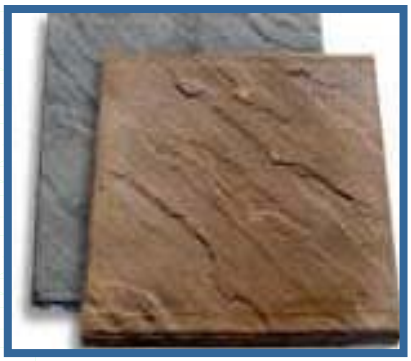
PRODUCTION OF SLATE SLABS Feasibility Study



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1. BACKGROUND, PURPOSE & IDEA

Mining is one of the primary activities in Lepelle-Nkumpi and contributes approximately 22% towards the GDP of Lepelle-Nkumpi. The GDP contribution of the mining sector however does not coincide with the number of jobs created as it only constitutes approximately 5% to employment of Lepelle-Nkumpi's population.

According to the DME (www.dme.org.za) there are major challenges ahead for small-scale mining in South Africa. With the advent of the new Minerals and Petroleum Resources Development Act in 2002, many previously disadvantaged South Africans have begun to see small-scale mining as a way to a new life. The government has, through the Department of Minerals and Energy, established the Directorate of Small-Scale Mining to develop and address the challenges faced by the small-scale mining sector. It is essential that small-scale miners become integrated into the greater South African mining community and that the sector becomes streamlined into the mainstream economy. As a result, the South African government has taken active measures to promote the development of this sector. The small-scale mining sector includes:

- Artisanal or subsistence mining operations (new entrants);
- Sub-optimal formal mining operations; and
- Entrepreneurs with upfront capital.

The full potential of the mining sector in Lepelle-Nkumpi has not yet been exploited, especially when considering small-scale mining practices, techniques and beneficiation. It is proposed that small-scale mining and local beneficiation be established within the Municipality, with the primary focus of organising previously disadvantaged miners into a vibrant association for the facilitation of training, funding and, entrance into the mining industry. This is expected to result in renewed exploration and mineral development in a very poor area.

Small-scale mining is sometimes done by peasants (locals without training and mining knowledge). In South Africa, small-scale mining often refers to operations of individuals or organised groups (four to eight individuals), or co-operatives of ten or more individuals, which are entirely financed by limited personal resources and carried out by using simple traditional techniques and tools or at low mechanisation levels. There are, however, also more highly organised small-scale mines with higher levels of employment (up to 50 employees), technology, equipment and capital. Small-scale miners are mostly poor people, individuals or small groups who are dependent upon mining for a living; and use rudimentary tools and techniques (e.g. picks, chisels, sluices and pans) to exploit their mineral deposits. However, for the purposes of this document small-scale mining is considered as a mining activity, which employs less than 50 people and may be owner-operated. It therefore includes all artisanal mines. Small-scale mining is regulated by the same legislation that regulates the large formal mining sector (i.e. in regard to the environment, labour, mineral rights, exploration and mining).

The opportunity exists for small-scale mining operations to be undertaken in the Municipality such as mining of Manganese, gold, copper, phoshate, andalusite, Platinum Group Metals (PGM), chromium, dimension stone, vanadium, titanium, nickel,

tin, fluorspar, and other minerals. But this specific project will be based on the small-scale mining of slate from dimension stone and the beneficiation of the slate into floor tiles. This project is recommended, based on its anticipated impacts on the enhancement of skills, poverty alleviation, rural development, economic growth and development through income generation and employment creation.

Since 1994, a change of attitude and the introduction of new government policies have led to special programmes being put in place to promote this sub-sector. Intervention strategies for the support of small-scale mining (some of which are already in operation) include programmes for kick-starting mineral beneficiation and value-addition projects, development of appropriate technologies and skills, and technology transfer. Proponents of small-scale mining see a well-regulated industry as being the cornerstone of future rural economic development, particularly for previously disadvantaged communities in poverty nodes.

The main aim of this project is to stimulate small-scale mining activities relating to mining of slate in Lepelle-Nkumpi Municipality.

The following are the objectives of the project:

- To mobilise individuals in mining in informal organisations to be active members of the mining sector;
- To work with established financial institutions to enable members to access the necessary finance and credit for their mining operations;
- To interact and network with institutions involved in mining of slate and having interests similar to those of the project, in order to share experiences and ideas in mining;
- To pull resources where necessary for the benefit of members.

2. PROPOSED DEVELOPMENT DESCRIPTION

2.1 BACKGROUND ON SLATE SLABS

Dimension stone is a term applied to naturally-occurring rock that may be cut, shaped or selected for use in blocks, slabs, sheets or other construction units of specific shapes or sizes. It is commonly used for the cladding of buildings, curbing, paving, flagging and revetting for its architectural or engineering properties. South African dimension stone production consists mainly of granitic rock with slate and sandstone making up the balance (SAMI, 2005).

Slate is a fine-grained, homogeneous, sedimentary rock being composed of clay or volcanic ash that has been metamorphosed in layers. Due to its two lines of breakability, the cleavage and the grain slate can be split it into thin sheets and used in construction as slate flooring, and for constructing bedded slate walls making it a very popular material.

Slate forms within the earth in giant veins, which run dimensionally through the ground. It is extracted in the form of enormous slabs, which contain random colours tones and hues whose properties depend on the various chemicals, which were present during its formation. These markings create an enormous natural landscape within the stone. Once extracted the slate slab is sliced down into smaller pieces, each one containing its own unique portion of the original natural picture. These pieces are grouped together in lots, which come from roughly the same area and have roughly the same appearance. When natural stone is used, each one of a kind piece is a portrait, which can be its own focus, or a component in a larger creation consisting of its unique brother stones. These natural properties are combined with the fact that there are slates available in almost any colour range, and slates can be found imported from countries around the world. Further the nature of any lot of slate is seasonal, bearing a distinct look, which makes it, slightly different from the stones quarried at any other time.

The key characteristics of slate are:

- Slate is characterized by a sub parallel orientation, which imparts a strong parallel cleavage to the rock, which allows the slate rock to be split into thin but tough sheets of slate.
- It is generally used in the form of tiles for wall cladding and flooring
- Slate is compact and has a moderate hardness and lesser homogeneity
- It has a fine to medium grained surface texture
- It has an excellent shining property
- It is a popular ornamental and decorative stone because of the pleasing colours, attractive patterns and designs
- It is suitable for exterior and interior applications.

