental Impact Assessment for construction of Mukuba Pensions Trust Housing Scheme in Chibuluma, Kitwe. The work involved studying the social economic impacts the project was bringing to the area; conduction public meetings with the affected communities to assess how best the negative impacts would be minimized. Report writing for presentation to ZEMA.

2013 September- Environmental Impact Assessment for construction of Kakulu Dam Project, Mukushi. The work involved studying the social economic impacts the project was bringing to the area; conduction public meetings with the affected communities to assess how best the negative impacts would be minimized. Report writing for presentation to ZEMA.

2013 November- Environmental Project Brief for a Kobil Filling Station Chelstone, Lusaka

2012 August- Environmental impact assessment for the extension of SOMAWHE farm, Mpongwe district Luanshya. The work involved studying the social economic impacts the project was bringing to the area; conduction public meetings with the affected communities to assess how best the negative impacts would be minimized. Report writing for presentation to ZEMA.

2012 December- Impact assessment for World Bank water project in Central province. The nature of work involved going on the ground to assess the impact of the project on the affected people and collect data for assessing of the project success.

2011 - CRS Zambia

Team member for end line survey of phasing out of **SUCCESS** project in the Copperbelt, Central, Eastern and Southern Provinces. The nature of the work was to visit all project centers in these provinces, carry out interviews for quantitative and qualitative data, data management and make reports for management.

July 2011 - National Aids Council (NAC) -Field Coordinator

Part of the team contracted by National Aids Council (NAC) & Community Information, Empowerment & Transparency (CIET) Africa, for a country wide impact assessment on HIV/AIDS Media Programs e.g. Kwatu (Soul City), Sanitation Marketing and Hygiene Promotion Strategy development for Lusaka Peri-urban area (WSP-World Bank- 2008)

2011 - Lusaka Water and Sewerage Company

Worked with Lusaka water and Sewerage Company peri- Urban team, international sanitation specialist consultant as the Main local principal investigator for the 26 peri- urban areas in Lusaka. Developed and supervised the following:

- research tools design
- Training data collectors
- Data collection supervision and quality control
- Data entry, analysis and report writing under World Bank principles and guidelines.
- Sanitation social marketing strategy development
- Sanitation and hygiene sensitization programmes for behavior change.
- Create market for sanitation and hygiene products/facilities e.g. Toilets, soap, disinfectants, hand washing plastic products.
- Develop Sanitation and Hygiene promotion Marketing Strategy tools.
- Develop strategy impact and process Monitoring & Evaluation Framework

Employment

2006 to 2011 - Disaster Management for Emergence Response

Programme Officer,

Caritas Zambia, Lusaka, Zambia

Duties included identifying and responding to possible Human disasters, development needs, designing and preparing mode of response and planning. Carrying out impact assessment on disaster affected areas in Zambia.

2010 - Aids Relief Program

Team Member for the group that did the Cost based funding evaluation for Aids Relief Program at CRS Zambia. This involved visiting hospitals in Eastern, Southern, Lusaka and Copperbelt provinces to collect **quantitative and qualitative data**, project results based on the relief funding given to these health institutions.

2009 - Caritas Monze, Emergence Response to Disaster (UNICEF/CRS)

Facilitated the following programs:

- Impact Assessment for people affected by floods, Public Health and hygiene promotion/ sensitization
- Distribution of non-food items for recovery support

- Mobilization of sanitation facilities e.g. VIP-latrines
- Safe and clean water: keeping and treatment e.g. chlorine use
- Organizing Resettlement for affected families
- Providing counseling for affected people by the floods

2006 CRS Zambia

Team member for end line survey of phasing out of **RAPIDS** project in the Western and Southern Provinces. The nature of the work was to visit all project centers in these provinces, carry out interviews for quantitative and qualitative data, data management and make reports for management.

2001 to 2004 - Internships (May To August Each Year)

- 2002 - Administrator/ Projects Officer: (ACHAP) BONASO-World Bank funded programmes, Gaborone, Botswana
- 2004 - Social Worker, Holy Cross Hospice, Gaborone, Botswana. (3 Months)

May, 1990 To Date

Areas of Expertise among others include:-

- Excellent leadership, management and team working strategist for results
- Guidance and Counseling
- Community Mobilization
- Internal and External Project Social economic Impact assessment through both qualitative and quantitative research skills.
- Social Impact Assessments for Construction and Mining projects.
- Feasibility Studies for project appraisal, implementation, Monitoring and Evaluation
- Training for transformation programmes facilitation. (National Trainer)
- Social, Economic and political Advocacy for Gender Justice programming.
- Education for Life Behavior change Programmes Administration & facilitation
- Excellent Communication, Negotiation and Public speaking skills with effective Team coordination.
- Strategic planning, proposal development and Report writing skills.
- HIV/AIDs Donor funded programmes Coordination and Management
- Community based project management, development and Coordination
- Human Rights Based Approach programming
- Computer skills, MS Word, Excel, Adobe PageMaker, publisher, Power point, Internet
- Explorer and SPSS.

Skills and Competencies: -

Possesses the following Skills and Competencies:- Advanced Computer skills, Relations skills, Guidance and Counseling, Data Collection and Analysis skills, Community Mobilization skills, Negotiation skills, Facilitation skills, Training and Capacity Building skills, Participatory Methodological skills, Resource Mobilization skills, Environmental Impact Assessment skills, Strategic Environmental Assessment Skills; Research skills, Project Planning and Management skills, Policy Formulation and Analysis skills, Net-Working and Coordination skills, Monitoring and Evaluation skills, Counseling skills, Information

Technology skills, Sensitization / Awareness Creation skills, Leadership skills, Conflict Resolution skills, Analytical skills, Statistical skills, SWOT Analysis skills, SMART Objective Analysis skills, Needs Assessment skills, Feasibility Analysis skills, Organizational skills, Administrative and Management skills, Extension Services skills and Driving skills.

Languages Skills: - English, Tonga, Bemba, Chewa, Nyanja, Lozi, Lamba, Kaonde and Tumbuka

Certification: -

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.

Date: 20TH January, 2022

[Signature] 

[Day/ Month/ Year]

Full Names:- **Wisdom Chasaya**

References

Name : Mr Gillan Sifukwe
Position : Chief Executive Officer
Address : GLobal Enviromanagement Consultancy
 Lusaka, ZAMBIA.
Mobile Phone: 260-966-450218 / 977-368010
E-Mail : gillan_simfukwe@yahoo.com

Name : Mr E. Kabilika
Address : Programme Manager, Social Justice
 Caritas Zambia
 Plot BRT6 Kabulonga Road
 P.O. Box 31965, Lusaka, ZAMBIA.
Mobile Phone: 260-977-712051
E-Mail : epkabilika@Zec.org.zm

Name: Mr James Campbell
Officer) Catholic Relief Services (Senior Monitoring and Evaluation
James.cambell@crs.org
CELL NUMBER 0977808950

D. CURRICULUM FOR VITAE-GILLAN SIMFUKWE

Name of Consultant : Gillan Simfukwe
Date of Birth : 1st June, 1971
Nationality : Zambian
Profession : Environmental Management/Engineer
Years of Experience : Twelve (12) Years

Membership to Professional Bodies:-

- ◆ President Impact Assessment Association of Zambia (IAAZ)
- ◆ Associate Member of Engineering Institute of Zambia [EIZ]
- ◆ Member of the University of Zambia Metallurgical Society.
- ◆ Former Board Member of Association International des Commercial (AIESEC).

KEY QUALIFICATIONS:

Mr. Gillan Simfukwe has over Twelve years of professional working experience in Environmental management and sanitary analysis. His experience encompasses practical areas of environmental management at Amanita Premier oils where he served as Environmental Manager and Process Superintendent for over six years; In impact assessments in various environmental undertakings covering Mining, Water management, road, warehousing, bridge construction, farm/plantation management, water and waste sewerage systems, aqua cultural environment, plastic industry and Oils. Further he has worked on aspects of industrial waste management in liaison with the Lusaka water and sewerage especially on effluent treatment and management in process industries. He has undertaken several researches in dust and noise related projects.

Experienced for conducting Training Needs Assessment, Research and Consultancy in Environmental and

Natural Resources Management; Sustainable Agriculture; Project Planning and Management; Community Participatory Approaches / Participatory Methodologies; preparation of project and consultancy proposals; designing course packages, conducting training, carrying out timely evaluation of training and supervising periodic training programs and curriculum reviews.

His experience emanates from portfolios he held from 1998. He was an understudy at ZCCM, Mufulira division, later joined Amanita Premier Oils where he worked as Process manager (superintendent) and later as Environmental Manager where he formulated company environmental policies and co-ordinated all Environmental Impact Assessments (EIAs). He assisted Amanita Premier Oils to develop Environmental Management and Monitoring Systems and was part of the team, which formulated the Safety Policy. He was also assigned to study the viability of Amanita (formerly Mansa) Batteries and assess Manganese presence in Northern Province. He coordinates Environmental requirements at Dolomite Aggregates, Amatheon Agri, Mukambi Lodge, Handyman Paradise, Kafue Textiles, Ngucha Energy, Pegasus Energy, etc.

Gillan Simfukwe was the deputy team leader in the Environmental Impact Assessment conducted on behalf of Zambia Sugar Plc for the expansion project covering ten (10) thousand hectares in Mazabuka. He was the team leader for the EIAs conducted on behalf of Handyman's Paradise, Zambeef Plc, ACM

Products Limited, Graduate Property Development, Dolomite Aggregates, Amatheon Agri, Atlantis Metals, MRI Seeds, 20,000ha Zambeef palm plantation, NCC-Henan Guoji Industry Group Company Limited, Mutanda Farms, Kalundu Dairy, Bologna Properties, Zamchick and ETC Bio-Diesel. He formulated environmental management plans for Dolomite Aggregates, Handyman Paradise, Zamanita Processing Plant under Zambeef Plc', Fuel depot for Kobil Limited and Alasia Building & Construction. He was sub-contracted under Kaizen consulting international for the Chiawa Bridge Environmental Impact Assessment. He was part of the team that was contracted by CIET (Community, Information, Empowerment and Transparency) of Canada for a countrywide impact assessment on HIV and AIDS. This involved carrying out interviews with locals of Chiengi, Kaputa, Nchelenge, Mbala and several other districts in Eastern and Northern Provinces.

He has done International Environmental Law and Water Law under the United Nations Training (Geneva, Switzerland) with a bias in Environmental Management and Law, Environmental Impact Assessments, Climate Change at regional and global levels. He is also in possession of a Post Graduate Diploma in Environmental Management from Galilee International Management Institute, Israel. He holds a Certificate in Business Management from Management College of Southern Africa and a Bachelors' degree in Metallurgical Engineering from the University of Zambia. In addition, he has attended relevant workshops and conferences in Environmental aspects.

In addition, he is hard-working, good-oriented, organized, and enjoys solving problems and likes to see results. Proven public relations skills and ability to meet deadlines and work productively. Adept at handling steadily, increasing levels of responsibility. Able to work independently but enjoys working as a team.

Education and Professional Qualifications

- ◆ Environmental Management Course offered by Galilee International Management Institute, Israel, **2013**
- ◆ Participated in International Environmental Law offered by United Nations Institute for Training and Research (UNITAR), **2012**
- ◆ Participated in International Water Law offered by United Nations Institute for Training and Research (UNITAR).. **2014**
- ◆ **B.Sc. Mining**, Metallurgical Engineering, University of Zambia, (1998). **2005**
- ◆ Obtained a degree, Bachelor of Mineral Science from University of Zambia. **1998**
- ◆ Obtained a division one G.E.C 'O' level School Certificate from Mufulira Technical High School, **1991**

Short Courses

- ◆ Certificate in Business Management from Management College of Southern Africa. 2005 –
- ◆ 2006 Certificate in Strategic Environmental Assessment (SEA), 2012

Career / Employment Record: -

Client	Year	Assignment Done
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Mutanda Farms Limited	2014	Contracted as Consultant to prepare the Environmental Impact study report for the proposed integrated farming in Solwezi district, MUTANDA. The project was principally for the production, distribution and retailing of beef, eggs, pork, milk, eggs, stock feed and bread to clientele of North Western Province (2,000Ha). It also involved construction of Dam on Mbululu river.
Zambeef Products Limited Plc	June, 2013	Contracted as Consultant to prepare the Environmental Impact study report for the proposed poultry project at Zambeef's Mpongwe farms in Mpongwe district, Mpongwe (10,000Ha)
Amanita Group of Companies	May – Aug. 2006	Contracted to prepare the EIA for the proposed 25,000 hectares Muma Palm Oil Plantation in Kopa/Luchembe Chiefdom, Mpika, Northern Province; now owned by Zambeef.
Zambia Sugar Plc	Oct. – Dec. 2006	Contracted to prepare the EIA for the expansion of the Sugar Plantation in Mazabuka, Southern Province, (3,000Ha)
Export Trading Bio-Energy Zambia Limited Company	December, 2007	Contracted to prepare the Environmental Impact Statement (EIS) Report a 9,000Ha of Farmland in Mpongwe (Formerly Mpongwe Development Corporation Farm), Mpongwe, Zambia. Wheat, Maize Soya and other crops.
Zambeef Products Limited Plc	May, 2009	Contracted to prepare the Environmental Project Brief study report for the operations of the Ranching and Sugar Cane project at Nanga Farm in Mazabuka Project, Lusaka, Zambia.
Zambeef Products Limited Plc	August, 2009	Contracted as Consultant to prepare the Environmental Project Brief study report for the installation of a 6 km water pipe line for Zambeef's Chiawa Farms in Chirundu, Lusaka, Zambia.
MRI SEED LIMITED	2009	Contracted as Consultant by MRI seed Limited through GLObal Enviromanagement Consultancy Firm to prepare the Environmental Impact Assessment study report for the construction of Dam on Muyuni River, Chongwe, Zambia.
Zambeef Products Limited Plc	August, 2009	Contracted as Consultant to prepare the Environmental Project Brief study report for the Installation of the Fuel Depot by Zambeef's Chiawa Farms in Chirundu by Zambeef Products PLC, Lusaka, Zambia.
Huntley Farms	2013	Contracted to prepare an EIA on a 1,000Ha Farm in Chisamba. The project involved construction of Free Stall Barns.
Mwambashi River Lodge	July, 2009	Contracted as Consultant to prepare the Environmental Project Brief study report for the extension works of Mwambashi River Lodge in Lower Zambezi National Park, Lusaka, Zambia
MTN Zambia Limited through Plessey Execution Zambia Limited	June, 2009	Contracted as Consultant to prepare the Environmental Project Brief study report for the proposed Installation of the MTN GSM Base Station in South Luangwa National Park, Lusaka, Zambia
Adventure Purists Limited	June, 2009	Contracted as Consultant to prepare Environmental Project Brief study reports for the proposed Mobile Bush Camps in Kafue National Park, Lower Zambezi National Park and South Luangwa National Park, Lusaka, Zambia.

Zambia Wildlife Authority	Wildlife	June, 2009	Successfully Facilitated at the Two Days 2 nd Stakeholders Planning Workshops for Bangweulu Game Management Area held from 8 th to 9 th June, 2009 held in Mpika, respectively, Zambia
Zambeef Limited Plc	Products	May, 2009	Contracted as Consultant to prepare the Environmental Project Brief study report for the Installation of the Fuel Depot by ZamPalm a subsidiary of Zambeef Products Limited Plc in Mpika District Project, Lusaka, Zambia.
TATA Limited	Zambia	May, 2009	Contracted to prepare the Environmental Management Plan (EMP) report for the operational management of the TATA Tannery, Kabwe Project, Lusaka, Zambia.
Sable Limited	Quarry	May, 2009	Contracted to prepare the Environmental Project Brief study report for the Proposed Quarry & Crushing Plant in the Munali Hills Areas of Mazabuka District – Southern Province by Sable Quarry Limited, Lusaka, Zambia.
Alasia Building & Construction Limited		May, 2009	Contracted to prepare the Environmental Project Brief for the proposed Quarry and Crushing Plant within the Shimabala Area of Kafue District by Alasia Building & Construction Limited, Lusaka, Zambia.
Mukambi Lodge	Safari	May, 2009	Contracted to prepare the Environmental Project Brief study report for the proposed extension works of Mukambi Safari Lodge project within Mumbwa Game Management Areas (MGMA), Lusaka, Zambia.
Zambia Wildlife Authority	Wildlife	April, 2009	Successfully Facilitated at the Three Days Stakeholders 1 st Planning Workshop for the preparation of the General Management Plan for Chikuni / Bangweulu Game Management Area held from 6 th – 8 th April, 2009 in Mpika, Zambia.
Zambeef Limited Plc	Products	March, 2009	Contracted to prepare the Environmental Project Brief study report for the operational dairy project at Kalundu Farm in Chisamba, Lusaka, Zambia.
Zambeef Limited Plc	Products	March, 2009	Contracted to prepare the Environmental Project Brief study report for the proposed piggery for Masterpork a subsidiary of Zambeef Products Limited Plc managing the Kalundu Farm of the Chisamba Project Lusaka, Zambia.
Sable Limited	Quarry	February, 2009	Contracted to prepare an Emergency Preparedness Plan (EPP) report for the operational management of the Proposed Quarry & Crushing Plant within the Shantumbu – Chalala Area of Lusaka by Sable Quarry Limited, Lusaka, Zambia.
Hippo Zambia Limited	Lodge	February, 2009	Contracted to prepare an Emergency Preparedness Plan (EPP) report for the operational management of Hippo Bush Camp within the Kafue National Park North, Lusaka, Zambia.
Sable Limited	Quarry	January, 2009	Contracted to prepare the Environmental Project Brief for the Proposed Quarry & Crushing Plant within the Shantumbu – Chalala Area of Lusaka by Sable Quarry Limited, Lusaka, Zambia.

Zambeef Products Limited PLC	December, 2008	Contracted to prepare the Environmental Management Plan for Zambeef's Chiawa Farms in Chirundu by Zambeef Products PLC, Lusaka, Zambia.
Zambia Wildlife Authority	November, 2008	Successfully Facilitated at the Two Days Stakeholders 2nd Planning Workshop for the preparation of the General Management Plan for Chiawa Game Management Area held from 20th – 21st November, 2008

		in Siavonga, Zambia.
Hippo Lodge Zambia Limited	October, 2008	Contracted to prepare the Environmental Project Brief for the proposed Hippo Lodge Bush Camp within Kafue National Park North by Hippo Lodge Limited, Lusaka, Zambia.
Chinderera Adventure Zambia Limited	October, 2008	Contracted to prepare the Environmental Project Brief for the proposed Shishamba River Lodge within Kafue National Park North, Lusaka, Zambia.
Zambia Wildlife Authority	June, 2008	Successfully Facilitated at the Six Days Stakeholders Planning Workshops for the preparation of the General Management Plans for Mulobezi and Sichifulo Game Management Areas held from 23rd – 25th June, 2008 in Livingstone and from 26th – 28th June, 2008 in Kalomo respectively, Zambia.
NORAD / Forestry Department	Mar. - April, 1998	Served as Lead consultant in the Evaluation Team that was contracted as consultants by NORAD to carry out the Evaluation of the Chinyunyu Community Forestry Project.
Zambia Wildlife Authority	March, 2008	Successfully Facilitated at the Four Days Stakeholders Planning Workshop for the preparation of the Land Use Plan for Chiawa Game Management Area held from 18th – 21st March, 2008 in Siavonga, Zambia.
Mr. Wina Wina	March, 2008	Contracted to prepare the Environmental Project Brief for the construction of a Safari Lodge adjacent to the Kafue National Park close to the Hook Bridge, Lusaka, Zambia.
Mukambi Safari Lodge	February, 2008	Contracted to prepare the Environmental Project Brief for the construction of Plains Bush Camp in the Busanga Plains of Kafue National Park, Lusaka, Zambia.
Export Trading Bio-Energy Zambia Limited Company	December, 2007	Contracted to prepare the Environmental Impact Statement (EIS) Report, Lusaka, Zambia.
Seam Investment Limited	November, 2007	Contracted to prepare the Environmental Project Brief for the Small Scale Mining in Lunga Luswishi Game Management Area (GMA), Lusaka, Zambia.
Star Energy Limited	July, 2007	Contracted to prepare the Environmental Project Brief for the Construction of the Briquette Coal and Coke in Maamba, Sinazongwe District.

River Brook Springs	February, 2007	Contracted to prepare the Environmental Impact Assessment (EIA) for the proposed construction of the River brook Springs at the Confluence of Matushi / Kabompo Rivers, Mufumbwe District, North Western Province
Zambeef Products PLC	January, 2007	Contracted to prepare the Environmental Project Brief/Environmental Management Plan for the Chipata Zambeef Abattoir, Eastern Province.
ECZ/Kaizen Consulting International	February, 2007	Sub Consultant on Public Hearing Meeting for the Proposed Mwembeshi Copper Mine in Kalulushi/Serenje
ZCCM-IH/Kaizen Consulting International	December, 2006	Sub Consultant on Public Disclosure on the Lead and Zinc contamination on the environment, Kabwe
Zambeef PLC/Kaizen Consulting International	December, 2006	Contracted to prepare the Environmental Project Brief/Environmental Management Plan for the Senanga Abattoir, Western Province.
Shiladia	December,	Contracted to prepare the EIA for the construction of Chiawa Bridge

Incorporation / Min. of Works and Supply	2006	across the Kafue River
ASCO Engineering Co/RDA	November, 2006	Contracted to prepare the Socio-economic and Monitoring Baseline for the M8 Road / Mutanda - Chavuma Rd, North Western Province
Wilderness Safaris	September, 2006	Contracted to prepare the Environmental Project Brief for the proposed construction of the Imusho Lodge, within Mosi-Oa-Tunya National Park, Livingstone
Sefula Crocodile Farm Ltd	May, 2006	Contracted to prepare the Environmental Project Brief for the proposed Crocodile farm in Mongu District, Western Province.
Wilderness Safaris	March, 2006	Contracted to prepare the two Environmental Project Briefs for the construction of the proposed Shumba Bush Camp and Kapinga Bush Camp within Kafue National Park, Lusaka, Zambia.
Environmental Council of Zambia/Kaizen Consult	November, 2006	Sub Consultant on Public hearing meeting for the proposed Scirrocco Mini Cement Plant, Makeni, Lusaka.
Environmental Council of Zambia/Kaizen Consult	October, 2006	Sub Consultant on Public hearing meeting for the proposed Sanje Hill Iron mine for the Universal Mining and Chemicals Ltd, Nampundwe, Lusaka Western.
Zambia Sugar Plc	Oct. – Dec. 2006	Contracted to prepare the EIA for the expansion of the Factory and Plantation, Mazabuka, Southern Province

Legacy Holdings Zambia/Bicon (Z) Ltd	Aug. – Oct. 2006	Contracted to prepare the Socio-eco & Cultural Environmental Consultants on EIA for proposed construction of Hotels and Country Club Estates in Mosi-oa-Tunya National Park, Livingstone town, Southern Province.
Mining Sector Diversification Program/EU	Aug. – Sept. 2006	Contracted to prepare the Environmental Project Brief for the construction of the Iron Ore processing Mine/Appropriate Technology in Luanshya, Copperbelt Province
Environmental Council of Zambia/Kaizen Consultant International	June, 2006	Sub Consultant on Public Hearing meeting for the Copperbelt Energy Company power supply project to the Proposed First Quantum Mineral's Frontier Mine, Sakanya, Border Zambia/DRC, Ndola.
Amanita Group of Companies	May – Aug. 2006	Contracted to prepare the EIA for the proposed 25,000 hectares Muma Palm Oil /Jatropha Plantation in Kopa/Luchembe Chiefdom, Mpika, Northern Province
ASCO Engineering Company	Mar. – May 2006	Contracted to prepare the Socio-Eco & Cultural Environmental Consultants, EIA, Proposed construction of the Sewer Reticulation System for the Chirundu Border Town, Southern Province.
Zambezi Fish Farm Ltd.	2006	Contracted to prepare the EIA for Establishing a Commercial Fish Farm offshore cage around the Banana Island on Lake Kariba, Siavonga, Southern Province
California Beverages Ltd	2006	Contracted to prepare the Environmental Project Brief for the manufacturing of Fizzy drinks involving gaseous, liquid and solid wastes, Lusaka industrial area.
Sun Soft Trading Ltd	2005	Contracted to prepare the Environmental Project Brief for the establishing of the Cooking Oil factory, Lusaka Industrial Area
Saja Wood processing Industry Ltd	2005	Contracted to prepare the Environmental Project Brief for the establishing of Wood plantation and their eventual effects on the Environment, Lusaka
Amanita Group of Companies	2005	Contracted to prepare the Environmental Project Brief for the Establishment of the plastic factory in Lusaka.
Continental Gineries Ltd	2005	Contracted to prepare the Environmental Project Brief for the Cotton Ginney, Sinda, Eastern Province.
Amanita Group of Companies	2004	Contracted to prepare the EIA for the Restoration of the Defunct Mansa Batteries and provision of technical information on the viability of the Plant, Mansa, Luapula Province
Super Steel Ltd	2004	Contracted to prepare the Environmental Project Brief, Assessment of impacts of hot works on the environment, Lusaka.
Amanita Group of Companies	2004	Contracted to prepare the Environmental Project Brief, for the Refurbishment of fats/Margarine plant Lusaka
Goodman Crus (Z) Ltd	2004	Contracted to prepare the Environmental Project Brief, an assessment of the viability of their project according to the Environmental Protection and Pollution Control Act No. 12 of 1990, Cap 204

Zambezi Leaf Limited		October, 2005	Contracted to prepare the Environmental Project Brief for the construction of the proposed Zambezi Leaf Limited Tobacco Processing Plant within Lusaka District, Lusaka, Zambia.
Lubungu Safaris (2001) Limited	Wildlife	September, 2005	Contracted to prepare the Environmental Project Brief for the establishment of the proposed Lubungu Wildlife Safaris (2001) Limited (McBrides) Seasonal Fly Camp within the Kafue National Park, Lusaka, Zambia.
Kariba Lodge & Tours Limited	Lagoon	February, 2005	Contracted to prepare the Environmental Project Brief for the proposed Kariba Lagoon Lodge in Siavonga District, Lusaka, Zambia
Zambeef Limited	PLC	February, 2005	Contracted to prepare the Environmental Project Brief for the Construction of the proposed Sinazongwe Zambeef Abattoir within Sinazongwe District, Lusaka, Zambia.
Lion Camp Limited		August, 2004	Contracted to prepare the Environmental Project Brief for the proposed Extensions and Alterations to the existing Lion Camp within South Luangwa National Park, Lusaka, Zambia.
African Wildlife Foundation		May, 2004	Contracted to prepare the Environmental Project Brief for the Construction of the proposed Chiawa Cultural Village within Chiawa Game Management Area (GMA), Lusaka, Zambia.
Zambeef Limited	PLC	March, 2004	Contracted to prepare the Environmental Project Brief for the Construction of the proposed Zambeef Crocodile Farm within Mongu Township, Lusaka, Zambia.
Greenbelt Fertilizers Ltd		2004	Contracted to prepare the Environmental Project Brief for the fertilizer mixing plant and the eventual processing effects on the Environment, Mazabuka, Southern Province
Zambeef Limited	PLC	December, 2003	Contracted to prepare the Environmental Project Brief for the Construction of the proposed Shangombo Abattoir, Shangombo town, Western Province
Zambeef Limited	PLC	March, 2004	Contracted to prepare the Environmental Project Brief for the Construction of the proposed Namwala Abattoir, Southern Province
Zambia Authority	Wildlife	August, 2003	Finalized the Resettlement Action Plan for the Relocation of Imusho Village that was within Mosi-Oa-Tunya National Park, Chilanga, Zambia.
Unified Chemicals (Z) Ltd		2002	Contracted to prepare the Environmental Project Brief for the establishing of the Crude oil processing plant and the provision of advisory guidelines for the development Output
Lubungu Wildlife Safaris (2001) Limited		August, 2002	Contracted to prepare the Environmental Project Brief for the Construction of the proposed Lubungu Wildlife Safaris (2001) Limited (McBrides) Camp within the Kafue National Park, Lusaka, Zambia.
Zambezi Ranching Cropping Limited		May, 2002	Contracted to prepare the Environmental Project Brief for the Construction of the Zambezi Ranching Cropping Limited Irrigation Dam along the Chongwe River, Lusaka, Zambia.