Slates vary in sizes and colours. The colours vary from black, silver greens and many different browns and red. The most appealing thing about slate is its natural variations in colour. No one tile is identical to another. Slate is sold most commonly with its natural textured finish, but can also be honed (smooth and matt) or polished (smooth and gloss).

Natural slate can be used in almost every aspect of the home. One can have slate floors, walls; a whole room can be lined with this versatile material. One can also have furniture; bars, tables, and countertops all manufactured with natural slate. Even home décor products such as slate wall clocks, coasters, trivets, and chessboards are available.

Slate is also very durable and a resistant natural stone. Caring for it is generally easy, requiring different levels of treatment depending on its use. Slate flooring will get the most physical abuse, as it will be exposed to foot traffic all day long. However the natural properties of this material make it highly resistant to the pressures of even the busiest of locations.

2.2 PROJECT LOCATION

The geological map covering the Lepelle-Nkumpi municipality is shown in the Diagram below.

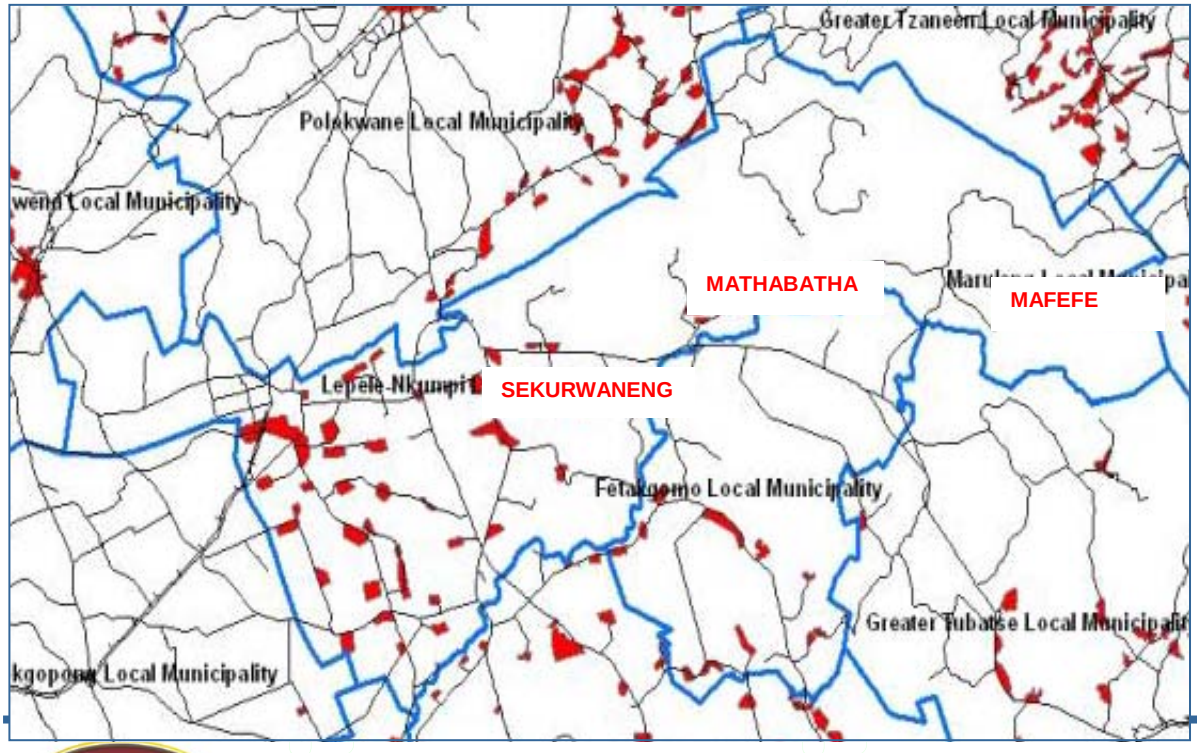
Diagram 2.1: Geology of Lepelle-Nkumpi

Source: Council for Geoscience's, 2006

From the above Diagram it is evident that the oldest rocks in this municipality comprise Archaean granites, gneisses and greenstones represented by the Gravelotte Group greenstones and the ca. 2,9 Ga Goudplaats Gneiss, and the ca. 2,77 Ga Turfloop Granite. These rocks outcrop in the extreme northern and eastern parts. The Archaean rocks together form the basement to the Transvaal Supergroup (2,6-2,1 Ga). The east-west trending Transvaal Supergroup host significant deposits of amosite and crocidolite in the Penge Formation. The Transvaal Supergroup was latter intruded by the 2, 05 Ga Bushveld Complex (BC). The BC is developed over the central portion of the southern sector of the municipal area, with layering striking in an east-west direction. The mafic and ultramafic rocks (Rustenburg Layered Suite) of the BC are regionally divided from bottom to top into the Marginal (Shelter Norite Subsuite), Lower (Croydon Subsuite), Critical (Dwars River Subsuite), Main (Dsjate Subsuite) and Upper (Rossenkal Subsuite) Zones. The BC host the largest known resources of platinum group elements (PGE`s) and chromium on Earth with significant deposits of vanadium and titanium (both associated with iron). Other commodities include copper, nickel, tin and fluorspar. In the Lepelle Nkumpi municipality, the PGE`s are concentrated in layers known as the Merensky and UG2 Chromitite Reefs. The acid and basic rocks of the BC (i.e. granite, norite and gabbronorite) can be mined as a dimension stone.

Discussions with the Department of Geosciences revealed that there are likely numerous slate deposits in the area (R, Belcher, 2006). Meetings with people living in the area of the municipality have also identified great potential for slate mining in Lepelle-Nkumpi, namely: Mathabatha, Sekuwraneng, and Mafefe. Within these villages brown to rustic copper coloured slate has been reported to be found in abundance (Mr. Ntike). The Diagram below shows the location of the villages within Lepelle-Nkumpi.

Diagram 2.2: Location of slate deposits



Source: Kayamandi based on Survey and Mapping, 2006

2.3 PROJECT DESCRIPTION AND PROCESSING OVERVIEW

The aim of this project is to establish small-scale mining operations involved with slate extraction, and the production of final slate products.

Substantial deposits exist in Sekurwaneng, Mathabatha and Mafefe. There would thus be scope for a number of small operators in the aforementioned areas.

The mining method proposed for this project is conventional truck and shovel mining. The mined material (slate is extracted manually and stripped from the earth in layers) will be loaded onto 20-ton capacity tippers to be transported to the delivery point.

The process involved with quarrying and further processing of slate slabs into tiles consists of the following 5 processes (described hereunder):

- Extraction
- Sawing/ Cutting
- Docking
- Riving, and
- Dressing

Step 1: Extraction

The extraction of slate slabs involves the mining or 'cutting' of large slabs from the earth and then 'splitting' the slabs (see below Diagram). Using a large **excavator**, the slate is then transported to the sawing process.

Diagram 2.3: Excavation and transportation of 'raw' slate slabs

Step 2: Sawing/cutting

After the slabs have been split it will be then cut into to size by a saw across the grain into set sizes, which are little larger than the finished face size (see below Diagram). It should be noted here that the material is hard and a blade only lasts 200 hours of cutting.

Diagram 2.4: Saw machine

Step 3: Docking

Docking the slate is the original process the large, sawn pieces (clogs) to a thickness of four slates about 32 mm ready to be rived. This cutting is achieved with the use of a small chisel and a mallet, cutting with the grain.

Step 4: Riving

Once docked, the slate can be rived - splitting the sections, again by hand, with mallet and broad bladed chisel into four slices each of the finished thickness for use. (The width of the chisel equals the total thickness of eight finished slates). Below, you can see the slate being rived into the four slices. Riving is carried out along the grain.

Diagram 2.5: Riving

Step 5: Dressing or trimming

Having made the slates the correct thickness, dressing is the process that cuts or trims the slate into the precise shape required. A series of blades revolve and chop off the

edges and corners of the material, leaving a completed slate, ready for use (see below Diagram). The project aims on producing slate tiles of 300mm by 300mm.

Diagram 2.6: Dressing

Step 6: Smoothing and polishing

Slate will then be honed (smoothened) and polished (gloss). When protecting slate it is of the utmost importance to protect the surface, thereby protecting its brownish colour. If the surface is not protected then it is likely to be abraded away and will expose a different colour. For example a brown tile may be abraded away and expose a black core.

The two ways to protect slate are to apply a surface sealer that will protect the tile from the top, or to apply a penetrating sealer that will bond and strengthen the tile. Hence there are three sealers that are specified for slate tiles, they are Deep Seal, HP Sealer and Top Seal.

Step 7: Packaging

After inspection, the slates are stacked in size order, ready for packing into wooden crates (each carrying 1 ton of tiles or 25 tiles) and dispatch to their final destination.

Diagram 2.7: Packaged slate tiles in crates of 1 ton

Due to the costs involved with the purchase (and transport) of wooden pallets to the proposed quarry and manufacturing plant, it is proposed that the wooden pallets be self made from Pine.

Diagram 2.8: Manufactured wooden pallets

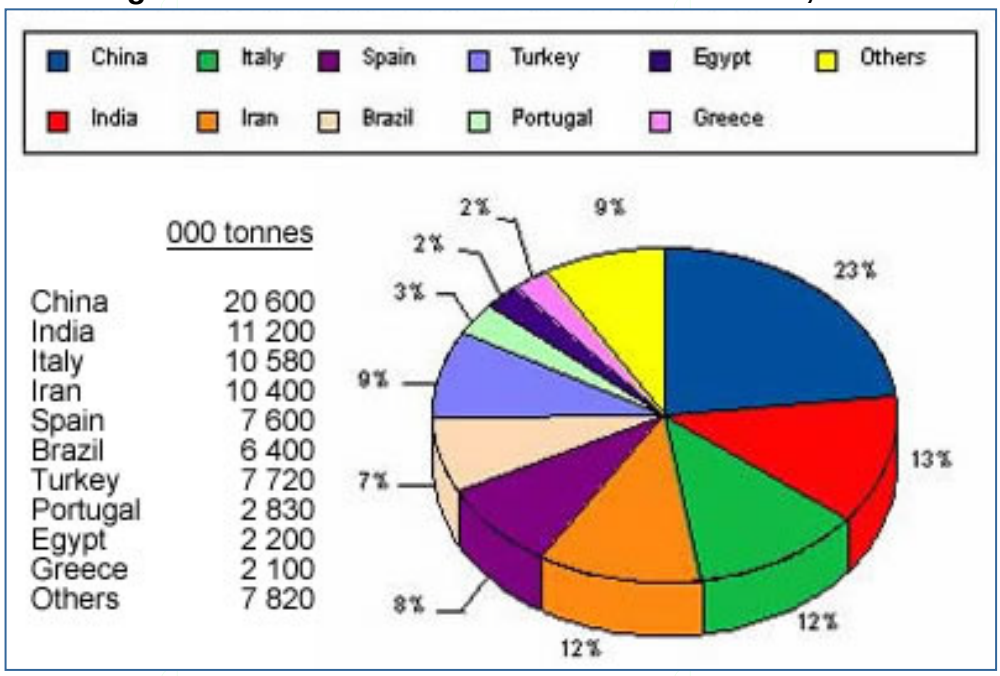
3. MARKET ANALYSIS

A successful feasibility study requires knowledge of the proposed development and an understanding of the market trends, market needs, and demand and supply components.

3.1 SUPPLY ANALYSIS

The following Diagram provides an indication of the world dimension stone production.

Diagram 3.1 World Dimension Stone Production, 2004



Source: IMM, Carara, 2004

According to DME (2005), total world raw quarry production is estimated at 75 million tons, with processing waste of 30 million tons, yielding net production of approximately 45 million tons. The yield of processed dimension stone from quarried rock was 29.3%. Of the rough stone production 57.8 % was calcareous, 36.3 % siliceous (granite and sandstone) and 5.9 % slate. In other words the rough slate stone production in 2004 was approximately 2.65 million tons.