Kafue River Golf Club Limited	August, 2000	Contracted to prepare the Environmental Project Brief for the construction of the proposed International Country Club Golf Course in Kafue town of Zambia
Hotel and Tourism Training Institute Trust	March, 2000	Contracted to prepare the Environmental Project Brief for the Establishment of the proposed Hotel and Tourism Training Institute - Livingstone Campus
Yamene Transport Limited	1999	Contracted to prepare the Environmental Project Brief for the proposed Bus Station along Katima Mulilo Road for Yamene Transport Limited

January, 2012

Contracted as Consultant by **Kobil (Z) Limited** through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the installation of LPG Tanks at the Malambo road depot, Lusaka, Zambia.

December, 2011

Contracted as Consultant by **Kobil (Z) Limited** through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the installation of Fuel Tank at the China Henan camp site, along Siavonga Road, Siavonga, Zambia.

August, 2011

Contracted as Consultant by **Kobil (Z) Limited** through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for Senanga Filling Station, Senanga, Zambia.

July, 2011

Contracted as Consultant by **Kobil (Z) Limited** through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the installation of fuel Tank at Limestone farm in Kabwe, Lusaka, Zambia.

June, 2011

Contracted as Consultant by **Kobil (Z) Limited** through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the refurbishment of Malambo road depot, Lusaka, Zambia.

April, 2011

Contracted as Consultant by Ngucha Energy through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for Chambishi Filling Station by Ngucha Energy Limited, Lusaka, Zambia.

January, 2011

Contracted as Consultant by Pegasus (Z) Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for Lufwanyama Filling Station by Pegasus (Z) Limited, Lusaka, Zambia.

August, 2010

Contracted as Consultant by Handyman's Paradise through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Impact Statement (EIS) Study Report for Handyman's Paradise in Masaiti Area of Ndola, Zambia.

November, 2009

Contracted as Consultant by Mfuwe Trails Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the renovations and refurbishment of Mfuwe Lodge and Bush Camps in South Luangwa National Park, Lusaka, Zambia.

November, 2009

Contracted as Consultant by MRI seed Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Impact Assessment study report for the construction of manufacturing plant for **pharmaceuticals**, Lusaka, Zambia.

November, 2009

Contracted as Consultant by Wilderness Safaris Zambia Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the renovations and refurbishment of Ntemwa Lodge in Kafue National Park North, Lusaka, Zambia.

October, 2009

Contracted as Consultant by Zampalm Limited a subsidiary of Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief for construction of an Airstrip in Bangweulu Game Management (GMA), Lusaka, Zambia.

August, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Management Plan for Zamanita Processing Plant a subsidiary of Zambeef Products Limited Plc in Lusaka, Zambia.

August, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the installation of a 6 km water pipe line for Zambeef's Chiawa Farms in Chirundu, Lusaka, Zambia.

August, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for Chiawa Filling Station by Zambeef Products PLC, Lusaka, Zambia.

July, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the extension works of Mwambashi River Lodge in Lower Zambezi National Park, Lusaka, Zambia.

June, 2009

Contracted as Consultant by MTN Zambia Limited through Plessey Execution Zambia Limited and through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the proposed Installation of the MTN GSM Base Station in South Luangwa National Park, Lusaka, Zambia.

June, 2009

Contracted as Consultant by Adventure Purists Limited through GLobal Enviromanagement Consultancy Firm to prepare Environmental Project Brief study reports for the proposed Mobile Bush Camps in Kafue National Park, Lower Zambezi National Park and South Luangwa National Park, Lusaka, Zambia.

May, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the Installation of the Fuel Depot by ZamPalm a subsidiary of Zambeef Products Limited Plc in Mpika District Project, Lusaka, Zambia.

May, 2009

Contracted as Consultant by TATA Zambia Limited (TZL) a subsidiary of TATA Zambia under the TATA Group of Companies through GLobal Enviromanagement Consultancy Firm to prepared the Environmental Management Plan (EMP) report for the operational management of the TATA Tannery, Kabwe Project, Lusaka, Zambia.

May, 2009

Contracted as Consultant by Sable Quarry Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the Proposed Quarry & Crushing Plant in the Munali Hills Areas of Mazabuka District – Southern Province by Sable Quarry Limited, Lusaka, Zambia.

May, 2009

Contracted as Consultant by Alasia Building & Construction Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief for the proposed Quarry and Crushing Plant within the Shimabala Area of Kafue District by Alasia Building & Construction Limited, Lusaka, Zambia.

May, 2009

Contracted as Consultant by Mukambi Safari Lodge (MSL) through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the proposed extension works of Mukambi Safari Lodge project within Mumbwa Game Management Areas (MGMA), Lusaka, Zambia.

May, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the operations of the Ranching and Sugar Cane project at Nanga Farm in Mazabuka Project, Lusaka, Zambia.

March, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the operational dairy project at Kalundu Farm in Chisamba, Lusaka, Zambia.

March, 2009

Contracted as Consultant by Zambeef Products Limited Plc Company through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief study report for the proposed piggery for Masterpork a subsidiary of Zambeef Products Limited Plc managing the Kalundu Farm of the Chisamba Project Lusaka, Zambia.

February, 2009

Contracted as Consultant by Sable Quarry Limited through GLobal Enviromanagement Consultancy Firm to prepare an Emergency Preparedness Plan (EPP) report for the operational management of the Proposed Quarry & Crushing Plant within the Shantumbu – Chalala Area of Lusaka by Sable Quarry Limited, Lusaka, Zambia.

February, 2009

Contracted as Consultant by Hippo Lodge Zambia Limited through GLobal Enviromanagement Consultancy Firm to prepared an Emergency Preparedness Plan (EPP) report for the operational management of Hippo Bush Camp within the Kafue National Park North, Lusaka, Zambia.

January, 2009

Contracted as Consultant by Sable Quarry Limited through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief for the Proposed Quarry & Crushing Plant within the Shantumbu – Chalala Area of Lusaka by Sable Quarry Limited, Lusaka, Zambia.

December, 2008

Contracted as Consultant by Zambeef Products PLC through GLobal Enviromanagement Consultancy Firm to prepare the Environmental Management Plan for Zambeef's Chiawa Farms in Chirundu by Zambeef Products PLC, Lusaka, Zambia.

October, 2008

Contracted as Consultant by Hippo Lodge Limited through GLocal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief for the proposed Hippo Lodge Bush Camp within Kafue National Park North by Hippo Lodge Limited, Lusaka, Zambia.

March, 2008

Contracted as Consultant by Mr. Wina Wina through GLocal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief for the construction of a Safari Lodge adjacent to the Kafue National Park close to the Hook Bridge, Lusaka, Zambia.

February, 2008

Contracted as Consultant by Mkambi Safari Lodge through GLocal Enviromanagement Consulting Firm to prepare the Environmental Project Brief for the construction of Plains Bush Camp in the Busanga Plains of Kafue National Park, Lusaka, Zambia.

December, 2007

Contracted as Consultant by Export Trading Company Bio-Energy Limited (Zambia) (ETCBEL) through GLocal Enviromanagement Consultancy Firm to prepare the Environmental Impact Statement (EIS) Report, Lusaka, Zambia.

November, 2007

Contracted as Consultant by Seam Investment Limited through GLocal Enviromanagement Consultancy Firm to prepare the Environmental Project Brief for the Small-Scale Mining in Lunga Luswishi Game Management Area (GMA), Lusaka, Zambia.

2003 – 2005 Amanita Premier Oils Principal Environmental Officer, Work done as Environmental Officer included among others:-

- ◆ Planning and managing all Environmental Project activities, co-ordination of departmental heads, guiding all employees on soap stock and general waste management.
- ◆ Preparing Environmental Impact Assessments, Environmental Project Briefs for the Company e.g. Refurbishment of Margarine plant and Mansa Batteries; establishment of plastic plant etc.
- ◆ Prepared bi-annual reports on solid waste disposal in accordance with Environmental Council of Zambia requirements.
- ◆ Formulated a project proposal regarding effluent management (minimization of COD and BOD using flocculants)
- ◆ Responsible for planning and management of company Environmental, Health and Safety Policies.
- ◆ Preparing Cleaning Programmes for our general cleaning crew.
- ◆ Ensuring that all liquid effluent, air and solid waste parameters are within the requirements of the law.

Advising management on pollution aspects.

Planning on energy use for the plant.

Liaison officer between company and other Environmental stakeholders such as Lusaka Water and Sewerage Company, Lusaka City Council and Environmental Council Of Zambia.

- ◆ Redesigned and simplified the method for Soap stock storage and subsequent disposal.
- ◆ Planned and implemented training and orienting programme for all staff in Environmental issues.

1998 - 2003 Process Manager (Process Superintendent) involving among others:-

- ◆ Involved with solvent extraction of crude oil from soya/sunflower seed; Palm oil refining; Cotton oil refining; filling room, crushing plant and boiler operations.
- ◆ Preparing technical reports to the Factory Manager.
- ◆ Ensuring all the oil process parameters are within spec.
- ◆ Analysing quality of end product.
- ◆ Preparing monthly production reports for management.
- ◆ Overseeing the entire plant on a given shift.
- ◆ Interpreting production costs to subordinates.

Developed and implemented rigorous solution for solvent recovery.

Assignments with CIET International

Date: July 4 – 30 July, 2007

Location: Eastern, Luapula and Northern Provinces

Position: Consultant

Project: Conducting an Impact Assessment on the Knowledge of HIV & AIDS, health living and Kwatu (Soul City) Materials. A follow up on the Baseline Evaluation done in 2004.

Assignments with Kaizen Consulting International

Date:	Dec 2006-Jan 2007
Location:	Chirundu, Zambia
Position:	Sub - Consultant
Client:	Ministry of Works and Supply
Project:	Environmental Impact Assessment of the Design and Construction Chiawa Bridge in Chirundu.
Assignment:	Evaluating Impacts and their mitigation measures in line with waste management

Assignments with EnviroSolutions Consultants

Year:	2006
Position:	Waste management expert/engineer
Project:	Environmental Impact Assessment (EIA) for Zambezi Fish Farm in Siavonga.
Study:	Establishing of commercial off shore fish cages around Banana Island, Lake Kariba.
Client:	Zambezi Fish Farm Limited
Date:	Sept –Nov 2006
Assignment:	Preparation of Environmental Impact Assessment and development of an environmental Management and monitoring plan for the expansion project extending more than 10,000hactares of land in Mazabuka.
Project:	Environmental Impact Assessment for expansion of the existing Nakambala Sugar Estate
Location:	Mazabuka – Zambia

Position:		Deputy Team leader /Environmental Waste Management co-consultant
Client:		The study was undertaken for Zambia Sugar Plc-leading Sugar producer in Zambia.
Date:		June –August 2006
Assignment:		Preparation of Environmental Impact Assessment and development of an environmental Management and monitoring plan for the establishment of palm oil plantation.
Project:		Environmental Impact Assessment for Oil Palm Plantation
Location:		Luchembe and Kopa chiefdom – Mpika, Zambia

Position: Environmental Waste Management co-consultant

Client : The study was undertaken for Amanita Premier Oils-one of the leading oil companies in Zambia.

Year:	2005
Client:	Saja Wood processing Industry
Project:	Environmental Project Brief
Study:	Carrying out a brief study on wood plantation and the eventual processing effects on the environment.
Position:	Consultant
Year:	2004
Client:	Greenbelt Fertilizers
Project:	Environmental Project Brief
Assignment:	Carrying out a study on the fertilizer mixing plant in Kabwe and later Mazabuka.
Position:	Consultant
Date:	2006
Location:	Lusaka, Zambia
Position:	Consultant
Client:	Darmesh Housing Complex
Project:	Environmental Project Brief for Development of ten (10) housing units in ‘New Kasama’, Lusaka East
Assignment:	To prepare an acceptable environmental assessment at and around the project site

Assignments with Germany Technical Co-operation- GTZ

Year:	1998
Position:	Co-Research Assistant
Project:	Copperbelt Air pollution management. Coordinated by Professor Simukanga . The study was under the support of the German Embassy.
Study:	Involved analysis of gaseous emissions formed from combustion processes, Nitrogenous oxides etc. on the Copperbelt.
Year:	2005
Project:	Environmental Project Brief (EPB)

Study/Assignment:		Establishment of Cooking Oil Factory in Lusaka's industrial area. Preparing an EPB describing environmental impacts likely to emanate from the industrial processes.
Client:		Sun – Soft Trading Limited
Position:		Consultant
Year:		2002
Project:		Environmental Project Brief for Unified Chemicals of Zambia in Lusaka.
Assignment:		Production of an EPB for Crude Oil Processing plant including advisory guidelines for the developments expected outputs.
Position:		Consultant
Year:	1998	
Position:		Co-Research Assistant
Project:		Copperbelt Air pollution management. Coordinated by Professor Simukanga . The study was under the support of the German Embassy.
Study:		Involved analysis of Sulphur dioxide formed from combustion processes, Nitrogenous oxides etc.
Year:	2006	
Position:		Co-Environmental consultant
Project:		Undertaking a study in Carbon dioxide manufacturing process for fizzy drinks.
Study:		Environmental Project Brief considering gaseous, solid and liquid waste.
Client:		Calirfonian Beverages manufacturers of different blends of drinks
Year:		2003
Clients:		Petauke and Willy's Breweries
Project:		Combined Environmental Project Brief
Study:		Brief evaluation of both positive and negative impacts of the two Breweries in Petauke.
Position:		Consultant
Year:		2005
Client:		Continental Ginneries Limited
Project:		Environmental Project Brief conducted in Sinda, Eastern Province
Assignment:		To review existing bio – physical environment and consider potential impacts of proposed project.
Position:		Project Consultant
Year:		2004
Client:		Goodman Crushers Limited, Lusaka
Project:		Environmental Project Brief
Assignment:		To assess viability (environmentally) of the project according to the Environmental Protection and Pollution Act No. 12 of 1990 cap 204.

Position:		Project consultant
Year:		2004
Client:		Supersteel Limited
Project:		Environmental Project Brief
Assignment:		To conduct an EPB on how hot works impact on the environment.
Position:		Project consultant
Year:		2004
Project:		Refurbishment of Margarine plant
Assignment:		Brief Environmental Study on the rehabilitation of fats/margarine processing plant (formerly Premium oils fats plant).
Position:		Environmental Officer
Year:		2004
Project:		Restoration former Mansa Batteries
Study:		Carrying out an Environmental Impact study of former Mansa Batteries. Providing advisory technical information on environment and project viability.
Year:		2005
Project:		Plastic making factory within Amanita Premier Oils
Study:		To conduct an EPB for submission to ECZ and suggest environmental management plans.
Position:		Environmental co-ordinator
December 1998		Monitoring pyrometallurgical activities such as blending of concentrates, smelting, drying etc for Mopane – Mopani Mining. Analysing each process activity and how spillages could be avoided to enhance pollution control.

December 1995 – March 1996 with Mopane – Mopani Mining

- ☐ Monitoring of copper floatation cells.
- ☐ Preparing of daily production reports.
- ☐ Monitoring lime dosage and tailings disposal.

Professional Seminars and Workshops:-

June 1998 Presented a paper on causes of high copper losses to converter slags and how slags can safely (environmentally) discarded at an international Jubilee conference held at University of Zambia.

July 1997 University of Zambia; Wrote a paper on air as waste depository.

1997 Attended a symposium organized by AIESEC on capital markets development in Zambia and future prospects. Participated in AIESEC extension programs to tertiary Institution of learning.

2002 Attended a workshop on 'Cleaner Production' in Lusaka

Attended a workshop on discharge of effluent into sewer and aquatic environment organized by Environmental Council of Zambia in conjunction with Lusaka Water and Sewerage Company at Fairview Hotel.

2003 Attended a workshop on Invasive Alien species organized by Musekela Research and

Forestry station in Chipata, Zambia.

Skills and Competencies: -

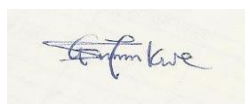
Possesses the following Skills and Competencies: - Advanced Computer skills, Public Relations skills, Data Collection and Analysis skills, Negotiation skills, Facilitation skills, Training and Capacity Building skills, Participatory Methodological skills, Resource Mobilization skills, Environmental Impact Assessment skills, Strategic Environmental Assessment Skills; Project Planning and Management skills,

Logical Frame-work Approach skills, Project, Research and Consultancy Proposal Writing skills, Environmental and Natural Resources Management skills, Policy Formulation and Analysis skills, NetWorking and Coordination skills, Monitoring and Evaluation skills, Information Technology skills, Sensitization / Awareness Creation skills, Analytical skills, Statistical skills, SWOT Analysis skills, Needs Assessment skills, Feasibility Analysis skills, Organizational skills, Administrative and Management skills and Driving skills.

Languages: -				
	Understanding	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent	Excellent
Mambwe	Excellent	Excellent	Excellent	Excellent
Bemba	Excellent	Excellent	Excellent	Excellent
Nyanja	Excellent	Excellent	Excellent	Excellent

Certification: -

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.



Date: January, 2025

[Signature of Consultant]

Full Name of Consultant: **Gillan Simfukwe**

E. CURRICULUM VITAE FOR ANTHONY KUNDA

1.0 Personal Details

Name: Anthony Kunda
Date of Birth: 26/11/1982
Place of Birth: Mufulira - Zambia
Nationality: Zambian
NRC No.: 277389/66/1
Marital Status: Married
Mobile: +260 966 248 077/966 517 805
E-mail: kundarox01@gmail.com/anthony.kunda@fqml.com

2.0 Professional Summary

Highly accomplished and meticulous Metallurgical Engineer with vast knowledge of mineral processing and hydrometallurgical processes for over nine years of experience. Adapt at adjusting work pace to fulfill changing customer needs and expectations. Strong trainer and mentor for industrial junior staff.

3.0 Core Competences

- Outstanding metallurgical processing plant optimization and operation experience.
- High ability in plant commissioning.
- Business awareness.
- Basic knowledge on metallographic specimen preparation.
- Good communication and presentation skills for reporting to customers and colleagues.
- Good technical writing and strong analytical skills.
- Good understanding of the occupational health and safety awareness.
- Strong skills in metallurgical accounting and balances.
- Excellent knowledge on Quality Management and Environmental Management Systems.
- Exceptional ability in leadership and supervisory skills.

4.0 Work experience

Metallurgical Trainer – Hydrometallurgical Section (Leaching, HPL, CCD, SX, EW & Acid plants)

January 2015 – Present

First Quantum Minerals

Kansanshi Mining PLC

Solwezi – Zambia.

- Evaluated and updated current processes and procedures as necessary.
- Developing and training in essential elements of the process area of operation including management of safety, basic theory and operating control philosophies.
- Working alongside technical staff to implement projects and upholding safety as a top priority.

Senior Operations Supervisor – Hydrometallurgical Section (Leaching, CCD, SX & EW)

August 2013 – December 2014

First Quantum Minerals

Kansanshi Mining PLC

Solwezi – Zambia.

- Overseeing the operations, enforcement of procedure and policy in line with company interests.
- Provide technical assistance to management, shift supervisors and operators.
- Conducted process inspections with integrated statistical methods.
- Reviewed budget and recommended cost reduction strategies.
- Successfully commissioned the 17.5 MTPA of the Kansanshi Mine Hydrometallurgical expansion project. The section consists of Leaching Plant, CCD circuit, Solvent Extraction plants and electro-winning plants.

Plant Metallurgist – Hydrometallurgical & Refinery Sections

January 2012 – August 2013

Mopani Copper Mines PLC

Mufulira Mine Site.

- Carrying out technical and operational investigations leading to plant optimization.
- Evaluated and updated current processes and procedures as necessary.
- Fully involved in the construction of Muf West and Muf East Heap Leach expansion project at Mopani Copper Mine, Mufulira site.
- Provided metallurgical accounting balances and monthly reports to management.
- Supervised quality checks and performed laboratory analysis on metal products.
- Training of metallurgical staff.

Metallurgical Engineer

January 2011 – August 2011

Mutanda Mine PLC

Democratic Republic of Congo

- Conducted project laboratory experiments as required.
- Monitored and updated processes with latest equipment technology and process protocols.
- Assisted in the construction of MUMI heap leach project.

Metallurgical Engineer – Hydrometallurgical & Refinery Sections

August 2008 – August 2011

Mopani Copper Mines PLC

Mufulira Mine Site.

- Conducted project laboratory experiments as required.
- Successfully conducted laboratory test works in removing manganese from SX raffinate bleed through precipitation before discharging into the environment.
- Successfully conducted a pilot plant study to assess the suitability of using MEX 4 (SX extractant) – a Soil India product - at Mopani Copper Mines solvent extraction plants.
- Provided metallurgical balances to management.
- Conducted quality checks and performed laboratory analysis on metal products.
- Provided technical assistance to operations.

5.0 Professional Qualification and Education

Bachelor's Degree - Metallurgical Engineering

2008

Copperbelt University

Riverside Campus

Kitwe-Zambia

Grade Twelve School Certificate

2001

Kantanshi High School

Mufulira-Zambia

6.0 Referees

1. Mike Kabwe

Training and Development Superintendent
Kansanshi Mining Plc
P.O Box 110385
Solwezi.
Mobile: +260 966 999 290
E-mail: mike.kabwe@fqml.com

2. Fred Kalala
Hydromet Superintendent
Kansanshi Mining Plc
P.O Box 110385
Solwezi.
Mobile: +260 966 994 956
E-mail: fred.kalala@fqml.com

3. Frank Tembo
Hydromet Superintendent
Mopani Copper Mines Plc
Mufulira Mine Site
Mobile: +260 961 543 677
E-mail: frank.tembo@mopani.com.zm

F. CURRICULUM VITAE FOR SHAITAN SINGH CHOUHAN

SHAITAN SINGH CHOUHAN (Geologist)

Phone: +260 974256441 (Zambia); +91 7874001290 (India)

Email: shaitan.chouhan@gmail.com

Professional Summary & Objectives

- ✓ Geologist with **16+ years** of professional experience in Mining, Mineral Exploration, Mineral Sourcing and International Logistic.
- ✓ Hands-on experience in sourcing Metalliferous and Non-metalliferous mineral viz: Copper, Fluorite, Iron Ore, Manganese, Tin, Tantalum, Coltan, Quartz, Feldspar, Silica Sand, Bentonite etc.
- ✓ Business development & Marketing of mineral based industry's raw material.
- ✓ Scout for Buyers and Marketing, evaluation of inquiries, coordination with shipping agency for optimum freight options, preparation of detailed quotations.