The below Table and Diagram provides an indication of South Africa's slate production.

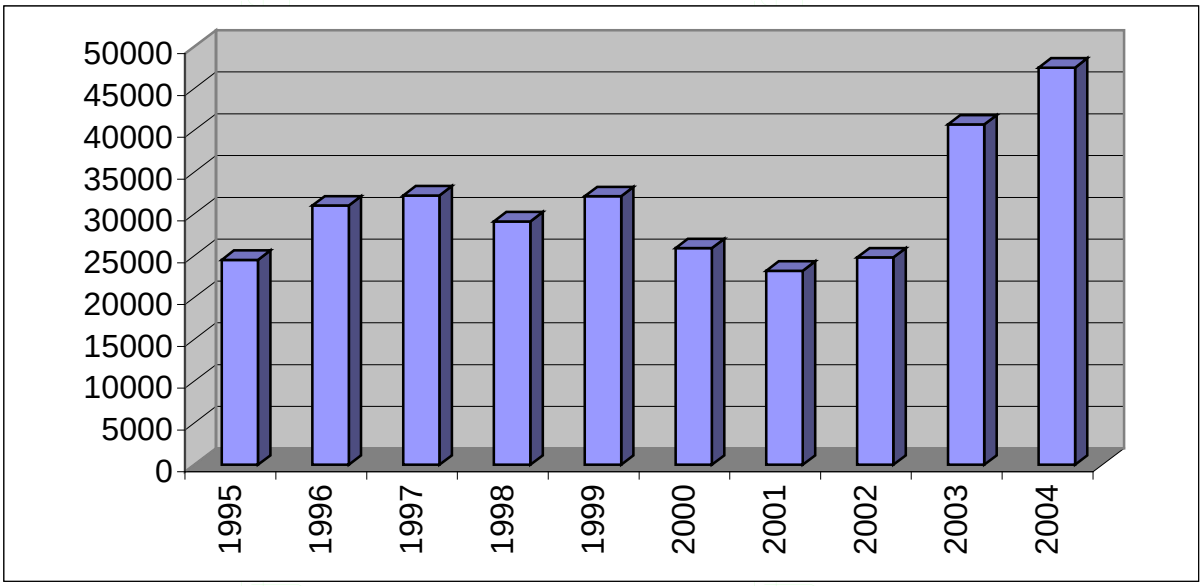
Table 3.1 South Africa's slate production

YEAR	PRODUCTION (Kt) *	MASS (Kt)
1995	24.5	19.3
1996	31.0	20.1
1997	32.2	21.0
1998	29.1	22.4

YEAR	PRODUCTION (Kt) *	MASS (Kt)
1999	32.1	29.6
2000	25.9	25.7
2001	28.2	23.0
2002	24.8	24.8
2003	40.7	40.7
2004	47.5	47.5

* Source: DME, SAMI, 2005. In the absence of available data, production is taken to be equal to total sales volume

Diagram 3.2 South Africa's slate production, 1995- 2004



Source: SAMI, 2004-2005

It can be clearly depicted from the above Diagram and Table that slate production has increased substantially in South Africa in the last couple of years. Slate production has increased by almost 93% in the period 1995-2004. In 1995 slate production stood at 24 500 tons annually, now it has almost doubled to 47 500 tons annually.

South African dimension stone production consists mainly of granitic rock with slate and sandstone making up the balance (SAMI, 2005).

The below Table provides an indication of the slate producers and processors in South Africa.

Table 3.2: Slate tile producers and processors in South Africa

SUPPLIER	PROVINCE	LOCATION	PRODUCT TYPE
Elephant Slate	North West	Koster	Paving, roof and floor tiles
Liebenberg Leigroewe	North West	Koster	Floor tiles, crazy paving , handcut tiles and steps
Mazista (Pty)Ltd	Gauteng	Honeydew	Roof, floor tiles and paving
Saringa Slate	Gauteng	Honeydew	Sawn edge tiles, handcut tiles, paving and slabs
Top Slate Exporters CC	Marico	NorthWest	

SUPPLIER	PROVINCE	LOCATION	PRODUCT TYPE
Autumn Slate Quarry	Gauteng	Ferndale	Rough slabs and cut tiles
Cape Pavings	Eastern Cape	Port Elizabeth	Paving materials
Duradak Slate Quarries	Gauteng	Bryanston	Roofing
HP Plum	Western Cape	Brackenfell	Tile roofing, kitchen tops
Saringwa mines	Mpumulanga	Lydenburg	Paving and tiles
Lamei Stone Phalaborwa	Limpopo	Phalaborwa	Tiles
MJS Women Civils	Limpopo	Orighstad	Paving and tiles
Kgautswane	Limpopo	Orighstad	Paving and tiles
Baderoukwe Mine (Pty)	Limpopo	Phalaborwa	Paving and floor tiles

Source: DME, 2005

There are four suppliers of tiles and slate slabs in the Limpopo Province. These are situated in Phalaborwa, and Orighstad.

3.2 DEMAND ANALYSIS

The following Table shows the trend of slate sales in South Africa from 1983 to 2004.

Table 3.3 Sales of Slate in South Africa, 2004

Year	Local sales			Export sales			Total sales	
	Mass kt	Value R1 000	Unit Value R/t	Mass kt	Value R1 000	Unit value R/t	Mass kt	Value R1 000
1983	32.0	2 397	75	8.1	2 336	288	40.1	4 733
1984	31.5	2 664	85	13.6	3 672	270	45.1	6 336
1985	25.2	2 293	91	16.5	5 642	342	41.8	7 935
1986	24.6	2 535	103	14.7	6 642	453	39.3	9 178
1987	20.8	2 447	118	18.4	7 050	383	39.2	9 496
1988	23.9	4 033	169	18.4	9 166	497	42.3	13 199
1989	19.1	4 944	259	14.8	8 616	583	33.9	13 560
1990	19.4	5 764	297	10.1	7 667	762	29.4	13 431
1991	17.5	6 153	351	8.8	6 927	784	26.4	13 080
1992	19.0	6 984	368	7.4	5 457	739	26.3	12 441
1993	15.0	7 251	482	7.0	6 289	900	22.0	13 540
1994	15.5	9 743	629	6.4	5 579	871	21.9	15 322
1995	11.9	2 742	231	11.6	10 026	867	23.5	12 768
1996	26.8	11 037	412	11.0	8 913	808	37.8	19 949
1997	9.7	5 170	533	1.3	1 769	1348	11.0	6 939
1998	23.2	5 168	223	0.2	976	4417	23.4	6 144
1999	24.3	6 637	273	0.1	113	853	24.5	6 750
2000	25.7	6 450	251	0.2	277	1408	25.9	6 727
2001	23.2	7 313	315				23.2	7 313
2002	24.3	8 434	348		27	1356	24.3	8 461
2003	45.8	9 273	202				45.8	9 273
2004	47.9	10 652	222				47.9	10 652

Source: DME, SAMI, 2004

As can be seen from the above Table, slate sales increased by 166% in the period 1995-2004 (from 18kt in 1995 to 48kt in 2004). From the above Table it is evident that total slate sales in South Africa in 2004 was estimated at 47,900 tons with a unit value

of R222 per ton. It is relevant to note that **local production in 2004 was 47,500 tons**, thus **import sales equated to approximately 400 tons** in 2004. It is also relevant to note that **1 ton of slate equates to 25 square meters** of slate tiles. There are 11 tiles ($30cm^2$ by $30cm^2$) per square meter, thus one ton equates to 275 tiles. Taking the above sales into consideration, this translates to approximately **1,2 million square meters** (or 13 million tiles sized $30cm^2$ by $30cm^2$) of slate sold in South Africa in 2004.

According to the DME slate exports have decreased from 18.4kt in 1987 and 1988 to 0.2kt in 2000. Export sales of dimension stone are still 90 percent in the form of rough granite blocks. Italy, which is South Africa's largest overseas market, is historically the major stone processing country in the world. This situation could well change. Spain and China are becoming major stone processors, and at least one South African producer has started to trim, or semi-process, rough blocks at source. In addition to this the South African stand at the Marmomacc Dimension Stone Exhibition in Verona (September 2001), received a number of inquiries on the availability of good quality slate and quartzite for the manufacture of tiles.

The Department of Minerals and Energy in 2000 reported that South Africa is one of the lowest per capita users of dimension stone in the world, however the demand for dimension stone (slates included) is increasing. This situation appears to be improving, as slate exports, contrary to production have decreased by approximately 97% in the period 1995-2000 (from 6.2 kilo tons in 1995 to 0.2 kilo tons in 2000). However there has been an increase in the export of processed stone, as local sales increased to 99.5kt in 2000. In the above Table it is also evident that from 1997, hardly any slate products were exported. Which reveal a high local demand for slate. In other words all of the locally produced slate is consumed in South Africa.

Furthermore, South Africa imported approximately 5 000 tons of dimension stone in 2000, of which 72% came from India, 16 % from China and insignificant amounts from Brazil, Italy and Spain. The proportion of slate imports of the aforementioned, are however unknown. However, according to DME (SAMI, 2005) South African imports of worked slate and articles of slate was valued at R6,269,745 (freight on Board FOB) in 2005.

According to DME (SAMI, 2005), there was consolidation in the dimension stone industry in 2004, as a result of Kelgran's poor financial performance. Kelgran Limited's associated company Kelgran Investments (Pty) Ltd which housed Kelgran's quarrying interests was taken over by JVK Srl (JVK) – a joint venture between Finstone Srl (Luxemborg) and RED Graniti Spa (Italy). As a result of the acquisition, JVK assumed control of all aspects of Kelgran's quarrying interests. Kelgran now sells directly to local clients but JVK purchases the balance of production for export giving Kelgran the advantage of not duplicating international marketing structures. Finstone Srl (Luxemborg) has two subsidiaries in South Africa, Finstone SA and Marlin Holdings, the latter which houses the quarrying interests of the Finstone Group. South Africa sold 575 kt of dimension stone (527 kt of granite and 48 kt of slate) in 2004, valued at R502 million, a 13 percent increase in mass compared to 2003. Local sales amounted to 193,9 kt, an increase of 60 percent compared to 2003. Natural stone is gaining popularity in the local market, with the most growth in domestic and monumental applications. As a result of the effect of the strong Rand on exports, Finstone South

Africa has focussed heavily on promoting finished goods in the local market. The Garankuwa thin slab facility now sells 70 percent of its production to the local market. In addition, the Minaco construction division sources local material for overseas projects. South Africa's exports amount to about 380 kt; 29 percent directed to Italy followed by China and Belgium, which account for 15 and 13 percent respectively. The Department of Minerals and Energy's export statistics show that 42 percent of exports are directed to Switzerland but in reality, sales are invoiced to Swiss-based block trading companies such as Dorking AG and Multistone. In 2004, export earnings decreased significantly by 50 percent. This was due to group restructuring at Finstone and the strong Rand. Finstone now sells to Dorking SA (Pty) Ltd on a free on truck or free on rail basis. Dorking is then responsible for the transport costs to the port, where previously this cost was carried by the quarrying company and reported in quarrying companies' sales figures to the Department.

The main qualities of dimension stone that determine its popularity and use include colour, patterns and texture, durability, and consistency of supply. Different markets demand different quality characteristics. Stone is marketed by companies and selected by architects and designers based on its aesthetic appeal and technical characteristics (compressive strength, resistance to abrasion, etc.). According to DME (SAMI, 2005) the market for green coloured materials is in decline, whereas the market for African Red is substantially less than it was several years ago due to changes in fashion trends as well as competition from other red materials from India and China, but there are indications of a recovery.

Furthermore, according to 'A review of the Dimension Stone Industry in South Africa (DME, 2002) secondary cutting has been revolutionised by the use computerised bridge saws, laser and water jet cutting technology. Capital costs have increased, while final production costs have been greatly reduced. Ten years ago a large factory produced 10 000m^2 per month and there were few such factories. Today a large factory produces 50 000m2 per month and there are several in the world. The ability to cut and process hard rock more efficiently than in the past, has led to a vast increase in the types and colours of material being supplied to the market. Greater dependence of the suppliers on the whims of architects, because of a wider choice of materials, has created some problems for producers. Although production costs have been reduced, the costs and risk associated with establishing a new product in the market have increased quite considerably. This is clearly illustrated by the increasing rate at which quarries are opened and closed, especially those producing exotically coloured stone.