Current Employment:

General Manager (Geology & Business Development) with Suyog Natural Resources Limited, Zambia ...Since January 2016 (3Years 3Months)

*Company registered in Zambia with a focus on Copper, Cobalt & Manganese, to explore, develop mineral deposits, production of Manganese by Small scale mining and trading globally. **Key job responsibilities are:***

- ✓ Overall project supervision to manage mineral exploration program, mining of Manganese and supply globally to end users.
- ✓ Statutory compliance related to entire operation.
- ✓ Oversee business development activities includes identify the prospective tenement for production of minerals, acquisition, define format for JV operation, financing and budgeting of the projects, profit analysis.
- ✓ Production of Manganese and export it to India.
- ✓ Sourcing of Fluorite from Indonesia and act as an interface between buyer and sellers in India.

Previous Work Experience (Total 13Y 5M):

Sr. Geologist grade "Asst. General Manager" with Jindal Africa investment (Pty.) Ltd, South Africa; from February 2014 to September 2015 for Iron Ore (Magnetite) Greenfield Exploration.	1Yr 8M
2. Sr. Geologist grade "Manager" with Jindal Zambia Ltd, Zambia; from April 2012 to January 2014 for Copper Greenfield Exploration	1Yr 10M

Sr. Manager – Geology & Mineral Exploration with MMR sprl subsidiary of Somika (Societe Miniere Du Katanga) Democratic Republic of Congo; from February 2010 to March 2012 for Tin, Tantalum & Gold Greenfield Exploration & Small-Scale mining	2Yrs 2M
Geology & Production Controller with Indo Minerals & Metals DOOEL, Republic of Macedonia; from January 2007 to January 2010 for Lead, Zinc & Silver Underground Metalliferous Mines viz; Toranica & Zletovo mine	3Yrs 1M

Asst. Geologist with J.K. White Cement Works, Gotan(Rajasthan) INDIA; from August 2005 to December 2006 for Captive Opencast Dhanappa Limestone Mine	1Yr 5M
6. Exploration Geologist with Anglo American Pvt. Ltd. INDIA; from October 2004 to April 2005 for Lead & Zinc greenfield exploration	0Yr 7M
Consulting Geologist with R.K. Consultant (Mining and Geological Consultancy) Jodhpur (Rajasthan) INDIA; from October 2003 to August 2004	0Ys 11M
Geologist with United Micron, Beawar (Rajasthan) INDIA; from November 2001 to July 2003 for Opencast Quartz, Feldspar, China Clay & Wollastonite Mines	1Y 9M

Principal Accountabilities:

- ✓ Managing a team of Geologists in greenfield and brownfield project.
- ✓ Coordinating all geological activities, budgets, contractor services & plans relating to the maturation of upstream exploration & new growth projects.
- ✓ Providing geologically based interpretation, analysis & exploration recommendations.
- ✓ Ensure that the exploration geological database is up-to-date, accurate & appropriate for all geological and mining needs.
- ✓ Liaising with various Govt regulating body for statutory compliance in India & overseas assignment.
- ✓ Technical evaluation & commercial negotiation of all contracts related to exploration & mining activities.
- ✓ Preparation of periodic report on exploration & production progress on daily, weekly, monthly quarterly, half yearly & yearly basis.
- ✓ Involved in Mines production planning, scheduling and controlling of mining operation and monitoring grade control programs to ensure budgeted mill feed grade achieved.
- ✓ Providing mentorship, guidance & control as required to all geological staff with respect to geological methods & evaluation.

Capability:

- ✓ Supervision & management all field activities which includes 8 drilling rigs in operation at a time and establishing synchronization between field activities, sample preparation & in house assay lab

for analysis.

- ✓ Undertook exploration work on Greenfield project in Jindal Zambia Ltd, Zambia and in addition, explored new exploration opportunities to enhance exploration assets for the company.
- ✓ Independently handled two greenfield exploration projects by following state of art exploration methodology and quality procedure to reach resource estimation stage and in addition, major geological inputs on opening small mine workings to meet production targets in MMR sprl, Democratic Republic of Congo.
- ✓ Collated and stored all historical geological data on paper medium into relevant electronic storage facilities & maintain database for operational stages of production in Indo Minerals & Metals, Republic of Macedonia in addition to identification of new areas of significant exploration potential.
- ✓ Enhanced mine production substantially with budget feed grade to processing plant & increased company's exploration assets in order to secure future production targets in United Microns, Beawar (Rajasthan).

Computer Skill:

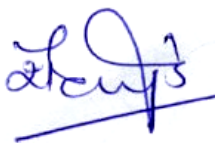
- ☐ MS Office, Geological Data Analysis & Interpretation Software i.e. **MapInfo & Discover, ArcGIS & Surpac (3D Modeling)**

Educational Qualification

- ☐ Master of Science in Geology, Year 2000 from Mohanlal Sukhadia University, Udaipur (Rajasthan) INDIA

Professional Association:

- ☐ **MAIG (Member of Australian Institute of Geoscientists**, Membership No. 5464)
- ☐ **Professional Natural Scientist** registered with **South African Council for NaturalScientific Professions** (Registration number 400697/15)

A handwritten signature in blue ink, appearing to read 'Shaitan Singh Chouhan', with a horizontal line drawn underneath.

Date: July, 2024

SHAITAN SINGH CHOUHAN

G. CV FOR DELAX CHILUMBU

Mr. Delax Chilumbu Bsc, Msc, Postgrad MBA



Mr. Delax Chilumbu Bsc, Msc in metallurgy & mineral processing, Postgrad MBA, Professional Registered Engineer. He recently retired as Chief Mining Engineer at the Ministry of Mines, Energy and Water Development. He is knowledgeable about government's Policy and Regulations for the mining sector in Zambia.

Prior to working for government, Mr. Chilumbu worked for the Mining industry on the Copper belt in Zambia for 18 years and has hands on experience in the copper production processes. Delax participated in the privatization process of the ZCCM Ltd as part of the internal privatization team member- the forerunner of ZCCM-IH Plc.

Post ZCCM Ltd Delax was a part lecturer at the University of Zambia, school of mines.

Mr. Chilumbu's forte is the accumulated experience in copper mining industry and Government including the exposure on the international scene through participation in the UN – Intergovernmental forum on mining, African Union, UN Economic Commission for Africa - framework on the mining sector, SADC protocol on Mining, Delax has travelled widely during the course of his career and has developed a professional network of mining experts both locally and internationally.

Interests besides mining includes agriculture. Delax owns and resides on the farm 18km north of Lusaka.

Professional Experience/Achievements Summary

15 years' experience of hands-on management of the mining industry & 10 years as government regulator of the mining industry and participating in various international government engagements. The experience includes teaching, and provision of consultancy related to the mining Industry.

Experience in planning work schedules, directing coordinating and leading multi - disciplinary professional teams in conducting Work.

2012-2013: Board Member Lusaka multi-facility economic Zone

2013-2015: Member of Association of Zambia Exploration Companies (AZMEC)

2013: Revising the Mining Law in view of the changing mining dynamics

2012 Alternate Member Mine Advisory Committee (MAC)

2011 Participated in commercial law seminar by Law Association of Zambia, London metal exchange on Metals Sales Hedging mechanisms.

Coordinator and member of the team of Organizers of the First Zambia Investment in Mining & Energy Conference (ZIMEC) held at Mulungushi International Conference Centre.

2011 GRZ Team Member Mining Industry Fiscal Regime Negotiations:

Headed by Attorney General & Secretary of Treasury: negotiations with the mining companies to increase revenues from the mining sector from 0.6% mineral royalty to the current 3% and the payment of the outstanding taxes.

2010 Member Maamba Collieries Privatization process

2007-2009 Drafting and revising the petroleum and production development Act 2008. Review of the Mines Act of 1995 to the current 2008 Act. Participated in the review of Mines Act 2008 pending enactment.

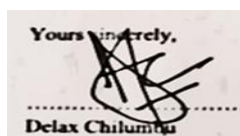
☐ Member Intergovernmental mining forum: A UN sponsored international Government forum on world mining regimes – meets annually to review mining developments in the world

☐ Member harmonization of SADC mining regimes – under SADC mining protocols.

2003-2006 Board Member; World Bank Funded US\$ 52 million Copper belt Environmental Project. The project is focused on remediating the historical environmental degradation on the Copper belt and Kabwe.

2001-2006 USA - Black Environmental Institute - Zambia Coordinator dealing in Polluted Places Clean Up.

Signed:

The image shows a handwritten signature in black ink over a light-colored background. The signature is stylized and appears to be "Delax Chilumba". Above the signature, the words "Yours sincerely," are printed in a small, serif font. Below the signature, the name "Delax Chilumba" is printed in a bold, sans-serif font.

SHIMABU MINING LIMITED

Registered Office: Plot No. 299B Mapanza Road Kafue District



NOVEMBER 2025

SCOPING REPORT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

FOR THE PROPOSED LARGE SCALE COAL MINING ACTIVITY IN LICENSE NO. 22912-HQ-LEL IN SIAMULUWA AREA OF GWEMBE DISTRICT

SUBMITTED TO THE ZAMBIA ENVIRONMENTAL MANAGEMENT

Prepared by

Greenline Environmental Solutions Limited

4th Floor Suit 403 & 404 Zimco House, Cairo Road Lusaka

Office: +260 211 222 029 Mobile: +260 966 656 697

Email: environmentalgreenline@gmail.com

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ACRONYMS AND ABBREVIATIONS

AIDS	- Acquired Immune Deficiency Syndrome
SML	- Shimabubu Mining Limited
ASL	- Above Sea Level
ECZ	- Environmental Council of Zambia
EPPCA	- Environmental Protection and Pollution Control Act
EPB	- Environmental Project Brief
ESIA	- Environmental and Social Impact Assessment
EIS	- Environmental Impact Statement
EMP	- Environmental Management Plan
EMA	- Environmental Management Act
GMA	- Game Management Area
GRZ	- Government of the Republic of Zambia
Ha	- Hectares
HIV	- Human Immune Virus
IAP	- Interested and affected parties
IFC	- International Finance Corporation
Mt	- Metric tonnes
N/A	- Not applicable
NEAP	- National Environmental Action Plan
NCS	- National Conservation Strategy
RHC	- Rural Health Centre
SI	- Statutory Instrument
SMP	- Social Management Plan
TORs	- Terms of Reference
UNZA	- The University of Zambia
WARMA	- Water Resources Management Act
ZAWA	- Zambia Wildlife Authority
ZEMA	- Zambia Environmental Management Agency
ZESCO	- Zambia Electricity Supply Corporation

1.0 INTRODUCTION

Overview

In the recent years, the need to exploit mineral resource for the use of energy generation has become eminent following the climatic changes that have affected the long-time hydropower generation schemes in Zambia. Coal, worldwide has been used an alternative source of energy for many sectors of manufacturing industry including generation of electricity.

In light of the foregoing, SML envisages to exploit coal mineral resources in Gwembe District with the eventual goal of establishing a viable mine.

Shimabu Mining Limited (SML) is a Zambian registered company with interests in coal mining. The company was registered by the government of Zambia as a limited liability company on 13th March, 2018. SML is a holder of a large-Scale Prospecting License No. 22912-HQ-LEL which was offered by the Ministry of Mines with respect of Coal mineral, in the Gwembe District of the Southern Province.

Following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in Siamuluwa Area of Gwembe District which has yielded adequate coal potential to warranty mining activities. The SML large scale mine will utilize over 200.00Ha of the 3652.597Ha License area, for the mine pit and mine support infrastructure installations located in in the initial development phase in Sompani village.

Shimabu Mining Limited and its directors have years of experience in the management of mining related projects in Zambia. The prospective mining activity will be undertaken by seasoned employees who have worked previously from the coal belt areas in Maamba, Sinazeze, Sinazongwe and Hwange in Zimbabwe.

Project Description

The project under review is a greenfield project as no coal mining activities have been undertaken in the area although License No. 22912-HQ-LEL is surrounded by other exploration licenses that other companies are interested to explore. Though Greenfield, several companies have held the exploration rights in the surrounding area outside of the extent of this license. Prior to the interests of SML, the site remained idle since no mineralization potential drilling was undertaken.

Shimabu Mining Limited will implement the coal mining project within the limits of the License No. 22912-HQ-LEL in Siamuluwa area of Gwembe District of Southern Province. SML has continued prospecting (or exploration) activities to determine the economic viability of the mineral deposits within the tenement and has so far found potential in over 250Ha of land in Siamuluwa Area. Sampling points 1,2,3 and 4 taken have revealed available coal reserve for the mining activities to be undertaken in the license area. The geological investigations' objectives were to provide details of the mineralization, extent and shape of the deposit and consequently the reserves for eventual mining. The exploration results were satisfactory and now the developer would like to implement the coal mining project.

The proposed project involves the large-scale open pit coal mining. The mining will be conducted using the hydraulic excavators to mine the coal reserve. Where the rocks are hard, the rocks will be drilled. The mined coal will then be transported from the open pit to the mineral processing plant where it will be crushed into required sizes read for stock piling with the eventual goal of sale.

1.2.1 Project life cycle activities

The Major project activities will include Coal mining and crushing. The project flow regime will undertake the project implementation in a four (04) phases approach as detailed below:

- ✓ Phase 1: Site preparations and pre-production will take place within a year once approval is given. This phase will also entail completion of the remainder of the exploration activities being undertaken on the site. SML will also ensure the preliminary land use approvals, EIA and agreements with the Project affected Peron's are made on issues to do with relocation and compensation in phase 1.
- ✓ Phase 2: Mine production at the open pit site exploiting the Coal reserve. This phase will be ongoing for 25 years. Once the mine site is cleared and approved, SML will undertake the mining activities using open pit mining methods using mechanized means of mining to ensure systematic management of resources and sustainable environmental considerations.
- ✓ Phase 3: Future expansion to start the exploiting of deep situated Coal Reserve and extending the mine pit boundary.
- ✓ Phase 4: Decommissioning and closure
At the end of mine lifespan projected at over 25years of full-scale operation, SML will consider the decommissioning of the Mine Site with progressive rehabilitation of the excavated pits. SML will also as part of the Mining regulations contribute to the Environmental Protection Fund (EPF) which administers environmental management of mining impacts at closure of the mines. As a company, SML will undertake strict environmental management measures to ensure protection of the Mine sites once operations cease.

Preparation phase

The project under review is a Greenfield project which has only undergone exploration since 2023. The site thus has not been developed before.

The phase will involve obtaining of all relevant authorization from regulatory agencies such as;

- ✓ Zambia Environmental Management Agency (ZEMA): EIA approval for the mining activities. SML will further undertake the relocation, resettlement and compensation of the project affected persons within the license area as per IFC and National Resettlement Policy (Zambia) Standard prior to project implementation. This will be done progressively in the active area of the proposed mining activities.
- ✓ Ministry of mines and minerals development: obtaining of the large-scale mining Licenses including ZEMA and other regulatory authorities.

- ✓ Obtaining local authority licenses within the operation district
- ✓ Engaging the local chief and traditional leadership and disclosure of the commencement of the mining activities.

The operation phase will be preceded by engaging with the relevant authorities in which the proposed mining activities are to be undertaken by the developer and obtain consent and right to conduct the mining. This will be achieved through the customary engagement with Chief Chipepo of the project area and other affected inhabitants of the areas to be mined within the license.

Construction Phase

Being a Greenfield project, construction and commissioning of the project will involve the clearing of the site in preparation for the construction activities to be conducted. The clearing will involve the removal of vegetation to pave way for the construction of project facilities. Apart from the main plant, other facilities to be constructed include mine site offices, engineering workshop to cater for both heavy and light vehicle repairs at the mine site, store rooms, security checkpoint to control and monitor activities at the mine site, weigh bridge, change house, stockpile area and fuel storage facility. A boundary security wall fence will also be constructed around the office areas and mining pits.

Later on, access routes will be created to the site. The construction phase will comprise the setting up of workers houses and logical support infrastructure. During construction, the following will be done:

- ✓ A fire break around the camp site will be maintained
- ✓ Demarcation of a kitchen and dining area
- ✓ Construction of bathing shelters and pit latrines
- ✓ Setting up of a Sample Storage Area
- ✓ Demarcation of and digging of a Waste Disposal Pit
- ✓ Setting up Solar Panels for basic night lighting during mine site construction
- ✓ Setting up of Radios for communication
- ✓ Maintain fire-extinguishers at the camp site

Precautionary measures will be taken during construction to ensure environmental protection and safety and occupation health.

Construction activities will generally comprise of land clearing, digging and earthworks to prepare foundations, compacting of foundations, setting of concrete footing and basements, fabrications and installation of fuel storage tanks, setting and erection of block walls, partitioning, roofing, painting and installation of fittings.

Other infrastructure to be constructed will include piped water facilities connected to the water mains. Apart from materials specifically mentioned above other materials to be used in construction will comprise of laterite, river and building sand, crushed stones, steel bars and pipes, concrete blocks or burnt clay bricks, paint, planks, nails, wires, wire gauze, roofing sheets and fittings. Others will include pumps, meters, valves etc. Equipment and tools to be used will include bulldozers and excavators, tippers, concrete mixers, wheelbarrows, shovels, picks, axes, hoes, compaction rollers and lifting devices. The raw materials will generally be sourced locally.

Operation phase

The operational phase will involve mining, crushing and stock piling of the coal mineral resource on the mine site. The operation phase of the mine development will be the exploitation of the surface

Coal mineral deposit down to a depth of approximately 75m below surface. The actual depth will be controlled by the depth of weathering which varies across the strike of the ore body outcrop. Based on the drill results to date, it is estimated that this phase 1 resource may amount to approximately over 1, 000,000Mt. The deposit will be mined initially using conventional open pit mining methods and pit designs, viz. excavators and diesel-powered trucks for transport.

Shimabu Mining limited will undertake surface mining which will be essentially classified as open-pit mining and will include quarrying, strip mining, contour mining, dredging, and hydraulic mining of the mineral resource within the mining License area. Topography and the physical characteristics of the deposit area will strongly influence the choice of method that the company will use. Like any other mineral ore, the coal deposit will be blasted by explosives to fragment the insitu rock prior to excavation. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Loaders into trucks. The trucks will transport the mined coal deposit directly to the Primary Crusher for crushing into similar required sizes before taking it to the Run-Off Mine (ROM) Pad for storage.

Mining Operations

The project will contain a number of components which will include open pit mine, waste rock dumps, Ore stockpiles, plant area and Mine Offices. Coal deposits will be mined from the open pit. The mining method that will be used for the open pit is the conventional selective open pit mining, where deposits will be delineated through benching and drilling of the deposits. Like any other mineral ore, the coal deposit will be blasted by explosives to fragment the insitu rock prior to excavation where necessary. The maximum mined depth below surface is approximately 75m. The overall stripping ratio (overburden/ore) is approximately 2:3. The design pit wall slope angles vary between 50° in extremely weathered rocks to 75° in fresh rock. Bench heights are planned at 5m with nominal 4.0m to 4.5m wide berms. The final slope angle will vary between 30o to 43.1o. The gradient adopted for the ramp is 10o. Storm water cut-off drains constructed alongside the pit perimeter haul roads will prevent surface runoff flowing into the pit. The designed pit is 100m along strike and 190m across strike and 55m dip from an average topographic elevation of 1325m a.m.s.l. De-pressurization of the pit slopes to permit safe mining will be achieved by a combination of in-pit pumping and vertical dewatering wells positioned behind the pit rim. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Front – end Loaders and Shovels into Dump trucks. The Dump trucks will transport the mined coal deposit, either directly to the Primary Crusher or the Run-Off Mine (ROM) Pad for storage.

Relevant Legislation

This report has been prepared in line with the provisions of the Environmental Management Act No. 12 of 2011 as read in conjunction with the Environmental Management (Licensing) Regulations, 2013 (Statutory Instruments No. 112 of 2013). The project falls under the Second Schedule, Regulation 7(2) under section 4(a) (EIA regulations) of the Environmental Management Act No. 12 of 2011 under the category of Mining

which requires a full Environmental Impact Assessment study and preparation of an Environmental Impact Statement.

In view of the foregoing, Shimabu Mining Limited commissioned *Greenline Environmental Solutions Limited* to investigate the feasibility of the proposed project from an environmental and social impact management viewpoint and to facilitate the environmental impact assessment processes required under Zambian Environmental law and international requirements such as the IFC standards.

In line with these provisions, the consulting team identified relevant stakeholders in the project area, organized consultative meetings to obtain the views from the affected and interested parties in the project area in the project area in Siamuluwa area of Gwembe District. Project scoping meetings were held on 6th November 2025 and 19th November 2025 at Sompani Primary School in Gwembe District.

Objectives of the Scoping Report

The purpose of the report is to determine the environmental and social risks, impacts and opportunities of the proposed farming project. The Scoping report will consider the type, scale and location of the project which will ultimately guide the scope and level of effort devoted to the risks and impacts identification process. The scope of the risks and impacts identification process will determine the appropriate and relevant methods and assessment tools when considering mitigation measures. Specific objectives are:

- ✓ To provide a synopsis of the proposed project;
- ✓ Define the proposed approach in conducting the Environmental and Social Impact Assessment;
- ✓ List the obligatory specialist studies and identify the respective expert for each study;
- ✓ Provide an overview of the environment around the proposed project site and neighboring areas.
- ✓ To comply with legal requirement in the ESIA Regulations for submitting the Scoping Report for approval before proceeding with other stages of the ESIA process.
- ✓ To provide the initial information about the project in order for a legal opinion to be made regarding the ESIA process.
- ✓ To facilitate early consultation with the Zambia Environmental Management Agency (ZEMA) and other Interested and Affected Parties (IAPs) regarding the project impacts.
- ✓ To facilitate effective planning and smooth implementation of the ESIA process by the consulting team.
- ✓ Identification of associated projects within the region that will compete for similar resources.

Table 1: Developer details

Proponent	Shimabu Mining Limited
Contact person	<u>Juliet Sichobo Bushe</u>
Designation	Director
Mobile	Cell: +260977493455
Email	shimabumininglimited@gmail.com
Physical Address	Plot No.299B Mapanza Road Kafue District

Table 2: Particulars of Directors

Shareholders and directors					
NAME	NATIONALITY	ID No.	DESIGNATION	SHARES	%
Juliet Sichobo Bushe	Zambian	169574/11/1	Shareholder	5,000	50
Marshal Makundano Hosea Bushe	Zimbabwean	946574/11/2	Shareholder	5,000	50
Floating shares				5,000	
Total shares				15,000	100

Project Background

Coal provides the highest level of thermal energy for the use in most combustion units used in major industries such as boilers, kilns and other units for generation of high energy used in the production of heat energy and subsequently steam in most boilers used in the production processes. Coal provides for the possibility to generate thermal energy which can be used for electricity production as is the case in the thermal power plant currently existing in Maamba area of the southern Province. Southern Province is fully part of the Government of the Republic of Zambia's vision in the mining sector "To have a vibrant, well organized private sector and Private-Public Partnership-led mining sector contributing in excess of 20% towards GDP and sustainable economic development in the Country by 2030.

The mining license area 22912-HQ-LEL is located in a ministry of mines designated mining area as evidenced by the number of licenses issued out to mining companies in the area. The SML mining license area 22912-HQ-LEL, is surrounded by a number of mining companies that are competing for the same resource (coal) currently doing exploration works

2.1 History

Southern Province is currently the only coal producing province in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzinze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coalfield within the Zambezi Valley includes Mulungwa, Siankondobo, Chisanga and Siambabala.

Southern Province has over the years seen increased mining activities. The status of the province has shifted from being predominantly agriculture to include mining. From the time of the liberalised economy in 1991 and the implementation of the 1995 Mining Policy through to the current Mineral Resources Development Policy of 2013, the Province has continued to experience increased participation in the mining sector with players in mineral exploration and exploitation.

Parties involved

Shimabu Mining Limited has committed to wholly undertaking the proposed mining activities in the license No. 22912-HQ-LEL following the exploration activities that have resulted in projection of sufficient coal reserves for the mining process to be undertaken. This project will be wholly funded and implemented by

SML. Considering the location of the proposed project in Sompani village under HRH Chief Chipepo, Public consultations with relevant regulatory authorities and identified parties that may be affected by the project implementation were undertaken and will continue during the EIA process. Project scoping meetings were held on 6th November 2025 and 19th November 2025 at Sompani Primary School in Gwembe District.

Stakeholder's consultative meetings with local stakeholder in the project area and the district authorities (Gwembe District), was conducted to discuss among other things the issues relating to project location, environmental and social impacts, project planning and timeline for execution and any other project relevant issues.

Justification of the project undertaking

Shimabu Mining Limited has undertaken exploration activities in License No. 22912-HQ-LEL following the approval of the EPB for exploration activities by the Zambia Environmental Management Agency (ZEMA) in December, 2023 (*refer to approval letter*) and having conducted the exploration activities in the licenses area, SML envisages to undertake the large-scale coal mining activities in the project area. The proposed mining activities in the large-scale mining license area which spans an area of 3652.597Ha will be located in Siamuluwa Area of Gwembe District. Shimabu Mining Limited and its directors have years of experience in the management of mining related projects in Zambia. The prospective mining activity will be undertaken by seasoned employees who have worked previously from the coal belt areas in in Zambia and Zimbabwe.

Description of Project Area

The large-scale exploration license area is located in Siamuluwa area (Sompani village), Chief Chipepos chieftdom. The proposed site is located in Gwembe District and covers an area of approximately 3652.5970Ha of the total mining license. The license is located approximately 260km south of Lusaka, and lies about 53km southeast of Gwembe central business district (CBD). The license can be accessed using T1 road (Kafue Road). From Lusaka to chisekesi, a distance of 207km approximately. Then Join the D375 road to Gwembe from chisekesi, for about 47.9km. to the Junction between D375 and D500. Continuing in D375, move a distance of 8km to the junction between D375 and then joining the unnamed road as shown on the map. The unnamed road stretches for about 3.5km to the license area.

The coal deposit in the project area lies in the South West of the License which geographically falls within Gwembe District. Therefore, active mining activity will be streamlined and concentrated in the coal belt in Gwembe within the 3652.597Ha (License No. 22912-HQ-LEL) of which 200.00Ha will be developed into the mine encompassing the mine pit and associated support infrastructure.

Table 4: Shimabu Mining Limited Proposed Site Coordinates

No	LATTITUDE	LONGITUDE
1	16°40'42.00"S	27°44'48.00"E
2	16°40'42.00"S	27°46'18.00"E
3	16°40'48.00"S	27°46'18.00"E
4	16°40'48.00"S	27°46'30.00"E
5	16°40'54.00"S	27°46'30.00"E

6	16°40'54.00"S	27°46'36.00"E
7	16°40'60.00"S	27°46'36.00"E
8	16°40'60.00"S	27°46'42.00"E
9	16°41'18.00"S	27°46'42.00"E
10	16°41'18.00"S	27°46'36.00"E
11	16°41'30.00"S	27°46'36.00"E
12	16°41'30.00"S	27°46'30.00"E
13	16°41'36.00"S	27°46'30.00"E
14	16°41'36.00"S	27°46'24.00"E
15	16°41'48.00"S	27°46'24.00"E
16	16°41'48.00"S	27°46'18.00"E
17	16°41'60.00"S	27°46'18.00"E
18	16°41'60.00"S	27°46'12.00"E
19	16°42'06.00"S	27°46'12.00"E
20	16°42'06.00"S	27°46'06.00"E
21	16°42'18.00"S	27°46'06.00"E
22	16°42'18.00"S	27°46'00.00"E
23	16°42'30.00"S	27°46'00.00"E
24	16°42'30.00"S	27°45'54.00"E
25	16°42'36.00"S	27°45'54.00"E
26	16°42'36.00"S	27°45'48.00"E
27	16°42'48.00"S	27°45'48.00"E
28	16°42'48.00"S	27°45'42.00"E
29	16°43'00.00"S	27°45'42.00"E
30	16°43'00.00"S	27°45'24.00"E
31	16°45'54.00"S	27°45'24.00"E
32	16°45'54.00"S	27°42'30.00"E
33	16°44'06.00"S	27°42'30.00"E
34	16°44'06.00"S	27°43'36.00"E
35	16°42'30.00"S	27°43'36.00"E
36	16°42'30.00"S	27°44'48.00"E

Relevant policy, legislative and planning framework

Shimabu Mining Limited is committed to responsible environmental management at all its operations during construction, commissioning, operation, closure and post-closure monitoring of the coal mining project.

This Scoping Report was prepared in accordance with the legal framework on Environmental Management enshrined in the Environmental Management Act No. 12 of 2011 of the Laws of Zambia and its subsidiary legislation, the Environmental Impact Assessment Regulations S.I. No. 28 of 1997. Section 3 (1) of the ESIA Regulations states that, “a developer shall not implement a project for which a project brief or environmental impact statement is required under these Regulations, unless the project brief or the environmental impact

statement has been concluded in accordance with these regulations and the Zambia Environmental Management Agency has issued a decision letter.”

The proposed project is outlined in the Environmental Impact Assessment Regulations S.I. No. 28 of 1997, Second Schedule (Regulations (7) (2)) Section 4(a) under the heading: **Mining: Including Quarrying and Open Cast Extraction**. The proposed project qualifies for a full Environmental and Social Impact Assessment.

The scoping exercise for this proposed ESIA was conducted in line with the provisions of these EIA Regulations SI No. 28 of 1997.

The National Environmental Policy of Zambia recognizes the need for any socio-economic development to be undertaken in such a manner that avoids environmental degradation. Provides environment and natural resources management policies to address current and future threats to environment and to human livelihoods and provides policy guidelines for sustainable development.

Institutional framework

Shimabu Mining Limited will ensure compliance with institutional provisions and guidelines issued by the below institutions in the process of implementing the project.

Table 5: Institutional framework and roles

INSTITUTION	ROLE
Zambia Environmental Management Agency (ZEMA)	ZEMA is the regulatory body responsible for enforcing the National Environmental Law in Zambia - the Environmental Management Act No. 12 of 2011. ZEMA controls the laws related to the proposed project such as environmental protection, pollution control, natural resources conservation and waste management.
Ministry of Mines and Minerals Development (MMMD)	This Ministry controls the Mining sector in the country. The proposed project is mining related and thus directly falls under this ministry. The ministry is responsible for facilitating and developing mechanisms to ensure that the policies and objectives set for the mining sector are achieved and to recommend changes where necessary. Sectors within the ministry that will directly be involved include Cadastre unit, Mines Safety, Geological Survey Department.
Ministry of Land and Natural Resources (MLNR)	The (MLNR) is responsible for the protection of natural resources pollution control and administration of land in the country. Since ZEMA fall under MLNREP, the ministry is responsible for enforcing the provision under the EMA and the associated regulations and Statutory Instruments. The departments under the ministry that will be directly concerned with

	the project activities include the Forest department (FD), Department of National Parks and Wildlife (formerly ZAWA) and the National Heritage Conservation.
Ministry of Water Development, Sanitation and Environmental Protection (MWDSEP)	The Ministry through the Water Resources Management Authority (WARMA) will regulate and control the use of water for the project activities as it has the sole responsibility of managing water resources in the country through issuance of water permits.

2.5.2 Legal Framework

The proposed project undertaking will be guided by the following relevant Acts;

2.5.2.1 The Environmental Management Act No. 12 of 2011

This Act was immediately preceded by the Environmental Protection and Pollution Control Act No. 12 of 1990. Provisions of the Environmental Management Act require that all new projects begin with an Environmental Impact Assessment (EIA) and thereafter, licensing, auditing and compliance inspections follow.

Applicable Regulations under the Environmental Management Act No. 12 of 2011 are described below.

a) **Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, SI No. 28 of 1997.**

These Regulations provides the main framework under which EIAs are conducted, submitted to ZEMA and considered for either approval or rejection.

These regulations are relevant as a guide to SML as to the steps to be followed at every stage of the EIA process. The requirements of conducting an EIA are all stipulated under these regulations and SML will ensure compliance at every stage. The EIA regulations also give a guide line as to how much review fee will be paid to ZEMA for the purpose of reviewing the EIS for the proposed project and that development shall not be undertaken by a developer without an approval letter from ZEMA.

b) **Statutory Instrument No.112 of 2013 – Environmental Management (Licensing) Regulations.**

These Regulations provide standards and guidelines for mitigating air, waste water, hazardous waste, pesticides and toxic substances and ozone depleting substances.

SML will adhere to the provisions of the regulations during all the phases of the project.

The provisions of the Environmental Management Act will be adhered to by SML and is currently being used for the preparation of the Terms of Reference and the follow up EIA for the mining project.

2.5.2.2 National Heritage Conservation Commission Act No. 19 of 2021

The National Heritage Conservation Commission Act No. 19 of 2021 stipulates preservation and protection of ancient cultural and natural heritage resources and objects of aesthetic, historical and archaeological value. In this Act, “Ancient Heritage is defined as being among other things, any structure, settlement previously inhabited, land mark, burial place or any other item designated by the commission which is known or

believed to have been erected, constructed or used before 1st January 1924. The Act also provides for the formation of the National Heritage and Conservation Commission which is the responsible institution. This act is relevant since the clearing of vegetation; construction of the dam infrastructure may damage heritage sites if there are any. This act will guide SML on implementation procedure in case such sites are found on the proposed project site on how to protect the site.

2.5.2.3 The Forest Act No. 4 of 2015

An Act to provide for the establishment and declaration of National Forests, Local Forests, joint forest management areas, botanical reserves, private forests and community forests; provide for the conservation and use of forests and trees for the sustainable management of forests, ecosystems and biological diversity.

Relevance: The area under consideration for the development of the project is partly undisturbed while the other areas currently used for grazing of cattle and subsistence farming in Siamuluwa area.

Compliance there of: The developer will endeavor to act within the provisions of this law in the implementation of the project to protect forest resources within the Mining project area.

2.5.2.4 The Zambia Wildlife Act No. 14 of 2015

An Act to provide for the winding up of the affairs of the Zambia Wildlife Authority; establish the Department of National Parks and Wildlife in the Ministry responsible for tourism; provide for the promotion of opportunities for the equitable and sustainable use of the special qualities of public wildlife estates; provide for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education.

Relevance: The project site for the proposed project does not fall in a Game Management Area. However, the Act is relevant in that the area may be a habitat to animal species which may or may not be endangered.

Compliance there of: SML will follow the requirements of this Act in order to conserve the animal and bird life within the vicinity of the license area.

2.5.2.5 The Mines and Minerals Development Act (MMDA) No. 11 of 2015

The Zambian Regulation applicable to the development of a mine is the Mines and Minerals Development Act of 2015. This legislation regulates activities relating to mine and minerals operations including quarrying and provides for regulations for environmental protection during prospecting and mining activities and construction of the areas mined. Further to that, the MMDA provides for the duties and powers of officers authorized to enforce the provisions of the Act and its subsidiary SIs with respect to environmental impact Assessments. The Mines Safety Department (MSD) of the Ministry of Mines and Minerals Development is responsible for enforcing the provisions of the Act.

This includes enforcing compliance with regulations for the conservation and protection of the environment and protection of human health and safety during prospecting, exploration and mining operations. Below are the subsidiary SIs of the MMA that are relevant to SML project:

(a) Statutory Instrument No 29 of 1997 – Mines and Minerals (Environmental) Regulations – provides the framework for conducting and reviewing environmental impact assessment for the mining sector. Further to that, it provides regulations for auditing project implementation.

(b) Statutory Instrument No 102 of 1998 – Mines and Minerals Environmental Protection Fund Regulations – provides the mechanism of setting up and operating the Environmental Protection Fund. Thus, the mine will have to contribute to the fund so that if the mine owners left or abandoned the project, funds could be used to clean up the environment.

(c) Statutory Instrument No.7 of 2016- Mines and Mineral development (general) regulations- provides for the application of a license for exploration, mining, mineral processing to the Director of the Cadastre unit of the Ministry of Mines and Minerals Development.

(d) Mining Regulations (1971)

The exploration activities shall be guided by the Mining Regulations which in essence are safety regulations. In accordance with the regulations' requirements SML 'Holder' of the Prospecting Permit and Mining License shall appoint a Manager who shall be responsible for the day to day running of operations at the site including enforcing of the Mining Regulations and shall report incidences to relevant authorities such as the Mines Safety Department (MSD). The Holder shall provide the necessary resource to the Manager for the safe running of operations.

Relevance: The Act is relevant in ensuring the project activities are in line with the required standards as prescribed by the Zambian Law.

Compliance there of: The Manager will subsequently appoint competent persons or supervisors in charge of various functions like trenching and core drilling to ensure compliance for issues like safe working procedures and use of proper Personal Protective Equipment by workers.

2.5.2.6 Employment Code Act No. 3 of 2019

This Act provides conditions under which employees should work in Zambia. The Act covers both temporary and permanent employees. Generally, this Act stipulates employee protection and social security requirements. Major provisions include:

- f) Minimum contractual age;
- g) Establishment of employment contracts;
- h) Settlement of disputes arising from such contracts of employment;
- i) The appointment of Labour Officers and other staff for the administration of the Act;
- j) Certain conditions of employment such as ordinary leave, sick leave, maternity, redundancy and welfare of employees.

Relevance: The project will create employment in form of short- and long-term contracts throughout its lifecycle; during preparation, construction, operation and decommissioning phases.

Compliance thereof: SML will comply with this act by employing the required age, establishing contracts, conditions of service and settling disputes in accordance with this act. The relevance of this Act to the project will serve as guide to equal and formidable employment conditions at the mine.

2.5.2.7 Workers Compensation Act No. 10 of 1999

This is a Social Security Act which has provisions for employee compensation in case of injury or death of an employee whilst at work. It is a requirement under this Act that all employers register their employees with the Workers Compensation Fund and make periodic subscriptions for compensation of their employees. The employer (*SML*) will remit subscriptions and will reward compensation to its workers in accordance with this act. The Act is relevant to the project in that SML will employ people that need to be rewarded in accordance to the Act.

2.5.2.8 The Water Resources Management Act of 2011

The Water Resources Management Act of 2011 regulates the use of surface and ground water for any of the following purposes; environmental, training and research, municipal, agriculture, industrial, hydro-electric, mining, navigation and any other activity that may be specified by the water resources management board. Activities under these purposes may include but not limited to the following;

- j) Use water for purposes specified under section sixty, other than for domestic purposes specified under section seventy of the Water Resource Management Act No. 21 of 2011;
- k) Construct, acquire any water works, impound, supply or distribute water from any water or borehole to any other person;
- l) De-water any mine, quarry or water works;
- m) Drain any swamp, marsh, dambo, wetland, re-charge area or other land;
- n) Construct or acquire any water works for the purpose of draining into, conserving or utilizing, in any manner whatsoever, water from a water resource;
- o) Construct water works necessary to restore the course of a water resource that has changed its course;
- p) Harvest of any rainwater by means of a dam, weir or barrage that is on a water resource;
- q) Conduct any operation that would interfere with the bank or course of a watercourse;
- r) Sink, deepen or alter any borehole for any purpose in a water shortage area; or
- s) Carry any activity in relation to a water resource as may be prescribed.

Relevance: The relevance of this act is that it will regulate how SML will utilise the surface water resources, protect both surface and ground water from contamination.

Compliance thereof: SML will extensively consult with the Water Resources Management Authority (WARMA) to make sure all the requirements are met for purposes of water permit and the protection of the water resource in the project area.

2.5.2.9 The Water Supply and Sanitation Act No. 28 of 1997

The Water Supply and Sanitation Act provides for the regulation and standards applied in the provision of public water and sanitation services. It also provides for permitting of water supply and sanitation service

provision. Water supply and sanitation at the Mine will follow the guidelines and standards as stipulated in this act.

Relevance: The workers housing complex and office sites will be supplied with potable water from boreholes and sanitation will employ septic soak way arrangement. Water quality of the portable water will be monitored as required by the water supply and sanitation act to make sure quality water is supplied to the workers.

Compliance thereof: Sanitation of the area will depend on the current management of sewer waste and SML will at all costs follow the guidelines and requirements of this act to make sure that the health of the workers and the communities around the project area are safe guarded.

2.5.2.10 The Public Health Act of 1996

The Act empowers a Council (*Gwembe Town Council*) to prevent unhealthy activities at the project site. It provides for the prevention of disease and provision of drainage, latrine and disposal of sewerage and treatment systems.

Relevance: - The activities to be undertaken will entail public interaction through workers and other visitors to the project area. This will require adequate public health facilities and conditions.

Compliance there of: SML shall comply with the provisions of the Act in order to safeguard human life. The project shall also ensure that measures are put in place to prevent diseases and pollution dangerous to human health and to any water supply at the Mine site.

2.5.2.11 Lands Act Cap 173 of 1995

The Lands Act controls all matters pertaining to the management/use of land and land tenure systems. The proposed project land is on a 99-year lease title from the Zambia government. The developer has so far complied with this act and it will strive to comply with any provisions under this act.

The land considered for this project is vested in the powers of the local Chief Chipepo since the entire license area is customary land.

Relevance: The Act is relevant because all land in Zambia is vested in the state and the project site falls within customary land.

Compliance there of: SML will utilize the land in accordance with the intended purpose and provisions of this Act. The developer has so far complied with this act and it will strive to comply with any provisions under this act.

2.5.2.12 The Local Government Act, No. 13 of 2010

In its Preamble it declares that it seeks to provide for the establishment of Councils or Districts, the functions of local authorities and the local government system. Some of these functions relate to pollution control and the protection of the environment in general.

Enacted and implemented in 2010, the Act provides for the establishment of Councils or Districts, the functions of local authorities and the local government system. Some of these functions relate to pollution control and the protection of the environment in general.

Relevance: The proponent shall abide by the Bye Laws established by the Local Authorities.

Compliance thereof: Acquisition of Local Authority permits and compliance with other environmental regulations shall be as stipulated therein.

2.5.2.13 The Petroleum Act Cap 439 and the Energy Regulation Act Cap 436

The Petroleum Act provides for control of conveyance and storage of petroleum products such as kerosene, diesel and petrol. The Act provides further provides for control measures regarding production, transportation, handling, distribution, re-sale and use of energy.

The Energy Regulation Act of 1995 makes provision with respect to the production and distribution of energy in Zambia and establishment of the Energy Regulation Board (ERB) for purposes of control and licensing of energy undertakings. In accordance with this Act, ERB shall, in conjunction with other Government agencies, formulate measures to minimize the environmental impacts of transportation, storage and use of fuels and enforce such measures by attachment of appropriate conditions to licences held by such undertakings.

Compliance thereof: SML will handle all petroleum related products on the site in accordance with the Act. The developer will also follow the requirements of this act when transporting, storing and using petroleum products during the construction and operation phases of the project.

2.5.2.14 Pneumoconiosis Act No. 13 of 1994

This Act (No. 13 of 1994) provides for the medical examination and standards of physical fitness to be required of persons exposed or likely to be exposed to the risk of pneumoconiosis. All mine employees that work in scheduled mine and scheduled places will be required to undergo periodical medical examinations to ascertain their fitness to work in areas where humans are likely to be exposed to free silica in reparable dust, with particle sizes less than 5 microns, which become harmful when inhaled for over a long period of time. The Project work places and its immediate surroundings will be in the scheduled mine and scheduled places. Therefore, employees will be subjected to periodic examinations to ensure that they are physically fit to work.

Relevance: Due to the nature of the project workers will be exposed to the risk of pneumoconiosis.

Compliance thereof: The developer will endeavour to act within the provisions of this law in the implementation of the project by ensuring all workers are medically examined every year.

2.5.2.15 The Explosives Act No. 10 of 1974

The Act defines explosives and the raw material used for manufacturing of explosives. It further provides guidelines for manufacturing, storage, transportation, distribution and use of all explosives and related products/accessories in Zambia. Safety issues are the most outstanding in this Act.

Relevance: The mining methods adopted require procurement, transportation, storage and use of explosives.

Compliance thereof: SML will conduct its operations in accordance with provisions of this Explosives Act and also ensure that the regulatory institution (Mines Safety Department-MSD) is fully aware.

2.5.2.16 The Road Traffic Act No. 11 of 2002

The Road Traffic Act No. 11 of 2002 was enacted to cover issues of road safety in Zambia. The Act provides for establishment of the Road Transport and Safety Agency (RTSA) and defines functions of RTSA. It also provides for a system of road safety and traffic management.

Relevance: - Access to the site is through feeder roads that are used by other road users. There are also settlements along these feeder roads, which is common for all rural roads in Zambia. It is therefore necessary to adhere to road traffic requirements in order to safeguard the health and safety of other road users. This means compliance to the Act.

Compliance there of: SML will operate in accordance with the provisions of this Act.

2.5.2.17 Minimum Wages and Conditions of Employment Act (Cap 276)

This Act stipulates the minimum conditions of service for permanent as well as casual workers. It further provides the minimum monthly wages for different categories of workers and defines workers who are exempted from the wage categories.

Relevance: When jobs are provided, labour related issues should also be followed to strike a balance between employees and the employer. The Act actually protects both parties and its provisions are very much applicable to the project.

Compliance there of: SML will operate in accordance with the provisions of this Act and ensure all its employees are paid accordingly.

2.5.2.18 The Chiefs Act No. 13 of 1994 (Cap 287)

An Act to make provision for the recognition, appointment and functions of Chiefs and Deputy Chiefs; for the exclusion of former Chiefs and Deputy Chiefs from specified areas in the interests of public order; for the appointment and functions of kapasus; and for matters incidental to or connected with the foregoing.

Relevance: This act is relevant in that the area in which License No. 22912-HQ-LEL falls is entirely customary land under the power of the local chief in terms of administration and matter relating to land management.

Compliance thereof: SML will follow the provisions of the Act and accord the respect required of the local Chief in the operations of the Mine in the area. SML will seek consent from the local Chief and work with the chief and local authority in the process of conversion of the land to title leasehold during the mining activities for the 200Ha initially planned for the mining infrastructure and mining pits.

2.5.2.19 The Investment Act No. 5 of 1994

An Act to revise the law relating to Investment in Zambia so as to provide a comprehensive legal framework for investment in Zambia; to repeal the Investment Act, 1991; and to provide for matters connected with or incidental to the foregoing.

Relevance: SML proposes to invest capital in the mining activity and thus "investment" means contribution of capital, in cash or in kind, by an investor, to a new business enterprise, to the expansion or rehabilitation of an existing business enterprise or to the purchase of an existing business enterprise in Zambia.

Compliance thereof: SML will adhere to the provisions of the Act and has so far complied with the obtaining of an Investment License from the Zambia Development Agency (ZDA).

2.5.2.20 International Conventions

Zambia is a signatory to a number of international conventions. Conventions of significance to the proposed project are briefly described below.

- a) **Ramser Convention:** - The general objective of the Ramser Convention is to curtail the loss of wetlands and to promote wise use of all wetlands. The convention addresses one of the most important issues in Southern Africa, namely the conservation of water supplies and use of the natural and the human environments in an intergenerational equitable manner.
- b) **African Convention on the Conservation of Nature and Natural Resources (Algiers, 1968), (Maputo, 2003):** - The objective of the convention is to encourage individual and joint actions for the conservation, utilization and development of soil, water, flora and fauna for the present and future welfare of mankind. This must be done from an economic, nutritional, scientific, educational, cultural and aesthetic point of view.
- c) **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):-** The objective of this agreement is to ensure that international trade of wild flora and fauna does not endanger their existence. The convention is customized through the Zambia Wild Life Act No. 12 of 1998 and the implementing body is Zambia Wildlife Authority.
- d) **Kyoto Protocol to the United Nations Framework Convention on Climate Change:** - The aim is to further reduce greenhouse gases by enhancing the national programs of developed countries aimed at this goal and by establishing percentage reduction targets for the developed countries.
- e) **Convention on Biological Diversity (CBD):-** The major aim of the CBD is to effect international cooperation in the conservation of biological diversity and to promote sustainable use of living natural resources worldwide. It also aims at bringing about sharing of the benefits arising from utilization of natural resources. A number of plans in this convention fall under the Department of Agriculture, Forestry, Fisheries and DNPW.
- f) **Basel Convention on the Control of Trans-Boundary Movements of Hazardous Wastes and their Disposal:** - The objective is to control import and export of hazardous wastes. It also aims at ensuring that any trans-boundary movement and disposal of hazardous waste, when allowed, is strictly controlled and takes place in an environmentally sound and responsible manner.
- g) **Convention on Migratory Species and the African –Eurasian Water Bird Agreement:** - Like other migratory species, water birds cross several international borders during their migration, facing a wide range of threats. Without international cooperation, conservation efforts of one country can be meaningless if these birds are not protected in another country.
- h) **The United Nations Framework Convention on Climate Change (UNFCCC):-** It was signed by Zambia in 1992. The main objective is to achieve stabilization of greenhouse gas concentrations in

the atmosphere. Zambia recognizes that the largest source of one of the main greenhouse gases, carbon dioxide, is from burning wood fuel and the use of coal and oil.

SML will take all precautions to make sure that the contributions to greenhouse gases from the mining activities are minimal. The closure phase will involve re-forestation and site remediation.

Identification of other projects which may compete for the same resources

Southern Province is currently the only coal producing province in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzinze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coalfield within the Zambezi Valley includes Mulungwa, Siankondobo and Siambabala.

License No. 22912-HQ-LEL is surrounded by other exploration licenses issued to other companies by the ministry of Mines and Minerals Development for the prospecting of coal reserves. Products, by-products and processes at both implementation and operation phases

The License No. 22912-HQ-LEL provides for the exploration of Coal. In view of the exploration works undertaken so far, SML main product envisaged from the proposed mining activities is Coal. The other minerals when discovered during the mining process will be by products of the main mineral coal belt.