The report further reveals that the dimension stone industry in South Africa appears to be extremely wasteful in terms of recovery if compared with the global average. Rough block recovery from a local quarry may be less than 10 per cent to about 20 per cent, and of the blocks recovered from a quarry up to 45 per cent may be lost during processing into slabs, polished slabs and tiles. These figures convert to an approximate ore: waste ratio of 1:8, which is high, but at least comparable to some other forms of mining. The difference between world and South African recovery percentages is explained by the different nature of average world production. Yields are lower from granites than from calcareous materials. The latter make up some 58 percent of the total quarried volume of dimension stone.

The report also revealed that the South African stand at the Marmomacc Dimension Stone Exhibition in Verona (September 2001), received a number of inquiries on the availability of good quality slate and quartzite for the manufacture of tiles. The Indian and Spanish exhibitors displayed an extensive range of slate and quartzite tiles. South Africa has suitable slate in the Koster area (North West Province) and fissile quartzites occur inland from Port Nolloth (Northern Cape). Very little of either of these materials have been exported, but it appears that there is good export potential for slate.

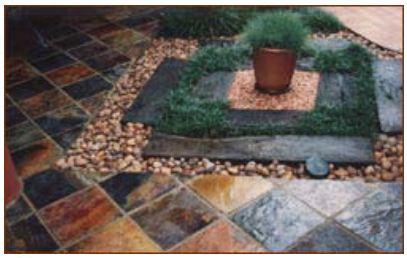
3.3 TARGET MARKET AND MARKETING STRATEGY

Marketing includes the transfer of ownership of a need-satisfying product from supplier to a consumer within a chose target market or market segment. In order to facilitate this process the supplier, i.e. the manufacturing industry, must address the following marketing decision variables, including: the specific product to be transferred to the target market, the price at which the product is to be transferred to the market, the place where the product will be presented to the target market and the promotion required to introduce the product to the market.

Due to the colour of the slate, only one product will be produced through the excavation and processing of slate, namely slate tiles.

Diagram 3.3: Tiles for flooring and wall cladding





Market related prices should be offered for the tiles in order to compete with the existing slate slabs and tile manufacturers.

The construction sector accounts for over 80 percent of world consumption of dimension stone, with the funerary monumental industry accounting for 15 percent, and various special applications for around 3 percent (SAMI, 2005).

Slate tile sales have increased significantly in South Africa in the past few years. This is due to the property boom experienced, the strong demand for both slate slabs (paving) and tiles from the construction industry and the fact that natural stone tiles are increasingly becoming fashionable.

The market analysis undertaken reveals that the target market and **place** of sale for the slate tiles produced will be the construction industry in Mokopane, Polokwane and the Gauteng market.

There are currently 4 slate quarries located in Phalaborwa and Orighstad in the Limpopo Province, which are located further away from Mokopane and Polokwane than Lepelle-Nkumpi. Due to the high costs involved with transportation of the finished products, the slate quarry in Lepelle-Nkumpi will be able to supply slate tiles to the construction industry in Mokopane and Polokwane at a price well below its local competitors. Furthermore, Lepelle-Nkumpi is situated within a relative close distance to the Gauteng Market and relatively similar distance from the majority of slate quarries located in the North-West Province. Consequently the slate quarry in Lepelle-Nkumpi would be able to compete for sales to the construction industry in the Gauteng market.

Furthermore, given the existing supply and demand structure which reveals that all of the South African produced slate products is consumed locally, a substantial amount of slate is imported annually, and all of the Limpopo located quarries (which are situated further away than the proposed quarry in Lepelle-Nkumpi) supply the Gauteng market, suggests huge market demand for slate tiles.

Lastly, the end products should be promoted and advertised to persuade construction companies to purchase it, and create confidence in the product.

4. RISKS AND OPPORTUNITIES

This project SWOT analysis details the Strengths, Weaknesses, Opportunities, and Threats of the small-scale mining operation, as well as other risk associated which need to be taken into consideration. The SWOT analysis entails:

- **Strengths and opportunities**–the physical attributes of small-scale mining that appeal to the market demand
- **Weaknesses and threats**–the physical attributes that do not appeal to the market and could prove to be detrimental

The **strengths** and **opportunities** relating to the excavation of slate slabs and the manufacturing of slate tiles in Lepelle-Nkumpi include:

- Large deposits of slates
- Potential for increased BEE ownership
- Highly Labour intensive
- This project will stimulate local economic activities within the mining sector
- The project also tends to promote rural development by including the rural communities
- This project will contribute in the creation of numerous employment opportunities among the local people
- The project will also stimulate creation of income and minimise the leakage of income to other economies
- Local beneficiation and value-adding
- Final product development
- Transport sector spin-offs

The **weaknesses** and **threats** to the excavation of a slate slabs mining operation and tile manufacturing in Lepelle-Nkumpi include:

- Water and electricity is needed for quarrying
- Capital intensive - Lobbying of funds to ensure the materialisation of the project
- Need for a geo-techical survey for exact quantification of quality, quantity, type, etc
- Mining authorisation is needed
- Detailed business plan is needed based on outcome of geo-technical survey
- Loans/grants need to be secured
- Large amount of risk capital needs to be spent on for instance the geo-technical survey prior to exact determination of size and scope of business
- Social and labour plan is needed prior to granting of mineral authorisation

Due to the nature of the emerging small-scale mining sector various problems occur. Some of these issues are not only experienced in South Africa but are representative of the global small-scale mining industry. Some of these issues are described below (CSIR, 2004):

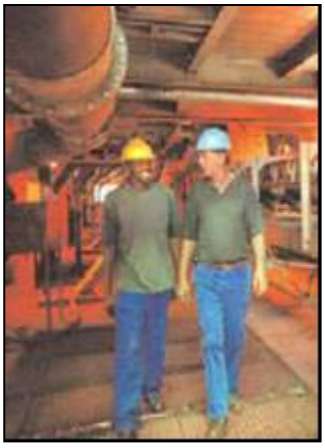
- **Limited access to capital:** smaller companies have different financing requirements to larger companies, so that they need support from the investment community. Lending to this sector is perceived to be risky; consequently, domestic banks generally restrict lending to short-term investments, if they lend at all. This

greatly hampers the development of the sub-sector. The risk profile of a potential project is at its peak in the early stages and decreases through the development phases. The risks at the early stages, that is, before a pre-feasibility study is completed, are normally beyond what typical commercial banks are willing to expose themselves to. Lack of capital is an obstacle to mechanisation and improving efficiency. This in turn leads to low productivity, low revenues and, where they are paid, low wages. As a result, miners tend to ignore health, safety and environmental measures. Mine owners and mineworkers generally have few if any assets that bank and other lending institutions will accept as collateral.