Resources required for successful implementation and operation of the project

The main raw material for achieving the project objectives is the proposed mining of the coal in the License Area. The total project investment budgeted for the construction, equipment, manpower, raw material and implementation of the project is **USD 930,000.00**. The total cost will include;

- ✓ Baseline and feasibility studies of the mining and construction project
- ✓ Cost of construction material
- ✓ Cost of machinery, equipment and mobilisation
- ✓ Mining feasibility studies
- ✓ Labour costs for construction and operation of the Mine
- ✓ Energy costs for pumping of water from pits and mining operation areas.
- ✓ Environmental and emergency contingency fund (contributions to the EPF)

Brief history of the project including the options considered

Southern Province has over the years seen increased mining activities. The status of the province has shifted from being predominantly agriculture to include mining. From the time of the liberalized economy in 1991 and the implementation of the 1995 Mining Policy through to the current Mineral Resources Development Policy of 2013, the Province has continued to experience increased participation in the mining sector with players in mineral exploration and exploitation. The background of the project is the plan to exploit the coal resource in the license area, improve the local economy through employment creation, revenue generation,

and enhanced land use. The proposed project area is part of the land earmarked for mining development in southern province owing to the coal mineral resources in the area.

The developmental options considered for the proposed mining operations are very limited due to the fact that the Ministry of Mines has only issued one specific area for exploration and after the exploration activities, only part of the License No 22912-HQ-LEL has revealed potential for Coal belt.

3.0 PROJECT OBJECTIVES

The main objective of the project is to exploit the coal ore body in License No. 22912-HQ-LEL using open cast mining methods. Support objectives will include;

- ✓ Explore the natural resource in the project area and develop, mine and manage the existing Coal ore deposit within the license area.
- ✓ Opening up the new open pit for accessing the orebody using the mining machinery and materials (excavators, loaders, bull dozers, explosives etc.).
- ✓ Construct and manage mine site infrastructure to support the mining activities in the project area.

3.1 Objectives of the Scoping process

Public Consultation meetings were organized in line with the provisions of the Environmental Impact Assessment Regulations of 1997 (SI. No. 28). Consultations were held with the local people, traditional leaders and civic leaders prior to the preparation of the Terms of Reference (TORs) for submission to the Zambia Environmental Management Authority (ZEMA) and to determine the scope of work to be done in the conduct of the EIA. The scoping meeting was held on 6th November 2025 and 19th November 2025 at Sompani primary school in Gwembe district. The scoping and public consultation process objectives were;

- ✓ To incorporate all critical issues from interested and affected parties (stakeholders) into the Environmental Impact Assessment of the proposed project.
- ✓ To comply with legal requirement in the EIA Regulations for submitting a Scoping Report for approval before proceeding with other stages of the EIA process.
- ✓ To provide the initial information of the project in order for a legal opinion to be made regarding the EIA process.
- ✓ To set out the extent (scope) and key elements of the EIA study and place limits on the information that must be collected, thereby optimizing the use of resources during the study.
- ✓ To provide names and skills of the EIA study team for Environmental Management Agency (ZEMA)'s approval.
- ✓ To facilitate efficient utilization of the time, resources and expert knowledge on issues of environmental significance to the project.
- ✓ To avoid presenting irrelevant information in the EIS that may cause the report not to be a working document.
- ✓ To facilitate early consultation with the Zambia Environmental Management Agency and other Interested and Affected Parties (IAPs).
- ✓ To facilitate effective planning and smooth implementation of the EIA process by the consulting team.
- ✓ To eliminate chances of disagreement in terms of the EIA process and the detail of information and consultations required to complete the process.

4.0 EXISTING ENVIRONMENTAL CONDITIONS

4.1 Mineral occurrences

Southern Province is currently the only coal producing province in Zambia. The coal deposits are located in the Mid-Zambezi Valley. The most recent estimates of the resources at Maamba Mine, the largest producer, is 166 million tonnes at Izuma and Kanzenze Basins. Currently active exploitation of coal is at Izuma Basin and Nkandabwe by Maamba Collieries Limited (MCL) and Collum Coal Mining Industries Limited (CCMIL) respectively. The other coalfield within the Zambezi Valley includes Mulungwa, Siankondobo and Siambabala. These areas provide huge investment potential in exploration and exploitation of coal even through partnerships where there are existing Exploration Licences.

4.2 Climate

The Southern Province has a tropical climate with three distinct seasons: the warm-wet, cold and hot season. for Gwembe's coldest month is July at 14.8°C on average and the hottest dry season is experienced during the months of September and October, with October being the hottest month of the year with an average of 23.7°C and the annual average temperature of 20.0°C. The annual averages rainfall for Gwembe 840mm, most of which falls in the months of December to February. The driest month is July.

Rains in Southern Province like the rest of the country are caused by the convergence of the North-east and South-east Trades that form the Inter-Tropical Convergence Zone (ITCZ). The rainy season of the province is relatively long and the mean annual rainfall is relatively high. The average length of the rainy season is just over five months with the December, January and February period experiencing greatest rainfall while November and March have less.

Table 6: Southern Province Temperatures

SEASON	MONTHS	Min Temperature{°C}	Max Temperature{°C}
Cool dry season	May to July	8	21
Hot dry season	August to October	21	32
Hot wet season	November to April	16	24

4.2.1 Relative Humidity

Relative humidity varies throughout the year, reaching peak in the wet season. Wet season humidity levels are about 83%, dry season humidity levels are 41%, with mean relative humidity of the area recorded as an average of 65.0%. of the Lusaka climatic conditions. The annual relative humidity of the area is 65%, while the average monthly relative humidity ranges from 40.9% in September to 83% in February. The table below shows the summary of relative humidity of the project area.

Table 47: Relative Humidity

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Relative humidity %	82.5	83	79.7	73.4	65.9	61.1	54.6	46.6	40.9	47.3	64.9	80.4

4.3 Geology

The geology of the Southern Provinces is of a complex nature. The basement rocks are overlaid by the Muva, Lower and Upper Roan, Mwashia Upper and Lower Kundelungu series. Large parts of these have been irregularly deposited and irregularly eroded over time.

The Basement complex and the Muva system comprise a series of Schist, Quartzites, Gneisses and intrusion of Granite. On the Muva and Basement rocks are sedimentary rocks of the Katanga system which are considered to be of the late Pre - Cambrian age. The rocks of the Katanga System are widespread on the Kafue and parts of the Mazabuka District and are divided into three groups, which have a fairly well-defined sequence throughout the study area. The lowest of the three is predominantly arenaceous and is formed of conglomerates, sandstones and quartzites, where all the mineral ore deposited are said to occur. The second and upper group comprises dolomites, shales and limestones with thin beds of sandstones while the uppermost group comprises inter-bedded argillites and dolomites. The above-mentioned rock groups have undergone the process of structural folding forming a series of north-west/south-east trending anticlines and synclines plunging generally to the north-west. The subsequent erosion has removed the higher parts of these structures and the Katanga sedimentary rocks are now represented by a series of pedi-plains composed of synclinal basins and anticlines.

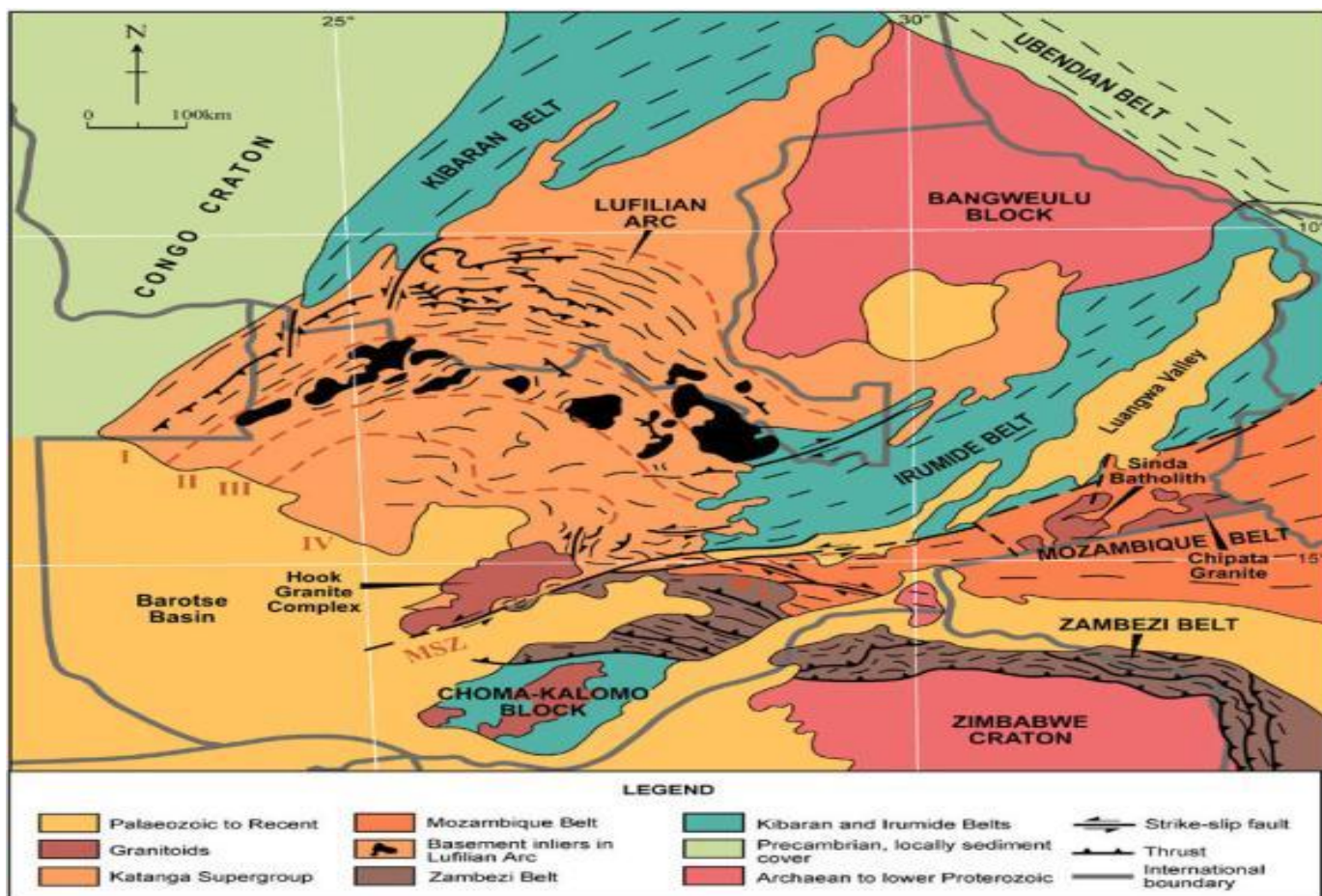


Figure 1: General Geological Map of Project Area

4.4 Topography

Southern Province and Gwembe District are situated at an average elevation of about 1200m above sea level. The area forms a gently undulating plateau rising to low hills of about 1400m in Kafue – Mazabuka and

dropping area to about 1,130m to the south. The plateau is broken by isolated low ranges of granite or quartzite hills rising to heights of 100m above the general level of the plateau. A widely occurring and very noticeable characteristic of the greater part and one arising from a combination of topography and hydrology are the flood plains and dambos. The headwater dambos are a very common feature occurring on all gently sloping valleys. The headwater dambos are significant for the hydrology of the project area. The area has steep sided valley of high relief and represents the topographic boundaries between the plateau and the Zambezi Rift valley. The plateau area has elevations ranging from 1000m and 1100m above sea level.

4.5 Land tenure and land use

All land in the country is vested in the hands of the president who holds it on behalf of the citizens. The Commissioner of Lands administers land on behalf of the president of the republic of Zambia.

There are two main forms of land tenure in the district, which are Trust and Traditional Land tenure systems. Trust Land is state land under the control of the President through the Commissioner of Lands, leased to various establishments. The Traditional Land tenure is the dominant system in the district where Chiefs allocate occupancy and use rights. However, since all land is vested in the President, this land can still be converted to state land through consultations with the Chiefs. Mountains dominate the land so much that land for settlement is only found in isolated pockets. However, most of the habitable land is used for agriculture. Traditionally, men control most of the land. They decide on the use of the land.

While women have limited say over what to do with the land. Land uses include mining, individual/residential, industrial and commercial, parks and open spaces and urban agriculture.

The above-mentioned land uses, with the exception of reserve land, can be leased to individuals for a period of ninety-nine years. The president reserves the right to allocate and withdraw rights to own land in the country. The license area falls within Chief Chipepo's chieftdom and is currently under customary tenure.

4.6 Built Environment

The proposed project site consists of virgin land with minimal anthropogenic disturbance and therefore has built structures are found within the periphery of the license area. Notable infrastructure within the exploration sites includes New apostolic church and Sompani primary school. The area has a significant number of settlers with diverse construction type of dwellings and social infrastructure such as churches and cattle holding facilities.

4.7 Soils

The preliminary data analysis on the soils at the project site and surrounding areas indicate that the land is generally flat with some loamy and alluvial sand deposits. The soils on the project proposed area are characterized by a combination of black and alluvial sand deposits, black cotton soils as well as dark grey colours in the top 30cm of the profile. The sandy soils consist of coarse sand, as the underlying parent rock is decomposing gneiss with a high quartz and clay content of excellent drainage properties. These soils

are chromic haplic luvisols – dark grey acidic soils with fine sand grains in surface horizons, which are usually compacted. This gives rise to low permeability and water logging.

Extensive soil studies will be undertaken during the ESIA assessment to determine:

- ✓ Soil type and suitability in terms of physical characteristics such as porosity, water retention, stability for the construction of the mine infrastructure

4.8 Flora

The project site is surrounded by a small open woodland with a discontinuous canopy whose composition is variable, but which particularly includes Muputu (*Brachystegia spiciformis*), Ordeal Tree (*Erythrophloeum africanun*), and Mubuta (*Brachystegia longifolia*). Grass species *Hyperrhenia* (*Elephant Grass*) is predominant near the stream. The flora assessments will be undertaken during the ESIA study to determine species, population, age, spatial distribution and the identification of rare and endangered species will be undertaken.

4.9 Fauna

There is no established Game Management Area or National Park within the license area. however, fauna species of significant value have so far not been identified nor visualized in the project area owing to the anthropogenic activities relating to subsistence farming and rearing of animals by the local people. The high level of anthropogenic agricultural activities and settlements in the area has led to negative alterations of wildlife habitats. Fauna habitats generally consist of disturbed and highly modified units reflecting changes in vegetation structure and composition due to historical land use practices, associated with the farming activities.

4.10 Hydrogeology

Surface and Ground Water

The project area mainly drains towards the east into lake Kariba located approximately 17 km East of the site. The site has a number of small non-perennial streams, such as the kalama river, that have dried so far owing to the poor rainfall patterns in the 2024-2025 rainy season.

Drainage

The project area is immediately drained by tributaries to the Lake Kariba in the East and South. The lake Kariba is the main and ultimate drainage of the project area and its surrounding.

Groundwater in the project area occurs in secondary developed features such as weathered zones, joints, fractures, faults or solution features within consolidated hard rocks. The weathered zones usually form shallow aquifers which are shallower than 30m in depth. Fracture zones have been developed under weathered zones and usually extend to around 30m to 40m in depth and often extend to more than 90m. The thickness and permeability of aquifers are closely related to the original rock type. The site has no existing borehole. Hydrological and hydrogeological studies as well as water quality assessments will be undertaken in the project area during the ESIA study.

5.0 PROPOSED PROJECT ACTIVITIES

The main activities of the proposed project will comprise three phases namely, the site preparation phase, construction phase and the operational phase, which will include monitoring and evaluation of project performance. The following are among the initial activities that will be undertaken before embarking on the mining of the mineral ore in the project area.

The project under review is a greenfield project as no coal mining activities have been undertaken in the area although License No. 22912-HQ-LEL is surrounded by other exploration licenses that other companies are interested to explore. Though Greenfield, several companies have held the exploration rights in the surrounding area outside of the extent of this license. Prior to the interests of SML, the site remained idle since no mineralization potential drilling was undertaken.

Shimabu Mining Limited will implement the coal mining project within the limits of the License No. 22912-HQ-LEL in Gwembe District of Southern Province. SML has completed prospecting (or exploration) activities to determine the economic viability of the mineral deposits within the tenement. Sampling points 1,2,3 and 4 have revealed available coal reserve for the mining activities to be undertaken in the license area. The geological investigations' objectives were to provide details of the mineralization, extent and shape of the deposit and consequently the reserves for eventual mining. The exploration results were satisfactory and now the developer would like to implement the coal mining project.

The proposed project involves the large-scale open pit coal mining. The mining will be conducted using the hydraulic excavators to mine the coal reserve. Where the rocks are hard, the rocks will be drilled. The mined coal will then be transported from the open pit to the mineral processing plant where it will be crushed into required sizes ready for stock piling with the eventual goal of sale.

5.1 Preparation phase activities

The project under review is a Greenfield project which has only undergone exploration since 2023. The site thus has not been developed before though there are a number of drilled holes from exploration activities.

The phase will involve obtaining of all relevant authorization from regulatory agencies such as;

- ✓ Zambia Environmental Management Agency (ZEMA): EIA approval for the mining activities. SML will further undertake the relocation, resettlement and compensation of the project affected persons within the license area as per IFC and National Resettlement Policy (Zambia) Standard prior to project implementation. This will be done progressively in the active area of the proposed mining activities.
- ✓ Ministry of mines and minerals development: obtaining of the large-scale mining Licenses including ZEMA and other regulatory authorities.
- ✓ Obtaining local authority licenses within the operation district
- ✓ Engaging the local chief and traditional leadership and disclosure of the commencement of the mining activities.

5.2 Construction phase activities

Being a Greenfield project, construction and commissioning of the project will involve the clearing of the site in preparation for the construction activities to be conducted. The clearing will involve the removal of vegetation to pave way for the construction of project facilities. Apart from the main plant, other facilities to

be constructed include mine site offices, engineering workshop to cater for both heavy and light vehicle repairs at the mine site, store rooms, security checkpoint to control and monitor activities at the mine site, weigh bridge, change house, stockpile area and fuel storage facility. A boundary security wall fence will also be constructed around the office areas and mining pits.

Later on, access routes will be created to the site. The construction phase will comprise the setting up of workers houses and logical support infrastructure. During construction, the following will be done:

- ✓ A fire break around the camp site will be maintained
- ✓ Demarcation of a kitchen and dining area
- ✓ Construction of bathing shelters and pit latrines
- ✓ Setting up of a Sample Storage Area
- ✓ Demarcation of and digging of a Waste Disposal Pit
- ✓ Setting up Solar Panels for basic night lighting during mine site construction
- ✓ Setting up of Radios for communication
- ✓ Maintain fire-extinguishers at the camp site

Precautionary measures will be taken during construction to ensure environmental protection and safety and occupation health.

Construction activities will generally comprise of land clearing, digging and earthworks to prepare foundations, compacting of foundations, setting of concrete footing and basements, fabrications and installation of fuel storage tanks, setting and erection of block walls, partitioning, roofing, painting and installation of fittings.

Other infrastructure to be constructed will include piped water facilities connected to the water mains. Apart from materials specifically mentioned above other materials to be used in construction will comprise of laterite, river and building sand, crushed stones, steel bars and pipes, concrete blocks or burnt clay bricks, paint, planks, nails, wires, wire gauze, roofing sheets and fittings. Others will include pumps, meters, valves etc. Equipment and tools to be used will include bulldozers and excavators, tippers, concrete mixers, wheelbarrows, shovels, picks, axes, hoes, compaction rollers and lifting devices. The raw materials will generally be sourced locally.

5.3 Operational phase activities

The operational phase will involve mining, crushing and stock piling of the coal mineral resource on the mine site. The operation phase of the mine development will be the exploitation of the surface Coal mineral deposit down to a depth of approximately 75m below surface. The actual depth will be controlled by the depth of weathering which varies across the strike of the ore body outcrop. Based on the drill results to date, it is estimated that this phase 1 resource may amount to approximately over 1, 000,000Mt. The deposit will be mined initially using conventional open pit mining methods and pit designs, viz. excavators and diesel-powered trucks for transport.

Shimabubu Mining Limited will undertake surface mining which will be essentially classified as open-pit mining and will include quarrying, strip mining, contour mining, dredging, and hydraulic mining of the mineral resource within the mining License area. Topography and the physical characteristics of the deposit area will strongly influence the choice of method that the company will use. Like any other mineral ore, the coal deposit will be blasted by explosives to fragment the insitu rock prior to excavation. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Loaders into trucks. The trucks will transport the mined coal deposit directly to the Primary Crusher for crushing into similar required sizes before taking it to the Run-Off Mine (ROM) Pad for storage.

5.3.1 Mining operations

The project will contain a number of components which will include open pit mine, waste rock dumps, Ore stockpiles, plant area and Mine Offices. Coal deposits will be mined from the open pit. The mining method that will be used for the open pit is the conventional selective open pit mining, where deposits will be delineated through benching and drilling of the deposits. Like any other mineral ore, the coal deposit will be blasted by explosives to fragment the insitu rock prior to excavation where necessary. The maximum mined depth below surface is approximately 75m. The overall stripping ratio (overburden/ore) is approximately 2:3. The design pit wall slope angles vary between 50° in extremely weathered rocks to 75° in fresh rock. Bench heights are planned at 5m with nominal 4.0m to 4.5m wide berms. The final slope angle will vary between 30° to 43.1°. The gradient adopted for the ramp is 10°. Storm water cut-off drains constructed alongside the pit perimeter haul roads will prevent surface runoff flowing into the pit. The designed pit is 100m along strike and 190m across strike and 55m dip from an average topographic elevation of 1325m a.m.s.l. De-pressurization of the pit slopes to permit safe mining will be achieved by a combination of in-pit pumping and vertical dewatering wells positioned behind the pit rim. The blasted material will be in the form of big boulders, ranging from a centimeter to meters in size. The material will then be excavated using Front – end Loaders and Shovels into Dump trucks. The Dump trucks will transport the mined coal deposit, either directly to the Primary Crusher or the Run-Off Mine (ROM) Pad for storage.

5.3.2 Mining Infrastructure

The Project will contain the following principal production facilities:

- ✓ Open Pit Mining Operations
- ✓ Waste Rock Dumps (WRD) for overburden storage
- ✓ Ore crushing, sorting and grading station, workshops, ore transfer system and ROM pad

And the following auxiliary facilities:

- ✓ Mine camp infrastructure: mine site administration office
- ✓ Engineering workshops
- ✓ Water supply facilities
- ✓ Power supply facilities
- ✓ Flood protection and drainage system
- ✓ Waste management area
- ✓ Materials Handling and Storage

5.3.3 Mine Life and Mine Production

Pit Optimization studies indicate an optimum mine life of 25 years at an ore production rate of 50,000 Mtpa at average insitu grade of 0.21%Coal. Average overburden stripping will be 2.089 Mtpa giving a total material movement of over 20.9 Mt for the life of the mine.

5.3.4 Waste Management

Solid waste generated during the operation phase at the mine site to be set up in the license area will be disposed of at the dumpsite within the mine area (license to be obtained from ZEMA). The quantity of solid waste to be generated will be significant owing to the number of people that will be at the mine and the duration of the mining activities. Hazardous waste generated from machinery if any such as used oil will be stored in metal drums and transported to licensed disposal facilities for disposal in Sinazongwe CBD or other nearby CBDs such as Choma or Kalomo.

SML will manage water across the mine site in order to prevent any adverse impact on adjacent watercourses and groundwater, and to conserve natural resources. To achieve this, the company will develop and implement a Site Water Management Plan. The Water Management Plan will focus on the following: -

- ✓ Conduct mine dewatering activities in the mine pits
- ✓ Separation of clean and dirty water;
- ✓ Treatment of mine effluent and surface runoff prior to discharge to the environment;
- ✓ Where practicable, reduce raw water consumption, maximize re-cycling of waste water and reduce the volume of effluent discharged to the environment;
- ✓ Regular inspection and maintenance of the mine site drainage system and pollution control facilities; Regular monitoring of surface water, effluent streams and flow rates, and groundwater quality;
- ✓ Compliance with the Zambian ambient water quality standards and other relevant guidelines for effluent discharge to surface waters;
- ✓ Preparation of formal emergency response procedures in the event of a plant spill; and
- ✓ Development and regular updating of the site water balance in order to effectively and efficiently manage the water resources across the mine site.

5.3.5 Mining Operation Extension

The mining operations Extension Phase of the operation marks the expansion of the coal mining activities from the current pit to another pit within the large-scale licensed area extending the mine pit life span and that of the mine. The overburden and waste rock removed from the new pit will be used to fill the old pit.

5.4 Decommissioning and Closure phase activities

Shimabu Mining Limited will undertake the mining project in order to mine the coal deposit in the license area. Considering that the exploration results were satisfactory, Shimabu Mining limited will proceed with the mining activity considering the mining license has been granted upon fulfilling all the statutory requirements. On the other hand, when the coal mineral resource is deprived, or when it becomes unsustainable to mine the coal deposit, the developer will undertake closure and decommissioning of the

project in line with the agreeable standard as stipulated in the relevant Acts applicable in Zambia and the mining sector in particular.

The activities that will be carried out during the decommissioning of the mine will include the decommissioning and removal of the equipment from the mine, demolition of mine offices and the re-vegetation of the entire project area, unless by request, pre-determined by the local population to have the facilities for alternative use. As for the offices, it is most likely that they will not be demolished but rehabilitated so that they can be used for some other project activities.

The removal of all other buildings and foundations will occur during mine decommissioning and precisely the plant site will be rehabilitated so that any contamination (e.g., soils, scrap metals, spilled chemicals, oils and fuel) that could have occurred during the life of the mine should not impact on the surface water, groundwater and flora after closure.

Closure will also cause the cessation of activities on the waste rock dump. The top of the dump will be engineered in such a way as to slope to one direction toward a natural drainage during construction of the final lift. This will facilitate post-closure collection of runoffs from the dump into the natural drainage. The following activities will be undertaken during this phase

- ✓ Notice to relevant authorities on the status of the project. This will include the Ministry of Mines and Minerals Development, MSD, ZEMA and other local stakeholders such as the local Chief, local councils, and Forest Department and the affected local residents.
- ✓ Restoration of the prospecting area to acceptable alternative land use capability compatible with the surrounding land use and the local authorities without disturbance from residual exploration impacts.
- ✓ Rehabilitation of the degraded areas such as replanting of trees and grass, back-filling of excavations (borrow pits), sampling and analysis of the soils in order to check whether the environment is polluted and to what extent. This will however also be an on-going exercise.

SML will during the closure of the project further ensure that there is reduction and/or mitigation of the anticipated:

- ✓ Potential hazards of geological origin, such as erosion, collapse and subsidence and landslides of the rocks on site.
- ✓ Environmental deterioration due to cumulative effects of successive floods or erosion over time.
- ✓ The decommissioning and closure process will essentially be aimed at restoring the surrounding environment to a state, resembling as closely as possible that which existed prior to the commencement of exploration as measured by both chemical and biophysical parameters.

6.0 IDENTIFICATION OF ENVIRONMENTAL IMPACTS

The development of the Mine site and related auxiliary infrastructure within the License No. 22912-HQ-LEL will result in both positive and negative impacts throughout the lifecycle of the Coal Mining Operations. Identification of potential project environmental and social impacts will be based on the detailed mine design of the Coal mine by SML, Project Description, the Environmental Baseline Study and industry experience. Environmental impacts will be addressed by mine components during the ESIA study and ongoing during the mine operations. These will include: -

- ✓ Mining Operations
 - Mine i.e., Open Pit;
 - Waste Rock Dump (WRD);
 - Tailings Storage Facility (TSF);
 - ROM pad and processing facilities; including
- ✓ Ore crushing and transfer;
 - Ore Stockpiles;
 - Engineering workshops
 - Waste management, including
- ✓ Industrial waste;
- ✓ Hazardous waste; and
- ✓ Medical waste.
 - Materials handling and storage; including
- ✓ Mining stores; and
- ✓ Fuel.
 - Contractor's activities, including
- ✓ Construction of mining houses;
- ✓ Mining offices; and
- ✓ Car park.
 - Socio-economic and cultural impacts.

Key environmental aspects or issues and associated impacts will relate to each mine component and the pre-mining, operational and post-closure phase where appropriate.

Negative impacts will generally relate to the possible physical disturbance of the land, surface and groundwater contamination, air pollution, soil contamination, noise, public and worker safety, plant spills and accidental releases, handling spills and issues related to waste management and sewage treatment and disposal. These potential environmental impacts, with the exception of permanent changes to the physical landscape resulting from mines, tailings storage facility and waste rock dump, will be prevented or successfully mitigated against by the implementation of environmental management plans to be proposed in the EIS.

The positive impacts will mainly be of social nature. They will relate to social aspects, such as the diversification of jobs in the nearby villages, use of a local workforce and contractors, expansion of the local economy through diversification and improvement of healthcare for the workforce and local population.

It should be noted that a classification of negative effects does not necessarily imply a long-term adverse effect on the environment. It may well indicate an irreversible change to the physical environment from original conditions. In some cases, these irreversible changes can result in favourable long-term effects.

Resettlement Action Plan (RAP)

The development of the Coal mine will result in the relocation, resettlement and compensation of project affected persons residing within the license area. This will be done by;

- ✓ Identifying the number of people, structures, source of livelihood and duration settlement in the project area by observations, interviews and consultations with the local people, the social welfare department and Chief Chipeco's royal establishment, Office of the Vice president through DMMU and Gwembe District Administration.
- ✓ Find an option that have a minimal impact on the livelihoods of the settlers and establish good community relationships.

Resettlement options will include:

- (d) Land for land compensation which will entail relocation to a new host community with replacement of the land currently economically occupied. Compensation for the loss of fixed assets in the form of total replacement of the dwellings and other structures affected.
- (e) Land for land compensation for agreed size of land and monetary compensation for the rest of the land that is economically occupied with replacement of all fixed assets that will be lost.
- (f) Monetary compensation to the value of the assets currently owned and relocation package and the PAP will choose their alternative settlement area.

The specific objectives of this Resettlement Action Plan will be:

- ✓ To Avoid and Minimize involuntary resettlement resulting from all components of project.
- ✓ Adversely affected people are fully compensated for the loss of assets, livelihoods, access rights, etc. before eventually relocating them and implementing the project
- ✓ The livelihoods of displaced people are re-established and the standard of living improved.
- ✓ Ensure no impacted person is worse off as a result of the project.
- ✓ Assist adversely affected persons in dealing with the psychological, cultural, social and other stresses caused by compulsory land acquisition.
- ✓ Make all affected persons aware of processes available for the redress of grievances that are easily accessible and immediately responsive.
- ✓ Have in place a consultative, transparent and accountable involuntary resettlement process with a time frame agreed to by the sub-project

6.1 Analysis and Evaluation of Impacts

The objective of this section will be to predict and assess the likelihood of potential impacts that may rise from implementing the proposed Coal Mining Project and recommend mitigating measures. A matrix will be prepared according to the criteria below:

i. Nature of Impact

This will be an appraisal of the type of effect the implementation of the project will have on the affected environmental component. Its description will include what will be affected and in what way.

ii. Direct Impacts

These will be impacts that are most likely to appear immediately as a result of the activity of mining.

iii. Indirect Impact

These will be impacts that will be related to the project but will arise from the activity of Mining.

iv. Spatial Extent

The physical and spatial size of the impact. This will be a description of whether the impact would occur on a scale described as follows:

The physical and spatial size of the impact. This will be a description of whether the impact would occur on a scale described as follows:

- ✓ Site, the impact could affect the whole or measurable portion of the site. Whether it is limited to the immediate area the proposed project;
- ✓ Local, the impact could affect the extended area adjacent to the site perhaps a neighbourhood or small town. Whether it would affect environs up to 15 Km outside the immediate environment;
- ✓ Regional, that impact could affect the area including the outlying areas of the city, the transport routes and the adjoining towns.
- ✓ National, the impact could be as far-reaching international boundaries.

v. Duration

The lifetime of the impact; this will be measured in the context of the life-time of the proposed development as follows:

- ✓ Short term, the impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase.
- ✓ Medium term, they will last for the period of the construction phase, thereafter it will entirely have negated.
- ✓ Long term, the impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.
- ✓ Permanent, the only class of impact which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

vi. Intensity

This will be a description of whether or not the intensity (magnitude) of the impact would be high, medium, low or negligible (no impact).

- ✓ Low, where the impact will not have significant influence on the environment, and this will not be required to be significantly accommodated in the project design or implementation; the impact alters the affected environment in such a way that natural process of functions is not affected in any significant way.
- ✓ Moderate, where it could have an adverse influence on the environment which would require modification of the project design or alternative implementation schedules; the affected environment is altered, however, function and process continue, albeit in a modified way.
- ✓ High, where it could have significant influence on the environment but cannot be mitigated or be accommodated by the project environment by introducing alternative mitigation measures such as realignment of the mine boundaries at a particular stretch or adoption of different design measures. Function or process of the environment is disturbed to the extent where it temporarily or permanently.

vii. Probability

This will describe the likelihood of impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity and not at any given time. The classes are rated as follows:

- ✓ Unlikely, the probability of the impact occurring is very low, due to the circumstances, design or experience.
- ✓ Possible, the impact could possibly happen, and mitigation planning should be undertaken.
- ✓ Probable, it is most likely that the impact will occur at some or other stage of the development. Plans must be drawn up before the undertaking of the activity.
- ✓ Definite, the impact will take place regardless of any prevention plans, and only mitigatory actions or contingency plans can be relied on to contain the effect.

viii. Determination of Significance

The classes are rated as follows:

- ✓ Negligible, the impact is not substantial and does not require any mitigatory action.
- ✓ Low, the impact is of little importance, but may require limited mitigation.
- ✓ Moderate, the impact is of importance and therefore considered to have mitigation. Mitigation is required to reduce the negative impacts to acceptable levels or positive impacts maximized.
- ✓ High, the impact is great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential. Positive impacts should be enhanced as a priority.

6.2 Environmental and Social mitigation and Management Plan

Mitigation measures will be devised to eliminate or offset the anticipated adverse environmental and social impacts to acceptable levels and on the other hand reinforce measures for enhancements. The strategies employed for impact mitigation are avoidance, reduction and remedy.

Environmental and Social Monitoring Plan

The implantation of the project will entail strict enforcement of the environmental safeguards during the project construction and operation and therefore the need for an Environmental and Social Monitoring Plan (ESMP) executed during the project implementation. Mitigation measures, design features, or actual impacts will be monitored to ensure environmental acceptability of the project during and after implementation. This will include the Resettlement Action Plan with associated compensation plan for the Project Affected Persons within License No. 22912-HQ-LEL.

The study shall propose an Environmental Management and Monitoring Plan (EMP) to address the management of the identified environmental issues associated with the project. The plan shall consist of implementing the following: -

- ✓ Implementing the Impact Mitigation Plan;
- ✓ Monitoring the implementation of the EMP; and
- ✓ Institutional Framework for Monitoring, Reporting and Supervision of EMP.
- ✓ Implementation of the RAP and compensation Plan for the affected persons.

7.0 ANALYSIS OF THE PROJECT ALTERNATIVES

The proposed implementation of the project may be undertaken considering other viable options such as but not limited to site location, availability of the mineral resource (coal) in the project area and the sustainable mining methods proposed for the mining of the ore. The study team and SML will investigate a number of project alternatives for all the project components for the SML Coal Mine Project. A variety of alternatives will be identified for the mining methods, waste rock dumps, accommodation for employees, and the no project option. Location of the various mine components will be limited due to the location of the ore deposit and the presence of existing site infrastructure. Therefore, design of the mine site will consider economic feasibility and physical location of the mine components.

7.1 Site alternatives

Shimabu Mining Limited holds exploration License No. 22912-HQ-LEL issued in 2023 with a validity of 4 years, it is the only site available for mining to SML. No alternative site within and outside the District in Coal belt region has been granted to SML. The license area as surveyed and allocated by the MMMD and results from exploration works indicate the presence of coal mineral deposit that can be mined economically.

This option will therefore not be considered as the license area has the desired minerals (Coal) deposits in sufficient quantities to be mined economically.

7.2 Mining Methods

Options were considered as alternatives for mining the coal at the 22912-HQ-LEL site where current exploration works have been undertaken. These options are indicated below:

- ✓ Options 1 was sinking the mine shaft then develop drives or haulages to access the orebody.
- ✓ Option 2 was to develop a portal or ramp from the box cut then develop haulages and access to reach the orebody.
- ✓ Option 3 was to mine the ore by developing an open pit.

Primary consideration upon evaluation of a mineable and economic mineral resource and the competence of the ground or ground condition is established is to determine the mining method. The competence of the ground and prevailing geotechnical conditions at the site and the evaluated mineral resource favours open pit mining method.

Options 1 & 2, construction of a Portal and shaft for underground workings were evaluated and not chosen because of the depth and the need to exploit the coal ore near the surface.

The mining method chosen for the project is open pit mining. However, extraction of ore can also be achieved by underground mining methods too. Underground mining has the positive environmental aspect of minimal surface disturbance. However, underground mining compared to open pit mining would be significantly more expensive at this mine due to the low grade of mineralisation, ore dilution, lower recovery, cost of mine fill and higher mine development costs. Above all, the orebody geometry i.e., shallow depth and dip, and resulting low stripping ratio are conducive to open pit mining. Therefore, mining ore at this mine by open

pit method is by far a better method in terms of economics and safety aspects as well as for the factor that the impact can be mitigated.

7.4 Waste Management Alternatives

A: Septic Tank

The method involves directing the sewage waste mainly generated from toilets and washing during operation to a Septic tank. The septic tanks once full will be re-emptied using a ZEMA approved contractor for transportation of sewer waste to approved disposal site. This was the preferred option due as it is cost effective and has little potential to contaminate the environmental if properly handled.

B: Septic Tank and sucker way System

This method involves having a septic tank that retains solid mass of the sewerage waste connected to the sucker way where the liquid part goes and eventually seeps into the ground. This option was not chosen due to the environmental concerns associated with allowing constituents of sewerage waste into the ground and the potential to contaminate ground water which is the major source of drinking water in the nearby villages.

C: Connecting to the Southern Water and Sewerage Company (SWSC) line

This would entail connecting to the nearest line available. The project area and its surrounding are a significant distance from the nearest SWSC sewage network system. It would therefore entail higher installation cost if connecting to the sewage network was to be done.

Option A is therefore preferred for economic and environmental reasons and the fact that it is the only practical, environmentally safe and an easy to monitor and mitigate option, considering the distance to the sewerage network.

7.5 Power Alternatives

The principal source of electricity during the construction phase of the project will be the diesel-powered generator, since hydro-power energy from ZESCO main is a significant distance from the proposed mining site.

However, the operating the mine on a generator is unsustainable and thus the developer will ensure that the site is connected to the ZESCO mains before operations can commence. The ZESCO main was picked as a major source of power for the operations phase as it provides the clean and less costly power alternative which is also environmentally friendly.

7.6 No project alternative

The No project alternative will entail the abandonment of the Mining activity on the proposed site and therefore the benefits to be derived from the project will not be realized. The Mining activity will be the source of income for local community and Zambia as a country. This option will not be considered as the benefits of undertaking the project are significant compared to not carrying out the project.

8.0 CONSULTATION AND PUBLIC PARTICIPATION

8.1 Public consultations

Public Consultation meetings were organised in line with the provisions of the Environmental Impact Assessment Regulations of 1997 (SI. No. 28). Consultations were held with the local people, traditional leaders and civic leaders prior to the preparation of the Terms of Reference (TORs) and Scoping Report for submission to the Zambia Environmental Management Authority (ZEMA) and to determine the scope of work to be done in the conduct of the EIA. The meeting was held on 19th November 2025 at Sompani primary School in the License Area in Gwembe district.

The historical background about the grant of the exploration area by SML. Relevant stakeholders and prospective affected people and other interested parties were invited for the project scoping meeting. The stakeholders identified both at local and district level that may have interest in the project undertaking and those directly affected by the proposed development. Two consultative stakeholder meetings were held in respect of the proposed coal mining activities. Stakeholder engagement included disclosure of the proposed mining activities through invitations to the scoping meetings. Summary details of the stakeholder engagement meetings are presented below;

Table 8: Meeting Details

Meeting date	Meeting details	Venue & Total attendance
6 th November 2025	SML Management Meeting with HRH Chief Chipepo and Chief Representative and local headmen to discuss the proposed project and the details, rationale and agreements as regards the company CSR and mitigation measures for the anticipated impacts of the project undertaking.	Sompani Primary School. A total of 23 stakeholders attended the meeting
19 th November 2025	ESIA stakeholders scoping meeting to discuss the proposed development of SML large scale coal mine, the area to be covered by the proposed mining activities, project benefits and impacts of the project on the local people. Land acquisition and ownership issues as well as Resettlement preliminary activities that form part of the scope of the ESIA.	Sompani Primary School: Sompani primary School. 59 stakeholders attended the scoping meeting and diverse views were exchanged during the meeting.

NB: minutes of the two meetings are attached in the appendices of the report



SUNDAY MAIL, November 16, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) **SCOPING MEETING**

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

IN LINE WITH THE ENVIRONMENTAL MANAGEMENT (AMENDMENT) ACT NO. 8 OF 2023, READ TOGETHER WITH THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION OF 1997, SHIMABU MINING LIMITED INTENDS TO UNDERTAKE THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY FOR THE PROPOSED PROJECT AS PER REQUIREMENT.

IN VIEW OF THE ABOVE, SHIMABU MINING LIMITED HEREBY INVITES YOU TO THE PROJECT **EIA SCOPING MEETING** FOR THE PROPOSED PROJECT TO OBTAIN INCLUSIVE VIEWS AND CONCERNS FROM ALL STAKEHOLDERS.

DATE: WEDNESDAY 19TH NOVEMBER 2025

TIME: 09:00HRS

VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED

Office line: +260 211 222 029 Mobile Line : +260 966 656 697 and +260 979 609484

Email : environmentalgreenline@gmail.com

RSO398322/16.18.11

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ZAMBIA DAILY MAIL, Tuesday, November 18, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) **SCOPING MEETING**

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

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VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED

Office line: +260 211 222 029 Mobile Line : +260 966 656 697 and +260 979 609484

Email : environmentalgreenline@gmail.com

9.0 SOCIAL ANALYSIS

Southern province boasts of the many coal mine sites in Zambia. The mine area has enough coal reserves, to supply both local and international markets. However, the operating viability is threatened by inadequate production equipment, working capital and has huge company liabilities. Traditionally, the project area falls within the Chief Chipeco's area whose major economic activity is subsistence farming and rearing of animals. The prominent ethnic group here is the Valley Tonga. The population distribution follows the physical characteristics of the district.

9.1 Socio-Economic Environment

Southern Province has over the years seen increased mining activities. The status of the province has shifted from being predominantly agriculture to include mining. From the time of the liberalised economy in 1991 and the implementation of the 1995 Mining Policy through to the current Mineral Resources Development Policy of 2013, the Province has continued to experience increased participation in the mining sector with players in mineral exploration and exploitation. Most of the local people in the area surrounding the project site are small scale peasant farmers practising seasonal farming of crops such as maize, cassava, ground nuts, finger millet and sorghum. Others are involved in keeping of animals such as cattle and goats.

9.1.1 Local Economy

It is expected that the development of the proposed project will improve the local economy, create employment, make available the thermal energy resource through Coal availability. This positive boost extends to the area of the increased local income attached to the anticipated increase in economic activity, employment creation and increased local revenue base for the authorities.

9.1.2 Population

Southern Province has a population of 1,589,926 accounting to 12.08% of the total Zambian population of 13,092,666 (CSO 2010 Census). There were 779,659 males and 810,267 females, making the sex ratio to 1,039 for every 1,000 males, compared to the national average of 1,028. The literacy rate stood at 71.20% against a national average of 70.2%. The rural population constituted 75.33%, while the urban population was 24.67%. The total area of the province was 85,283 km² and the population density was 18.60 per km². The project area falls within Siamuluwa area of Gwembe Constituency. Gwembe has a population of 53117 inhabitants of which 51.2% are females and 48.8% are males with a population density of the project area in Siamuluwa of 5.07/km². The project area is predominantly a rural setup and is located 58.8km NW of Sinazeze as the main access point to the proposed mine site.

9.1.3 Socio-Economic Benefits

The proposed project anticipated benefits will include but not limited to;

- ✓ Project affected people will obtain security of tenure of land currently occupied once demarcation is undertaken.
- ✓ Increased employment and business opportunities for the local people.
- ✓ Socio-economic change through increased revenue, disposable income and availability of goods for the local people.

- ✓ Increased revenue for the local authorities in the district as well as central government through taxes, export charges and levies.
- ✓ Enhanced Standard of living resulting from increased socio-economic activities in the area.

9.1.4 Social Fabric and Structure of the project site

The proposed project site is under customary tenure under HRH Chief Chipeco and there are customary related activities undertaken in the area.

9.1.5 Land Use

Land use in the project area is predominantly agriculture. Common crops grown by small scale farmers include maize, sweet potatoes, beans and groundnuts. The other land use activities include rearing of cattle and goats.

9.1.6 Land Ownership and Zoning

The proposed project site is a greenfield mining area with only minor exploration activities undertaken for the coal ore. The area however has undergone years of agricultural anthropogenic activities and cattle rearing with spatial extents of the license area devoid of first-generation trees due to charcoal burning. In terms of land ownership, the license area still falls under HRH Chief Chipeco and is administered under customary tenure. In terms of mineral occurrence, the area has vast potential for Coal and other mineral deposits as it shares the same coal belt with other areas within the southern province.

9.1.7 Religious and cultural practices

Southern Province has a diverse mix of ethnic or tribal groupings with their corresponding Bantoid languages. The principal ethnic groups and their languages are given in the table below;

Table 9: Ethnic Groups of Southern Province

Ethnic Group	Language
TONGA: The Tonga people are found in Mazabuka, Choma, Monze, Pemba Namwala, Sinazeze and Livingstone Also spoken in Zimbabwe and to a lesser extent in Mozambique	There are two distinctive dialects of Tonga; Valley Tonga and Plateau Tonga. Valley Tonga is mostly spoken in the southern areas of southern province (Tonga people) while Plateau Tonga is spoken more around Monze District.

The main tribe in the area is Tonga and to a less extent lozi. The main language spoken is Tonga. The Tonga language is officially taught in schools. It is also used in literacy campaigns, agricultural extension services, newspapers and radio programmes. Tonga is also widely used. Intermarriages across tribal lines are common and people usually live together in harmony.

The Lwiindi Traditional ceremony of the Tonga people is an annual festival of thanks giving which is held in Monze district of the Southern Province. The Ceremony is the main annual ceremonial event observed in to thank God and ancestors for the land and harvest. The Lwiindi traditional ceremony encompasses several ceremonies; all of them are connected to praying for rain. The main ones are the Lwiindi Gonde, held

southwest of Monze town, and the Maanzi Aabila Lwiindi, in Chief Siachitima's area in Kalomo. They are held annually. The Tonga lwiindi ceremony are performed at the shrines called Gonde, which means thick bush. The Tonga visits these shrines to ask for rains from their ancestors or assistance with eliminating disease.

At the shrines there are two huts built on top of the graves of the sacred Tonga chiefs, Mayaba and Nchete Ilya Mabwe. In praying for the rains, the Tonga brew beer, slaughter a black goat or chicken or even a cow.

While in shrines there are rules to follow such as: Women are not allowed if they have their menstrual period, an animal slaughtered at the shrine should be roasted and eaten without adding salt, and consumed right at the shrine, everybody must remove their shoes and socks, any person going to the shrines must be clean of mind and body, one should not have sex the night before going to the shrine and a thousand and one rules! This is the main ceremony which takes place in July. The Reason is that chief Monze is considered to be the most senior leader. The ceremony is held at Gonde, where it is claimed the first Chief Monze just disappeared but did not die. The place became the burial place for all chiefs but so far only two have been buried there.

Lwiindi means thanks giving for the harvests. These thanks are directed to Tonga ancestors, especially the first Chief, Monze Mukulukulu. It is believed that Monze Mukulukulu was blessed with wisdom, was a rain maker and could eradicate diseases. The Tonga people would travel long distances to come and seek his advice. Before they spoke to him, they would present him with traditional hoes (maamba) made from smelted iron.

9.1.8 Literacy levels, Health and Gender equity

The project area has one school (Sompani primary School) offering basic education curriculum to the children of the area. The schools offer up to the 7th grade of the Zambia education curriculum. The project area has no secondary school offering higher education. From the socio-economic survey conducted, most of the inhabitants of the area practice farming as their primary occupation while a significant number of people are marketers and cattle traders.

10.0 POSSIBLE ANALYSIS INFORMATION GAPS

During the assessment of the Environmental and Social Impacts of the project, the ESIA team will analyze the project impacts on both the biophysical and socio-economic and cultural environment within the project's area of influence. A matrix will be used to establish the likely changes to be affected by the project on the environment. Results obtained will then be analyzed and assessed to establish significant, major and minor impacts. The following criteria will be used:

- ✓ The sensitivity of the environmental element being impacted
- ✓ The spatial extent of the impact
- ✓ The severity/intensity of the impact
- ✓ The duration of the impact
- ✓ The Probability/frequency of occurrence of the impact or source of impact.

Furthermore, impacts will be characterized according to the phase of the project implementation as follows:

- ✓ Impacts associated with preparatory and construction phase
- ✓ Impacts associated with Operational Phase
- ✓ Impacts associated with Decommissioning and Closure Phase

Relevant expertise and government departments and ministries will be written to requesting for missing and or needed information and expert opinion on how such information may be collected and analyzed. Further investigations and research will be conduct by the team in order to obtain the required information. After collecting this information from different experts, research and investigations, the ESIA team will then analyses options and adopt the best possible information for consideration in the ESIA process.