- **Limited access to markets**: the reduced financial status limits the amount of funds that small-scale miners can allocate to proper market research. At the artisanal level, the process of finding markets is unsystematic and haphazard. No central buying facilities exist in South Africa, but some assistance with accessing foreign markets is available through the Department of Trade and Industry. However, most artisanal and small-scale miners are unaware of the existence of such services, and may lack the capacity to individually attain the critical mass required by the particular market.
- **Lack of access to appropriate technology and skills**: Comparisons between different scales of production show that, although the basic industrial processes are the same, the differences in size often allow the application of different technologies. With increasing scale, there is a trend towards more sophisticated technologies. Just as important as access to technology, is the ability to use these technologies. Within the upper end of the small-scale mining sector, appropriately qualified skills may be hired. However, at the lower end this is often not feasible. The negative impacts resulting from lack of skills and limited access to technology are evident in that operations are rudimentary, unsafe, and environmentally unfriendly and use inefficient processes. An extreme example of the negative impacts associated with inefficient processes is misuse of mercury during gold extraction. The mercury is handled unsafely, posing a health hazard and there is no real concern for the environmental impact.

5. MANAGEMENT SYSTEM

5.1 OWNERSHIP



According to the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry, Government and industry recognise that one of the means of effecting the entry of HDSA's into the mining industry and of allowing HDSA's to benefit from the exploitation of mining and mineral resources is by encouraging greater ownership of mining industry assets by HDSA's. Ownership and participation by HDSA's can be divided into active or passive involvement as follows (www.dme.org.za):

- **Active involvement:**
- HDSA controlled companies (50 per cent plus 1 vote), which includes management control.
- Strategic joint ventures or partnerships (25 per cent plus 1 vote). These would include a Management Agreement that provides for joint management and control and which would also provide for dispute resolution.
- Collective investment, through ESOPS and mining dedicated unit trusts. The majority ownership of these would need to be HDSA based. Such empowerment vehicles would allow the HDSA participants to vote collectively.
- **Passive involvement:**
- Greater than 0 percent and up to 100 percent ownership with no involvement in management, particularly broad based ownership like ESOPs.

The small-scale mining is proposed to employ less than 50 people and should **ideally be owner-operated**. Local communities from Mathabatha, Sekuwraneng, and Mafefe, are proposed to be used to excavate the slate deposits. Ideally partnerships with local mines should be investigated so that profit sharing, BEE and ownership can take place. There is a strong possibility that the mining companies could offer equity in their projects to these groups as part of their BEE requirements in terms of the Minerals and Petroleum Act. Otherwise, it is anticipated that the contractors would probably be registered companies.

5.2 LEGAL STRUCTURE

The organisation of small-scale mines into associations will help the mines to access capital, markets, technology, skills and other requirements. This will also increase the weight of these mines in representing them to government, other industry organisations, as well as to the support structures. The Justification for forming associations is as follows (CSIR, 2004):

- Sharing skills, tools,
- Benefits – more production – greater markets,
- Mutual support
- Ease of receipt of support:

  - Training (Skills Development)
  - Technical Support (geological surveys, equipment)
- Lobbying strength: to Government, DME, and donors, and
- Opportunity for growth and sustainability of operations.

The Table below shows some of the structures that civil society organisations can choose from. Some structures can be used by both NPO's and for-profit organisations. Some structures require that you register with a government registry.

Table 5.1: Possible Structures

NPO	Current Law	For profit organisation
Voluntary association (VA	Common law	Partnership
Trust	Common law and Trust and Property Control Act 57/1988	Trust
	Close Corporations Act 69/1984	Close corporation
Section 21 company	Companies Act 61/1973	Private company (Pty) Ltd or public company (Ltd)
	Co-operatives Act 91/1981	Co-operatives
Communal property association	Communal Property Associations Act 28/1996	Communal property association
Employer organisations	Labour Relations Act 66/1995	

Source: Csir, 2004

In general, the structure most appropriate for small-scale mines is a Trust, as this is the simplest structure in terms of legal requirements and for government control. The choice will depend on many factors including the size, capacity and complexity of the organisation. The formal establishment and ongoing regulatory requirements are most complex for a Section 21 company, less complex for a trust and least complex for a voluntary association (VA). So the most common structure for small, newly established NPO's is the VA, while trusts and Section 21 companies are appropriate for larger, well-established NPO's with big budgets, complex programmes and many staff.

Other considerations when deciding on a legal structure for the association include the following (Csir, 2004):

- **Taxation**: Your choice of structure does not influence your organisation's eligibility for tax-exempt status and donor deductible status; the purpose, objectives and activities of your organisation do. (Tax-exempt status means exemption from paying income and other taxes. Donor deductible status means that people who donate to your organisation receive a tax deduction.) The tax law requires that the constitutions of all NPO's that apply for tax exemption include a list of clauses that

bolster and reinforce their essential non-profit distributing clauses. The advantages of forming a legal structure, which is registered with a government registry. Not all legal structures have to register with a government registry. For example VA's and partnerships do not, while trusts and Section 21 companies do. If you comply with the necessary requirements for registration and then register your founding documents with a government registry they are available for public scrutiny. After that, you will need to comply with the ongoing regulatory requirements for your particular legal structure, such as filing an annual report.