11.0 PROPOSED MITIGATION MEASURES

The following mitigation measures for the identified impacts of the project will be fully discussed in the final ESIA;

Table 10: proposed mitigation measures

Environmental Impact	Mitigation Measures
Impacts on Flora & Fauna	In comparison to surrounding areas, impacts on utilization of natural resources within the mine area will be mitigated through good afforestation practices and conservation measurements resulting in increased population of wildlife due to the favorable habitat.
Occupational Health	Awareness and training of its workers on safety procedures as well as providing protective clothing and equipment.
Air quality deterioration and Noise generation	✓ Equipment and plant machinery shall be well maintained and in good condition such that noise emitted is within an acceptable level. Any equipment or machinery producing abnormal noise will be fit with noise reducers and serviced for good noise performance. Workers operating in areas where noise is emitted are provided with protective equipment. ✓ All equipment emitting gases will be maintained and air quality monitoring conducted to determine the baseline quality of the mine once operational
Impacts of the storage, management, use and disposal of waste	Well-designed infrastructure for storage of oils, fuel and lubricants. Management and use of these items are equally done following laid down procedures in line with regulations set out by ZEMA.
Use of water from dewatering of pits	✓ The proponent will obtain water Permit for abstraction from WARMA. ✓ Adequate technology to sensor flows ✓ A good and effective monitoring system will be put in place during operations.
Management of overburden material	Reduce impacts of indiscriminate dumping of mine waste rock and overburden material.
Erosion/sedimentation.	Carryout proper construction activities. Limit movement of heavy machinery only to designated access routes and operational areas
Relocations /Resettlements and/or Compensation	The proposed development site has settlers who will require a form of resettlement and/or compensation
Safety and Health Risk of Workers	✓ Implementation of safety and health policies designed to identify, evaluate, monitor and control health hazards and provide safety training; ✓ Employees shall familiarize with safety techniques through training; ✓ Management shall ensure that safety inductions are undertaken to persons visiting or working in sensitive areas; ✓ Implementation of emergency procedure on site; ✓ Use of clearly labelled signage; ✓ Ensuring that employees wear suitable protective clothing at all times when it is needed; ✓ Proper control and directing of traffic during material delivery.
Employment	✓ Through advertising fairly ✓ Ensure gender sensitivity in terms of employment

12.0 CONCLUSIONS AND RECOMMENDATIONS

The public consultation meetings and the discussions with the local communities and incorporation of the mitigating measures and implementation of the Impact Mitigation Plan and Environmental Monitoring Plan will institute the main Environmental and Social Impact Assessment.

The development of the proposed SML Coal Mining project will have positive and negative impacts. However, SML has considered all current and potential negative environmental and social impacts likely to arise from this development and will propose mitigating measures, which will be supported by an environmental and social management plan to be presented in the final EIS.

13.0 APPENDICES

13.1 Local Stakeholders Meeting Minutes (6.11.2025)

SHIMABU MINING LIMITED

Minutes of the local leaders meeting for the proposed Large-Scale Coal Mining Activities in Chief Chipepo's Area of Gwembe District (License No. 22912-HQ-LEL)

Date: Wednesday 6th November, 2025.

Venue: Sompani Primary School

Attendance: The meeting was attended by 23 people. In attendance there was the ward councilor for Sompani ward, village headmen, deputy head for Sompani primary school, developers as well as project consultants.

Opening Remarks: The meeting was chaired by the councilor, Mr. Leadwell Siabbamba. He asked for a volunteer to give an opening prayer. Mrs. Juliet Bushe gave an opening prayer. He introduced himself, the headmen to introduce themselves by name and village. He later asked the consultants and developers to introduce themselves. After that, he called the senior headman for Sompani village to give welcoming remarks.

Senior headman: for Sompani village welcomed the consultants as well as the developer, and welcomed the village headmen. He asked that people welcome the developer and would pay attention for the new development which they were about to bring, and also appreciated them for following the right channel before they could start their project.

Mr. Leadwell (Councilor): called upon the consultant for the project to lead them and explain what the project was about and what they had prepared for them.

Mr. Phiri Rodgers (Consultant): Greeted everyone, and thanked them for attending their meeting. He mentioned that the company by the name of Shimabu Mining Limited (SML) was a registered company which intended on carrying out mining activities once granted permission. He mentioned that the company was interested in mining coal in Siamuluwa area. He stated that before they could mine, there were few things and procedures that the company was supposed to do. Mr. Phiri mentioned that the company acquired a consent letter from chief Chipepo, and it was also important that the company also would get the consent from the local people, hence the reason for holding that meeting. He mentioned that the environmental impact assessment (EIA) starts from getting a consent from the chief, then engage the headmen so that they were to be aware of the happenings. He also said That another bigger meeting would be held where the council and other government departments would be present and that people would be free to consent to what will be shared during the meeting. He mentioned that after that meeting, terms of references (TORs) and scoping meeting would be prepared and submitted to Zambia Environmental Management Agency (ZEMA) for review, and once it is approved, a physical study would be conducted in the license area.

Mr. Phiri Rodgers (Consultant): He mentioned that the EIA would be conducted in the license area and would put into account all affected infrastructures, settlements and compensations would be done on those who would be affected. He mentioned that after the findings are done, a final meeting would be held to discuss the final findings and then a final report would be prepared and submitted for review and if they will be okay with everything then the project will be approved. He further told the people that the EIA was meant to protect people so that they would not be affected negatively such as affecting water sources. He mentioned that the company will also have mitigation measures in place on pollutions caused by mining activities. He mentioned that apart from that meeting, there would be another meeting within the same month upon agreement. He thanked the people for listening and welcomed questions.

Mr. Bushe Ishimwengo (Developer son): Greeted the people, told the people that he was standing there on behalf of her mother who is a developer. He said he had years of experience in mining and told the people that the project was for Zambia's benefit. He said Shimabvu Mine had the responsibility to care for the people, and told the people that all those roads they had needed tire marks and needed more schools. He told the people that the mine would need skilled and unskilled workers.

QUESTIONS/COMMENTS/VIEWS

Senior headman (Sompani village): Asked about the boundary for the license and if the company was going there for the first time.

Frank: Mentioned that the boundary for the license was few meters away from Sompani primary school and was covering the Kalama river up to the hills and the company had visited the place before and the geologist had also visited the place to assess the availability of coal along Kalama river.

Senior headman (Sompani village): When did you come here, whom did you see because as we did not see anyone.

Mr. Bushe Ishimwensu (Developer son): Mentioned that when the company came, they saw the headman Mr. Elijah Syamubbale and together visited the site where coal was estimated to be found.

Mr. Fidah: Asked if the company had a letter from chief Chipepo.

Mr. Phiri: Yes, the consent letter was gotten.

Mr. Winard Chief rep: Read the letter which he was given by the developer, and read it loud to the people. He said he would not deceive anyone, but what was read was what was in the letter and confirmed that the letter was from the chief. He also asked if the next meeting who would attend the meeting.

Mr. Frank: Answered that everyone from council and government departments will be invited to attend.

Mr. Forester: Asked that since the company had already explored the license area, where does it intend on setting up a washing plant and crushing them from?

Mr. Phiri: answered saying the coal would be washed and crushed within the license area

Mr. Fidah: Said they had a lot of investors and if they were to agree to the operation of the company in their area, then the company was to agree to their terms on corporate social responsibilities then they would work together.

Mr. Bushe Ishmwensu (Developer son): Answered that an investor who goes there could not just take resources and go, as shimabu mining would look into the corporate social responsibilities and would create jobs.

Mr. Leadwell (Councilor): Mentioned that there was need to make resolutions, and agreements then present them to the company so that an agreement can be made. He also highlighted that the consent which was gotten under chief munyumbwe was wrong as the exploration of interest was in chief chipepo.

Mr. Fidah: Thanked the company for being transparent, welcomed the company for development they were bringing. He also mentioned that for the corporate social responsibilities, the committee would seat down and put in written what would be asked of the company.

Mr. Syambbale: Asked what extent the license was and was. He also mentioned that investors change, one day they would come and say they will mine in this area and the next time you find them mining in a different area, at the end they make roads in the middle of farms.

Mr. Phiri: Mentioned that the license was spanning 3652Ha and that mining is in phases and if one was to be affected, they would be compensated.

Mr. Syambbale: Asked how the company did their exploration this year when the exploration license expired in 2022 and consent from chief munyumbwe?

Mr. Phiri: Responded that the company was misled on the consent and explored using the wrong consent letter.

Mr. Elijah: Asked for the points where coal was found

Mr. Rodgers: mentioned that from the geological report, the points which was assessed for mineral deposits was along kalama river.

Mr. Leadwell (Councilor): Appreciated the developer, and the consulting team and all the headmen who attended the meeting. He told the developer that the traditional leaders had welcomed them and looked forward to the scoping meeting which was to come. He later asked a volunteer to give a closing prayer.

END OF THE MEETING

APPENDIX II: MEETING PHOTO GALLERY



13.2 EIA Scoping meeting Minutes (19.11.2025)

SHIMABU MINING LIMITED

PLOT NO. 299B MAPANZA ROAD, KAFUE, LUSAKA PROVINCE, ZAMBIA

MINUTES OF THE SCOPING MEETING FOR THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED LARGE-SCALE COAL MINING ACTIVITIES IN CHIEF CHIPEPO'S CHIEFDOM IN GWEMBE DISTRICT (License No. 22912-HQ-LEL)

Date: Wednesday 19th November, 2025

Venue: Sompani Primary School

Time: 09:00hrs

Attendance: The meeting was attended by 59 people. In attendance there was the representative to the council secretary, Ministry of health (DHO), Ministry of education, council, Ministry of community development (MCDSS), MCPSS, ward councilor for Sompani ward, village headmen and woman, developers as well as project consultants.

Opening Remarks: The meeting was chaired by the chief rep Mr. Winard Jumbabula. He introduced himself, acknowledged all protocol who attended the meeting, and asked the headmen to introduce themselves by name and village. He later asked the government departments who attended the meeting to introduce themselves, and later introduced the developer. He then asked the council representative to welcoming remarks.

Fabian Habenzu: Thanked the people for attending the meeting to talk about development. He told the people the meeting was theirs and asked them to feel free and ask questions where they needed clarity. He also wondered where women were and said he would have loved to see many women attend the meeting. He welcomed everyone to the meeting and thanked Shimabu Mining Limited for making Sompani area the center of their development, and he further thanked Greenline environmental solutions limited for the project.

Winard Jumbabula (Chief Rep): Clarified that due to the weather, many failed to attend on time, as others had gone to farms but assured people that they would be seeing many people coming

Winard Jumbabula (Chief Rep): Called upon greenline environmental solutions to explain the main purpose of the meeting and what they had for the people. He asked the people to be attentive and ask questions where they were not clear.

Mr. Mwansa: Greeted everyone, and observed all protocol present. He introduced himself as a project consultant for Shimabu Mining limited and introduced the purpose of the meeting as to discuss on the impacts that this mining project has on the affected villages as well as the requirements needed by the company to fulfill the mining requirements as per government requirements. He further mentioned that Shimabu Mining

Limited (SML) was registered on 13th March 2018 (PACRA No. 120180002053) with its core business being mining and mineral processing. He said SML is a holder of a large-scale Exploration License No. 22912-HQ-LEL covering 3552.5970 Ha located in Gwembe area in Chief Chipeco's area of Gwembe district and had interest in mining coal. He further mentioned that the company applied to ZEMA to do an exploration activity. After finishing exploring, it intends to apply for a mining license.

Mr. Mwansa: Said chief chipeco was visited and consented before proceeding with any activity and that a stakeholder was held on 6th November, 2025 to introduce the company and the project at hand. He stated that when transforming from exploration license to mining license, there are 3 stages that are involved which shimabu mining were ready to follow. He mentioned the first one as stakeholder consultation which was held for the company to announce the plans they had and the project they wanted to set up in the area. He said the whole idea was to get views from people on the matter. He told the people that there was need to get views, comments, criticisms, comments, suggestions and other challenges and development that could come with this project. He said this process known as scoping, and after that, the terms of reference and scoping report would be prepared as well as the scoping meeting would also be recorded.

Mr. Mwansa: He mentioned that the second stage was the EIA baseline study, which allows the survey team to go physically on the ground and identify people, structures and other areas in the covered villages that would be affected, with the help of village headmen. He mentioned that under baseline study, there are 2 parts that are looked into which are environmental and social economic parts.

ENVIRONMENTAL IMPACT

Mr. Mwansa: He stated that environmental part looked at the extent to which the license spanned, rivers in the license, air quality, trees, water sources and other things that would be affected by the mine. The study would define what is existing and the impact and mitigation measures of mining activities.

SOCIAL ECONOMIC IMPACT

Mr. Mwansa: Said social economic part lighted the what people farm, the existing clinics and hospitals, houses and who would be affected and who would be relocated. Mentioned that there is a procedure that is followed during compensation for those who would be affected during mining. He stated that according to law, the office of the president provides for those who are affected to be compensated. If families or houses would be found, then a resettlement action plan would be prepared. He told them that a RAP process was a simple process, and there would be things that would be asked and given for the process to be done.

Mr. Mwansa gave an example, stating that if Mr. Malitoli was a villager with 10Ha of land in Siamuluwa, and had granaries, toilets, house, farm and animals and we wanted to conduct mining activities in his 10Ha of land, the following would be considered. He firstly mentioned that Mr. Malitoli can move with his animals if he was to be disturbed. However, the fruit trees (Mangoes, guavas, paw paw etc. have different values), granaries, and fixed assets would be compensated for because they cannot be moved. He mentioned that through the ministry of agriculture, Mr. Malitoli's farm would be measured to find the value. If he had a

maize farm or crop farm, it would be measured by ministry of health as though it was being harvested and sold. He mentioned that the government through the evaluation and property management department would measure the value of the houses and other structures. He said if Mr. Malitoli had a 4*4 house made of burnt bricks, it would be valued according to the material he used to build, and every structure will be valued according to the materials which was used. He said the value of the building was not the amount of money which was spent on it but the current value of building the same structure (replacement value). According to the law, the house has to be replaced with same size but with improved materials and infrastructure. How does Malitoli go without incurring a loss? He said since the land is a customary land, the chiefdom will be informed. Farms, crops, size of land and houses will be given value and everything that will be affected. To move him from point A-B, he will be given 3 options.

1. Cash compensation: He explained that this is where the owner wants to be given cash for the value of the property they will lose and they will look for their own land and build their own structures.
2. Through chief and headmen, the affected is allocated a land in compensation for the lost land and ask for the company to build for him on a new land and the excess of that total value is given to them.
3. Where the company finds land for them and builds everything he lost then he just shifts there.

SOCIAL ECONOMIC IMPACT OF MOVING FROM A-B

Mr. Mwansa: Said if the owner at point A and has a neighbor they help each other, when he is taken to point B, a disturbance allowance of 30% of the total value is given. Meaning he will be given the total value for the loss plus the 30% of that value. He said the 30% added is to allow him to settle as he is doing social integration. Compensation also takes into account: how many people live in that house, school children, wives etc. He said the assessment had to take into account school going children to cover them as well that is the children, women headed houses, aged headed (60 years going up). He mentioned that that was the summary of the second part of the EIA.

Mr. Mwansa: Mentioned about the disclosure meeting as the 3rd component of the EIA. He said after the consultant and developer finds the impact of the mine; they would hold another meeting to inform the people on the findings and get views, comments and clarifications to complete the EIA process. He further said that the compensation package would not be disclosed as the law does not allow that, however, those who would be compensated would be mentioned. He further mentioned that families would be gathered to discuss possible compensations for the affected areas and the agreement that would be made would be signed as perpetuity. If one signed that day and dies the following day, then the agreement would be taken up by the administrator.

CONCLUSION

In conclusion, stated that he had explained the process as it was a standard and laid down procedure everywhere. He then appreciated the people for listening to the speech and asked people to feel free to ask question, comments and bring views during the meeting.

Chief Rep: Told the people that Mr. Mwansa explained everything very well. He then called upon the developer to speak to the people.

Mr. Bushe (Developer): Observed the protocol and welcomed all the people who attended the meeting. He introduced himself as the C.E.O of shimabu mining limited. He told the people that from that time, it became a mine for everyone, it was a mine for all of them and that the task was a teamwork and no one was to remain behind. He further mentioned that what the consultant had explained, he could not have explained it in a better way. He mentioned that their education the consultant and his team attended to had trained them well, and thanked Mr. Mwansa for having explained it very well and asked him to keep up. He mentioned that he was not coming with a bag of money, but asked to work together and cooperate and accept him as their son. He told the people that he came to build life with the people, and if the mine started working on that long journey, many people would benefit from it because it was for everyone, however, he said, it was a long process and would keep moving from 1 person to another just to keep the mine running. He told the people that he was pleased by how he was received, and told the people that for as long as he was alive, he would not let the people down. He then appreciated the people for attending the meeting.

QUESTION/VIEWS/COMMENTS/SUGESTIONS

Mr. Malitoli: He asked if it was only about the age in compensation consideration and what the age for the aged was to be considered.

Mr. Mwansa: Answered that the vulnerability age which was considered was 60 years which is standard.

Dr. Mweenge: Asked for the time frame for the 3 components which was mentioned, she asked how long each stage would take and what was supposed to be expected after that meeting. She asked that, in relation to health disadvantages to miners and villages, from experience how many cases of pulmonary cases were recorded in the past and what the mitigation measures would be. She asked a third question which was stating that the distance between munyumbwe hospital and sompani clinic was 60km. She asked if the mine had intentions of building a hospital for the people than depending on the hospitals at a distance?

Mr. Mwansa: Answered the first question stating that the time frame for each stage was 120 days (4 months study). This would also depend on the vulnerability of the environment as it would determine of 120 days would elapse, or not or if an extension would be needed. Some studies would need to wait as you would not know the source of dust if it rained, but more studies would be conducted on social economic setting. He answered the second question that SML had not started operating but was in the process of acquiring a mining license. He said when the baseline end, they would go to the nearby health facilities and collect the data about the catchment area of each facility, statistics of respiratory illnesses, and this will determine if the mine will contribute to the illnesses by making comparisons in the statistics. Mr. Mwansa answered the third question saying there are regulatory laws that allow to check these respiratory illnesses every 6 months, and mentioned that these illnesses are also transmittable. He mentioned that the infrastructure will be built depending on the site where the mine will be set up and if a mine will be in the middle of 2 schools, then the mine can choose which school to boost.

Dr. Mweenge: Have they been mining or it is the first time?

Mr. Mwansa: No, it is the first time.

Mr. Siame (Council): Mentioned that the number which was at the meeting was not enough and more people needed to attend the meeting as the mine impacted the whole meeting and urged people to invite others and turn out in numbers. He mentioned that the views were supposed to come from a big number and not a small representative. He mentioned that not everyone has same understood as others so when the company comes, others would have different views. He appealed to headmen and women to ensure that they invite many people to come in the near future. Mr. Siame then asked if there was a proper system addressing the challenges faced by stakeholders so that it could be handled well?

Chief Rep: Responded on attendance that it was due to rains that few people attended and also that when it rains many people are advised not to move as most of the areas are flooded.

Mr. Mwansa: Responded to the question saying stakeholder consultation was key but projects have timelines. But if we will be affected then we will be compelled to extending the project to next year. He said grievance mechanism was there. He also said when measuring people's property these grievances do come and there is a procedure that people use to report problems. He further said the developer was not supposed to come with their own way of communication but should ride on what is existing.

Mr. Syambbale: Asked: on the RAP program, if he had 10Ha and 50 cattle, would they find a different place for those cattle to graze on? Also, if you find shrines, how are you going to handle that?

Mr. Mwansa: Answered that the ministry of agriculture will measure their land and land use, and told them the piece of land would be found for grazing and their operations would not be affected. For the second question, he said the shrines will remain untouched. He also said the burial site cannot be tampered with for 100 years. But after this then the land can be used. He mentioned that the public act provides for exhuming of remains only if the right process is taken and the verification that what is found there is more valuable than what is there is done.

Chief Rep: asked that they had seen the consent letter and the exploration was done, what were the findings and they also wanted to know if the findings had reached the chief. He mentioned that fidar company found minerals and went direct to mining without informing the chief, and said they did not want to see SHL fall as a community.

Mr. Mwansa: Answered that the exploration does not end. He went on to say minerals of interest were spotted along kalama river and what they had not given the chief was the actual drilling points as that would give them the lifespan of the mine. He mentioned that the potential areas and geological reports were given to the chief. He mentioned that HRH. Said they should go to his people and mention to them what they wanted to do.

Mr. Syambbale: Asked that if the company managed to get the mining license, then they should take it for them to see it.

Mr. Matambo: asked that in case of RAP, will the affected be given land within the chiefdom or outside?

Mr. Mwansa: The place will be within the chiefdom and the headmen will be relied on for that.

Mr. Nelson: Asked if there was a program on corporate social responsibility (CSR), and would the washing plant be within or outside the chiefdom?

Mr. Mwansa: Said the CSR Was signed, and told the people that there was no need of them going in the villages and sign a memorandum of understanding as chipepo foundation wound sign an MOU which will be brought down to village headmen as requirements will be signed with the headmen. He answered that he would come with a mine plan in the next meeting which would show where the washing plant would be. He also mentioned that it was not every coal that would need to be washed. He also mentioned that there are 2 types of washing which he mentioned as dry and wet washing. H e also mentioned that the final decision on washing plant had not been decided.

Chief Rep: Added a comment that the company and consultancy knew what they were talking about and what they were doing and that every time they were asked questions, they gave very good answers and asked the people to welcome them.

Mr. Syambbale: Said he was not satisfied with the washing plant and asked that the company needed to decide where it would be placed.

Mr. Mwansa: Answered that it was not possible that whole 3652Ha had coal. When applying to the ministry of mines for the mining license, they will give the company half of that license and what would determine the license area was the drilling points and the company wishes to put a washing plant where coal is existing but if there will be need to make a washing plant, it will be within the chiefdom.

Mr. Siame: Said there were different factors that would make the company make a washing plant to be in a different chiefdom and felt it was okay to have employment for all. It would be okay for the company to give opportunities to each chiefdom like, 10 to 1 chiefdom and 10 to the other.

Chief rep: asked mr siame to provide factors that would lead to taking a washing plant to a different chiefdom.

Mr. Siame: Said that would be due to good road network and availability of rivers on the other side.

Chief rep: Answered that, that was a big NO. He emphasized that whether road or water, the washing plant was supposed to be within the chiefdom, even if they wanted land, it would be given to them for as long as the washing plant was set up in the same chiefdom.

Mr. Syambbale: Said if they built other areas, they would change those areas to be towns using their own resources. He said if the roads in the chiefdom were bad, then it was the duty of the company to maintain them.

Mr. Mwansa: Clarified that Mr. Siame was trying to find out what their reactions would be if that was to happen. But everything would be happening within the chiefdom.

Chief Rep: Mentioned that every step a company made in the chiefdom, the people were supposed to know. He then asked the council representative to give closing remarks.

Council Secretary (REP): Appreciated the stakeholders who attended the meeting and hoped that everyone had a good meeting. He appreciated SML for assuring them and developing together. He thanked the people and asked them to invite more people in the next meeting so that others could have their views heard and said it was good that they had welcomed the company in their chiefdom.

Chief Rep: then asked a volunteer to give a closing prayer.

END OF THE MEETING

APPENDIX I: ATTENDANCE REGISTER

SHIMABU MINING LIMITED

Plot No. 2590, Mopani Road,

Kafue District, Zambia.

VENUE: SOMPAHI PRI. SCHOOL

19/11/25

EIA DISCLOSURE MEETING ATTENDANCE LIST

	NAME	ORGANISATION	CONTACT No.	SIGNATURE
1	CHITUMBABEERU EDWARD	SCHOOL	0955704087	[Signature]
2	JOSEPH SIMWANDA	DHO	0979698153	[Signature]
3	KIAMBI MAKI TONI	QTC/DSW	0979-707681	[Signature]
4	MWENGE SOMELA	M.O.H	0955038066	[Signature]
5	BUSHE MARSHALL HOSEA	SHIMABU MINES	0972 999991	[Signature]
6	MWEMBA PURIFIED	COUNCIL	0979-565178	[Signature]
7	MOSES SIAMBA	COUNCIL	0974362499	[Signature]
8	MUCHINBU NELSON	VHC CHAIR	0953294102	[Signature]
9	ELION SIATYUMA	V.H. KAMBIA	0955211135	[Signature]
10	VISON NJALISHA	GILEMBE		VILSON J
11	Bhaka Redson	Star Hq moshi	0955142447	[Signature]
12	RICHARD SIAMWAKA	V.H. MAN		[Signature]
13	SAMSON SHWUMA	V/HAN SIAMWALA	0954433065	[Signature]
14	SIMABUKU FINE	V. KAMBIA	0952082393	[Signature]
15	MUTINTA KELVIN	V/VAMBILLO	0950831697	[Signature]
16	SILALI LUSIYA	V/Chingwangwa	---	[Signature]
17	AUSTEN SIABANYAMA	V/ODMBA	0954441123	[Signature]
18	DAVID S. SIAMBALE	V. SIAMBALE	0955526228	[Signature]
19	SYBNEY SIABUSQU	V. Headman	0950790081	[Signature]
20	COLES SIAMBALE	Alchudi	0950738601	[Signature]
21	EDICO SIMBAMBO	Lufutuko	0953051103	[Signature]
22	SICHILEZU CHARLES	V. CHAIR PERSON	0955104239	[Signature]
23	DEVING SIMUNYANGA	SEC-CHI-bale	0950596393	[Signature]
24	HEROLD NZEMBA	V. Headman	0956312611	[Signature]
25	LESSMORE C. Hibbard	V. Simwami	0954310460	[Signature]
26	UNDERSON MATAMBO	V. Simulunda	---	[Signature]
27	HAKENKA MITTA	SCHOOL	0950874815	[Signature]
28	RODGERS PHIRI	GREENLINE	0979609484	[Signature]
29	SIAMUNILI MICHAEL	V. MALUNGO	0954507859	[Signature]
30	YOSTER SIMUDENDA	V. Kamwambila	0954060464	[Signature]
31	JAMES PHIRI	GREENLINE	0955473536	[Signature]
32	LUCKSONI MUMUNYU	V. Mutagom	0953301816	[Signature]
33	WINARD LUMBABULA	CHIEF CHIEF	0973078496	[Signature]
34	TREWELL SIMABUYU	H/MAN KAMBIA	0950966141	[Signature]
35	SON SIAMBUYU	MALUNGO	0954236630	[Signature]
36	MATAMBO C. JOE	Headman	0954232616	[Signature]
37	LENGANJI SICHONE	GREENLINE	0966664434	[Signature]
38	AUSTIN MULEYA	Headman	0957634828	[Signature]
39	NEVER CHIKUNI	V. Simwami	0957163558	[Signature]
40	KANENE MARTHA	SCHOOL	0950722308	[Signature]

VENUE: SOMANI PRI-SCHOOL

19/11/25

[illegible]

APPENDIX II: MEETING PHOTO GALLERY





EIA SCOPING NEWSPAPER ADVERTS (DAILY MAIL)

SUNDAY MAIL, November 16, 2025

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) SCOPING MEETING

PROPOSED LARGE SCALE MINING ACTIVITIES IN LICENSE No. 22912-HQ-LEL IN HRH CHIEF CHIPEPO IN GWEMBE DISTRICT BY SHIMABU MINING LIMITED

SHIMABU MINING LIMITED IS A ZAMBIAN REGISTERED COMPANY (COMPANY REGISTRATION NO. 120180002053). SHIMABU MINING LIMITED IS A HOLDER OF A LARGE-SCALE EXPLORATION LICENSE NO. 22912-HQ-LEL GRANTED BY THE MINISTRY OF MINES AND MINERALS DEVELOPMENT WITH RESPECT OF COAL IN GWEMBE DISTRICT OF THE SOUTHERN PROVINCE. SHIMABU MINING LIMITED INTENDS TO UNDERTAKE LARGE SCALE COAL MINING ACTIVITIES IN THE ISSUED LICENSE AREA IN SOMPANI AREA OF GWEMBE DISTRICT OF SOUTHERN PROVINCE.

IN LINE WITH THE ENVIRONMENTAL MANAGEMENT (AMENDMENT) ACT NO. 8 OF 2023, READ TOGETHER WITH THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION OF 1997, SHIMABU MINING LIMITED INTENDS TO UNDERTAKE THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY FOR THE PROPOSED PROJECT AS PER REQUIREMENT.

IN VIEW OF THE ABOVE, SHIMABU MINING LIMITED HEREBY INVITES YOU TO THE PROJECT EIA SCOPING MEETING FOR THE PROPOSED PROJECT TO OBTAIN INCLUSIVE VIEWS AND CONCERNS FROM ALL STAKEHOLDERS.

DATE: WEDNESDAY 19TH NOVEMBER 2025

TIME: 09:00HRS

VENUE: SOMPANI PRIMARY SCHOOL, GWEMBE DISTRICT.

For further information and/or clarification please contact the undersigned:

GREENLINE ENVIRONMENTAL SOLUTIONS LIMITED

Office line: +260 211 222 029 Mobile Line : +260 966 656 697 and +260 979 609484

Email : environmentalgreenline@gmail.com

RSO398322/16.18.11

SHIMABU MINING LIMITED

Plot No. 299b, Mapanza Road,
Kafue District, Zambia.

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) **SCOPING MEETING**

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Appendix 5-1: EIA Disclosure Meeting Minutes

SHIMABU MINING LIMITED

PLOT NO. 299B MAPANZA ROAD, KAFUE, LUSAKA PROVINCE, ZAMBIA

MINUTES OF THE DISCLOSURE MEETING FOR THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED LARGE-SCALE COAL MINING ACTIVITIES IN CHIEF CHIPEPO'S CHIEFDOM IN GWEMBE DISTRICT (License No. 22912-HQ-LEL)

Date: Thursday 9th April, 2026

Venue: Sompani Primary School

Time: 11:30hrs

Attendance: The meeting was opened at 11:30 and was attended by 72 people. In attendance there was the representative to the council secretary, DAO, Ministry of education, ZP, GTC, Chief Chipepo's representative, ward councilor for Sompani ward, village headmen and woman, developers as well as Greenline environmental solutions limited (project consultants).

Opening Remarks: The meeting was chaired by the Ward councilor, Mr. Leadwell Syabbamba. He called on the volunteer to start a national anthem. After this, a prayer was given from a volunteer. He introduced himself, acknowledged all protocol who attended the meeting, and asked the headmen and local attendees to introduce themselves by name and village. He later asked the government departments who attended the meeting to introduce themselves, and later introduced the developer and the project consultants. He then asked the chief representative to give welcoming remarks.

Mr. Winard Jumbabula (Chief Rep): Greeted meeting attendees, gave respect to the CS representative, office of the vice president and everyone who attended the meeting. He welcomed the developer and the consultancy.

Mr. Leadwell Syambbale (Councilor): Invited the DAO, also the DC representative to say a few words.

Fabian Habenzu: Thanked the people for attending the meeting and observed the presence of the OP, chief rep, councilor, headmen, Greenline environmental solutions and observed all protocol. He mentioned that he was standing in for the D.C Mr. Chibandula, who wanted to be part and parcel of the meeting but had challenges he was attending to. He mentioned that the office had received the consultants the previous day and had a long conversation. He told the people that the developers and consultants were not there illegally and that was the reason they had their presence at the meeting. He appreciated the coming of the mine as good and part of development and that the chief was aware of the development that was why the chief representative was also present. He asked the local people to work together with the developers as they had

skipped many lands to come in that land and set up a mine and that the project had reached the Zambia environmental management agency, He further cautioned people against charging the company money on private arrangements such as approaching the owner and asking for 2,000/3,000 for a farm but to wait for government departments to do the evaluation for your properties and job applications. He further asked the community to form a group that will be used to send the expectations for the villages as part of the corporate social responsibility through the local systems such as the headmen, chief representatives and going one by one. He asked the people to welcome the company as the government had welcomed them. He publicly asked the people who had welcomed the mine to raise their which they all raised the hands, and he turned to the developer and told him that the village had welcomed them.

Mr. Leadwell Syambbale (Councilor): Called upon Greenline environmental solutions to explain the main purpose of the meeting and what they had for the people. He asked the people to be attentive and ask questions where they were not clear.

Mr. Mwansa: Greeted everyone, observed the presence of the ZP, DAO, Chief representative, office of the vice president and all protocol observed and thanked everyone for coming. He mentioned that Shimabu Mining Limited (SML) was a Zambian registered company with its core business being mining coal. He said SML is a holder of a large-scale Exploration License No. 22912-HQ-LEL covering 3552.597 Ha located in Gwembe area in Chief Chipepo's area of Gwembe district and had interest in mining coal. He told the people that there are regulation and laws to follow before mining could start.

Mr. Mwansa: Said through the ministry of mines act of 2015, Shimabu mining limited was granted a license to explore mineral reserves in the license area. The license was given to check the availability of resources in an area and determine the timeline for which the mining would go. He further mentioned that the geological survey was conducted which showed sufficient coal reserves and the report was prepared and submitted and the permission was given in 2023. He told the people that chief chipepo was approached to give a go ahead and explore the minerals and this was granted inform of a consent letter. On November, 6, 2025, headmen consultation meeting was held to inform the people of the intent to do mining activities in the area, the second meeting was held on 19th November, 2025 at district level at the very school. He further mentioned the DAO as one person who has witnessed the consultants do most of the mining works and have followed the right channels of communication. Also mentioned that a report of the findings and what was said in the previous meetings were submitted to ZEMA and ZEMA gave a go ahead to submit the final report. He highlighted that the meeting was then to disclose what was found during the field study, the timeline of the mine as well as what needs to be done.

Mr. Mwansa: Mentioned that the study had 2 parts that he needed to talk about. Firstly, on technical details. He mentioned that the first part which is the technical part held information such as the investment amount, mine lifespan, number of people to be employed and through the councilor, the consultant identified areas of coal interest. He further said if other minerals would be found during mining, according to the law, they would need to disclose the quantity of those minerals. He also stated that since the area of the license is 3652

hectares, it did not mean the whole area would be mined, and that there are some areas which are not allowed to mine from such as the shrines, graves and water sources from which the community draws.

Mr. Mwansa: Said geological survey was done by the use of aerial magnetic survey to check what minerals were in the area. A total area of 800Ha-1,000Ha was assessed to have sufficient minerals out of the 3652Ha of the mining license. He further mentioned that when a mine starts, it has the ability to go up to 30 years of mining activities.

He further stated that the mining will be progressive mining, and there is need to remove the overburden materials and access quality coal and when the coal on the ground is done, the overburden will be placed back in the pits. Mined coal would be washed within the kingdom, crushed within the kingdom and all activities would be done within the area. He also informed them that the Zambian government have expressed interest in increased generation of power through thermal power plants. He updated the people about the quality of coal found and said the found coal had 42% of calory. Adding more clarity to this, he said the higher the calories the more ability of coal to burn long and produce more heat: the longer the coal burns, the more heat is produced and that the principle for the charcoal is same as that of coal.

Mr. Mwansa: He also mentioned that the company's investment cost in the mining activities is estimated at \$1,000,000.00 which will include the machinery use, employment, and materials that would be needed to commence the operations of the mine. He also emphasized that the cost will be based on how much coal is needed to sell. In the same line, he disclosed that 200 people would be employed on full scale operation of the mine. He mentioned that the area of interest has a river (Kalama River) but the area has no shrines discovered.

Mr. Mwansa: Said Shimabu mining limited had applied for a mining license which it applied for half of the total license area of interest as per regulations and the other remaining area would remain and be used for what it was being used for. Actual drilling will be done to get coal samples and check how deep they will go in mining to access minerals. He emphasized that the method will be an open cast mining and not underground mining.

LAND MANAGEMENT SYSTEM

Mr. Mwansa: stated that the second part, was in line with farms. He said there are 2 types of rights existing which are surface rights and underground rights, He said surface rights are enjoyed on the land such as building infrastructures on the land, farming and other activities that can be done on a piece of land. He also said underground rights are those given to someone to access underground resources. He went ahead to give an example, picked Mr. Bagna (stakeholder) gave an example assuming he was given land by the chief. He said Mr. Bagna would enjoy surface rights even if he has title deeds and if there were minerals underground, then those would be for the government and that is law. Mr. Mwansa also picked Mr. Bushe (developer) who has been given underground rights and said he would have no way to access underground resources minus going through the one who owns surface rights. In view of this, Mr. Mwansa said when it

comes to compensations, Mr. Bagna's built structures will all be measured and be given value. If he had fruit trees, each tree will be valued, houses, toilets and all other immovable structures would be measured and be given value. He added that customary land cannot be sold but is freely given through the local leaders. When relocating, Mr. Mwansa said a 40% of the total valued amount is given to the affected as disturbance allowance.

Mr. Mwansa: Said there are 2 options during compensation. He explained the first option as monetary compensation where there affected decides to get the total amount which was calculated plus the disturbance allowance and those compensation takes into account the current price of the construction materials. The second compensation was where the company rebuilds a house for the affected elsewhere with improved construction material. He reminded people about what the DAO had said that they should not accept negotiations privately with the company, in case they realized they were supposed to get more on those properties, they would not complain. He also mentioned the National resettlement policy as one which protects people from being displaced internally by projects and development. He mentioned that the law does not allow the consultant to value properties of the affected and this is to avoid biasness. He mentioned that there are departments in charge of property valuations which are the ministry of Agriculture, department of government evaluation and the social welfare. Both groups would form a valuation report. The cost would be revealed to the owner only and not at the meeting or publicly. Once the report is done, the developer would bear the cost of the property, would sit and discuss with the affected-on relocation and compensations. He also advised that the best time to allow relocation would be after harvesting. He also mentioned that if relocation was done before crops were harvested, then the company would pay for the crops in full as if they were buying them.

CONCLUSION

In conclusion, Mr. Mwansa told the people that during compensation, women are also taken into account. If a property was registered under a woman, then the compensation would go to a woman. He further mentioned that if a father had land and allowed the children to settle and build from it, then the structures built would be evaluated and money goes to the children while the value of the land goes to the father. He appreciated everyone for listening and invited questions.

QUESTION/VIEWS/COMMENTS/SUGESTIONS

Mr. Wynard Jumbabula (Chief Rep): Appreciated the presentation and told the people that Mr. Mwansa explained everything very well. He recalled a promise made in the scoping meeting that there would be no shortcuts in everything the company were doing but should inform the leaders in every stage and should also have complete documents. He narrated that there were misunderstandings with the previous company (Fedar) who had set up a plant outside the chieftdom while getting resources within chief chipeco's chieftdom. He also asked that the leaders would also have a copy of the meeting minutes and have a copy of the agreements made. He emphasized that consent letters and mining license would be shown to the community to ensure no shortcuts. He thanked the developer and the consultancy and asked to move on one pace.

Mr. Syambbale (Headman): Told stakeholders that the ministry of mines visited them and oriented them about the corporate social responsibilities and that mines should give back to the community, but the previous mine did not even talk about it and they did not even do anything about it. He also mentioned that they had been told that corporate social responsibility could be done while mining activities are underway. Which this, he asked about the current position of the developer and the mine.

Mr. Mwansa: To answer, Mr. Syambbale's question, Mr. Mwansa said the corporate social responsibilities forms part of the development. He advised the people that through the existing channels such as the headmen and chiefs, they could form a group and note down some developmental activities, submit to the developer, then meet with the developer, and sign a memorandum of understanding.

Mr. Syambbale (Headman): Said it would be better that they first do something then they start mining because the last mine did not do anything.

DAO: also said the question was a good question, However, he said, it would be better that the company starts operating first, starts to make profit then they can look into the corporate social responsibility. He also mentioned that you cannot milk a cow before it gives birth, therefore, could not expect CSR before they could start operating and asked that the community gives the company time. He also mentioned that the company did not use any shortcuts, and had consent letter from the chief, ZEMA license as well as an exploration license.

Mr Leadwell (Councilor): mentioned that the license expired after 4 years and had expired, what next in that case?

Mr. Mwansa: answered saying, the developer has already applied for a mining license, of which during the application, the exploration license was required. He further highlighted that once the mining license is granted, the exploration license would cease to work.

DAO: Mentioned that the company had followed the right procedure as they had applied for a mining license and in that case the exploration license had ceased to work.

Mr. Fida: Questioned that during sample collection, do they take tones of trucks, and if so, what does that mean?

DAO: Responded sample collection is done on different points and they are expected to get enough samples to determine the quantity of minerals and types of minerals on the ground.

Mr. Bushe (Developer): Greeted everyone who attended the meeting. He mentioned that the meetings which were taking place in the area showed that the company was in the right place. He told the people that they were about to start development. He further said he was overwhelmed with the people's welcoming. He also said the company was there to rebuild a collective wealth. He further encouraged young people to have a developing mind and not to mess with the developmental agenda as there was a lot to be done. He appreciated the people before ending his speech.

DAO: Appreciated the developer for coming, Greenline environmental consultancy and stakeholders for attending the meeting. He mentioned that what was discussed in the meeting was encouraging and questions were asked. He also urged the headmen to sit down and identify the areas that may need attention to be par of the CSR that shimabu mining limited would wish to do in the area. He also mentioned that during that meeting, all departments such as schools and health should be included. Lastly, he thanked the developer for choosing their area for mining, for following the right procedure and asked that they keep moving together as they currently have been doing.

DAO: then asked a volunteer to give a closing prayer.

END OF THE MEETING

APPENDIX I: ATTENDANCE REGISTER

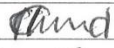
SHIMBABU MINING LIMITED

Plot No. 2096, Mananza Road,
Kafue District, Zambia.

EIA DISCLOSURE MEETING ATTENDANCE LIST

S/N	NAME	ORGANISATION	CONTACT No.	SIGNATURE
1	Musonda Frank	Greenline	0950000390	F. Musonda
2	Chiyala Mweemba	Greenline	0977464884	Chiyala Mweemba
3	Winda Jumbabula	Chief's PCP	0973078496	Winda Jumbabula
4	Moses Siambo	Chwembe T.C.	0974362499	Moses Siambo
5	Purified Mweemba	QTC	0979-56878	Purified Mweemba
6	Luckson Mungumbwe	Sister Mungumbwe	0953301916	Luckson Mungumbwe
7	MATAMBO JOB CHALI	Headman	0954232696	MATAMBO JOB CHALI
8	CHUMUNGUMA SAMSON	Headman	0954232692	CHUMUNGUMA SAMSON
9	SIAMUBRALE ELIJAH	HEADMAN	0750329537	SIAMUBRALE ELIJAH
10	EMMANUEL MUNXUMIBWE	HEADMAN	0953363489	EMMANUEL MUNXUMIBWE
11	Mutinda Elliot	Headman	095566529	Mutinda Elliot
12	Bbuka Dany	Headman	0950328012	Bbuka Dany
13	Simabunga Tawell	Headman	0950966141	Simabunga Tawell
14	Siabunga SYBASTIAN	Headman	0950740081	Siabunga SYBASTIAN
15	Son Simabunga	HEADMAN	0954236630	Son Simabunga
16	FIDAH SIAMUMBI	HEADMAN	0954596404	FIDAH SIAMUMBI
17	DAVID S. SIAMBALE	HEADMAN	0955526828	DAVID S. SIAMBALE
18	FELIX SIAMSOLE	VI HEADMAN	0950335914	FELIX SIAMSOLE
19	AUSTEN SIABASTAMA	VI HEADMAN	0954441123	AUSTEN SIABASTAMA
20	LISSELI KAYUNGWA	HEADMAN	0955288124	LISSELI KAYUNGWA
21	FINE SIAMBUGA	member	0956806034	FINE SIAMBUGA
22	LEWARD SIMULONDE	HEADMAN	094157274	LEWARD SIMULONDE
23	MONDAY BBUKA	VI HEADMAN	0955704436	MONDAY BBUKA
24	Misheck BBUKA	LUUKO/CO	0954453400	Misheck BBUKA
25	EDWARD CHIKUNI	MEMBER	095663306	EDWARD CHIKUNI
26	Choop CAPHAS	V. ASUKUMA	0954167653	Choop CAPHAS
27	Charles Siampongo	member	0950966157	Charles Siampongo
28	Bargina Siabunga	member	0955006923	Bargina Siabunga
29	MWILUNDE INNOCENT	VILLAGE HEAD	0950070527	MWILUNDE INNOCENT
30	MARGRET SIAMANKWANA	member	0954232996	MARGRET SIAMANKWANA
31	Rantia Siakundu	member	0957606858	Rantia Siakundu
32	Isket SIACIOWA	member	0957068935	Isket SIACIOWA
33	MUKUMBUTA MADONDA	member	0950739616	MUKUMBUTA MADONDA
34	grales muleya	member	0950967274	grales muleya
35	parity Siambaale	member	0958721125	parity Siambaale
36	grales madonda	member	0954596485	grales madonda
37	Virginia Siakumbi	member	0954474496	Virginia Siakumbi
38	Ohness mukonka	member	-	Ohness mukonka
39	Siambili Michael	Headman	0954507859	Siambili Michael
40	Edico Simbombo	member	0953051103	Edico Simbombo

EIA DISCLOSURE MEETING ATTENDANCE LIST

S/N	NAME	ORGANISATION	CONTACT No.	SIGNATURE
41	CHIKU NI ENOVENIEN	WENOMEMBER	0954633793	
42	KIESSE SIAMATILRA			
43	HEROLD NZEMBA	Headman	0956312611	
44	STEVEN MATUSE	Member	0957444655	
45	Hanty Sychowai	V. Headman	0954395621	H.S
46	Bbumello Syambaale	V. Syambaale	0956225341	B. Syambaale
47	FAMILY SIAMULE-IA	MEMBER	0950071776	F. Siamulga
48	DIVINE SIMODIANGA	V. Chugwangumbale	0954596393	D. S. S
49	Benny mungumbale	V. KASILE	0953363459	B. S
50	SAMUEL SYAMBAALE	V. SYAMBAALE	0958971651	S.S
51	HAKWASHA YDSTER	MEMBER		H.Y
52	SIAMKWINDE HANSEL	SECRETARY	0950161015	M. H
53	SIAMWAKA RICHARD	HEADMAN	0954232708	R. Waka
54	Munsamde Earnest	V. Headman	0951573077	M. S
55	OKAKIMBO M. HANKOMOBNE	COUNCIL	0979711868	O. H
56	ChagRaty musialan	Kalisaile	0950518824	C. M
57	Nico Hamagutgi	member kauru	0954236612	N. H
58	Boyd mungumbale	member Siamulga	0958344244	B. M
59	KISOR MUKONKA	SECTIRY Nalide	0957584164	K. M
60	JAMES PHRI	GREENLIE	0955473576	J. P
61	Fabian Habeenzu	Disence Admin	0977360799	F. H
62	MICHAEL Njoma	DP	0979752227	M. N
63	MUKENO PATRICIA	ZAMBIA POLICE	0977250331	M. P
64	Marshall Bushe	Shimabu Mine	0950000010	M. B
65	Mwengw Bushe	Shimabu Mine	0973548497	M. B
66	TSHE BUSHE	SHIMABU MINE	0975468875	T. B
67	FOREST MOONSA	MOONBA	0951644775	F. M
68	VIRGILIA SIAMUMBI	LUFULUKO	0954474496	V. S
69	SLABYS MABORBA	II	0954596435	S. M
70	CHI-MBAMBENZU EDIMOTI	MINISTRY OF EDUCATION	0955704527	C. E
71	KANEKE MARTHA	MINISTRY OF EDUCATION	0950722308	K. M
72	STARBBAMBA LERAKWELI	WARB COUNCILLOR	0952088129	S. L

APPENDIX II: MEETING PHOTO GALLERY



APPENDIX 6: CONSENT LETTER



HIS ROYAL HIGHNESS CHIEF CHIPEPO

OWN PALACE

Lake Kariba P.O Box 1 Gwembe

Cell: 260 972 789/260 955 789 054 Email: mwamichipepo@gmail.com

30th September 2025

The Director,
Shimabu Mining Limited
Plot No.299b Mapanza Road
Kafue District

Dear Sir,

**RE: CONSENT TO UNDERTAKE MINING ACTIVITIES IN MY CHIEFDOM IN
LICENSE No. 22912-HQ-LEL IN GWEMBE DISTRICT**

Reference is made to your request to conduct mining activities in my chiefdom in particular LICENSE No. 22912-HQ-LEL in Siamuluwa area (Sompani village) in Gwembe District

In view of your request, the chiefdom council hereby grants Shimabu Mining Limited to undertake exploration and mining activities in the above license in adherence to all applicable regulations regarding the mining activities and the requirements of the Chiefdom.

Yours In Traditional Leadership


HIS ROYAL HIGHNESS
HRH CHIEF CHIPEPO



"CHIEFDOM UNDER GOD"

**Psalm 33:12" Blessed is the Nation whose "IN GOD WE TRUST
God is the Lord"**

Appendix 7: Large scale Exploration License for 22912-HQ-LEL

Gwembe



REPUBLIC OF ZAMBIA

The Mines and Minerals Development Act, 2015
(Act No. 11 of 2015)
The Mines and Minerals Development (General) Regulations, 2016

LICENCE NO. 22912-HQ-LEL

LARGE SCALE EXPLORATION LICENCE
(Section 23 of the Mines and Minerals Development Act, No. 11 of 2015)

Holder's name: Shimabw Mining Limited

Address: Plot No. 229/B, Mapanza Road, Kafue, Lusaka

The Prospecting area shall be the area described in the Schedule and annexed hereto and bordered Blue on the Plan.

The licence relates to the following minerals: Coal

The licence is granted for a period of 4 years commencing on the 21st day of June, 2018

The conditions of grant of the licence are as shown in the Annexures attached hereto.

Issued at Lusaka this 8th day of May, 2024.


.....
Samuel C. Maango
Director

ENDORSEMENT OF REGISTRATION

This Large Scale Exploration Licence has on this 21st day of June, 2018 been registered in the Register.


.....
Samuel C. Maango
Director