- **Clarity and formality**: Working with an established set of legally binding rules helps to make things clear, to those within the organisation and to people outside the organisation that interact with it, work with it and do business with it.
- **Public accountability:** If an organisation is publicly accountable, stakeholders may trust the organisation more and be more willing to work with it, for example grant loans or donate money to it.
- **Independent legal identity**: Some structures, for example Section 21 or for-profit private or public companies, allow the organisation to have an independent legal identity distinct from its members' legal identities. This usually means that:
    - The liability of the organisation's members and office-bearers is limited. The organisation, as a legal person, not its members or office-bearers as individuals, is responsible for debts, contracts and obligations (except in certain circumstances such as when there is fraud or gross negligence).
    - The assets of the organisation belong to and are registered in the name of the organisation, not its members and office-bearers.
    - The organisation has perpetual succession: it continues to exist even if its members and office-bearers change.
    - The organisation can sue, be sued and enter into contracts in its own name.

5.3 PROPOSED MANAGEMENT TEAM

The management of the small-scale mining and manufacturing of slate proposed to be in the form of a for-profit organisation, linked to management of existing mine houses. A for-profit organisation has the following characteristics:

- Provide a public service or have some public purpose that serves the interests of the members of the organisation and those of the local communities
- Make a profit which goes to its members and to the operation of the production unit

It is recommended that a support organisation be involved for at least one year in the implementation and operation of this project, to ensure optimal functioning and training of employees. After a year, the management of this project is given over to the beneficiaries whom are proposed to share in the profits from the mine.

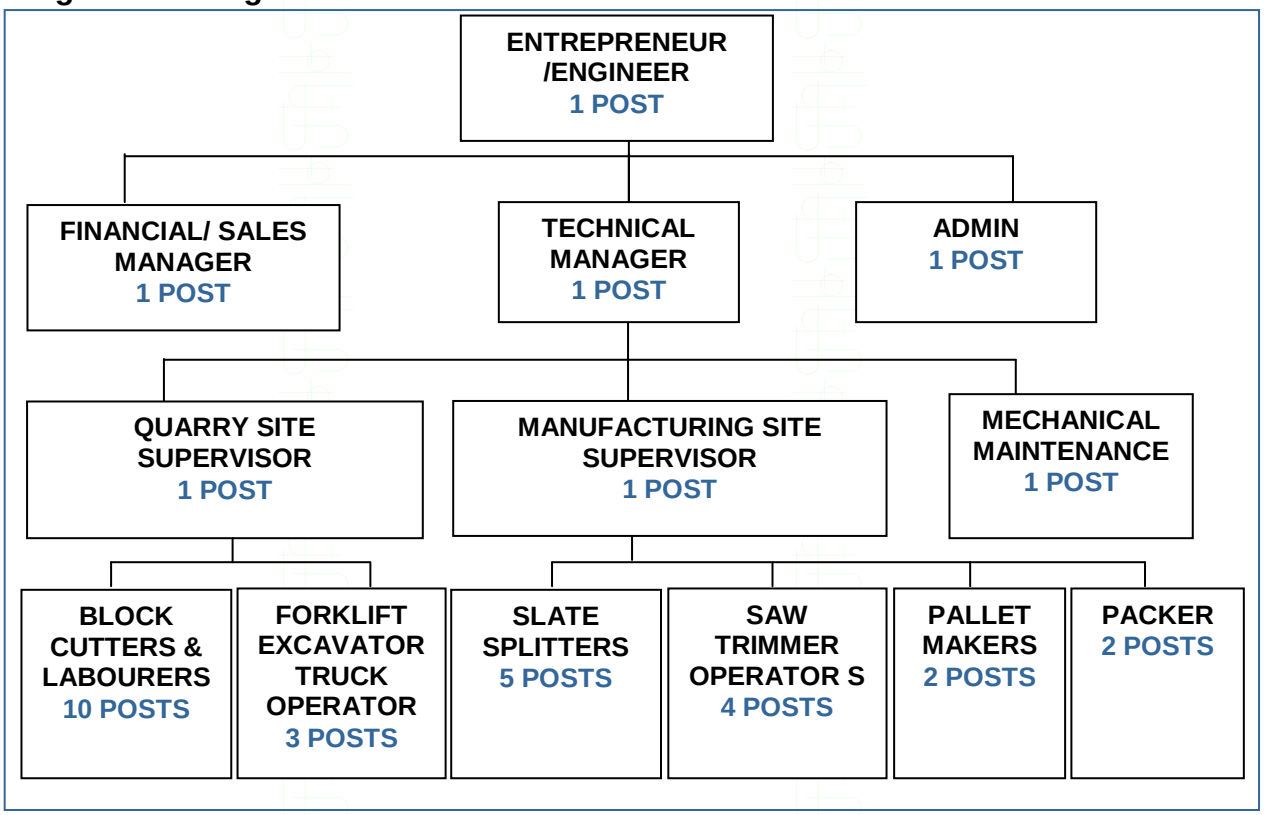
The recommended organisational structure of the small-scale mining project is illustrated in the Diagram below.

Management structure within these groups would be the same as any other business, with the proviso that there should be individuals fairly high up in the structure with mining/earthmoving/engineering and manufacturing experience. Typically, there would be:

- Entrepreneur/engineer at the top: mining/earthmoving/engineering experience

- Financial supervisor: charged with financial responsibility and sales
- Technical manager: to oversee field operations
- Administrator
- Third tier would be quarry site supervisor, manufacturing site supervisor and mechanical maintenance supervisor
- Fourth tier would be equipment operators and labourers such as cutters, splitters, packers, etc.

Diagram 5.1: Organisational structure



Second tier personnel would require formal qualifications in their discipline, while operators and mechanics should have received training in their respective tasks.

The managers will be responsible for managing the implementation and the operation of the project, manage the financial requirements and payments of bills, negotiate for contracts with the construction industry, etc.

The administrator needs to manage all financial activities and transactions and personnel and staff administration.

The site supervisors need to manage the operations and activities site during the establishment and operation phase of the project, dictate roles and responsibilities to the various employees, etc. The quarry site supervisor needs to direct and engage in the quarrying of the rock. He also designates where future quarrying will be done. The manufacturing site supervisor needs to direct and engage in the manufacturing of the slate into tiles.

The mechanical maintenance personnel will be responsible for maintaining the equipment and structures. This position is of utter importance as the machinery should always be at full operation, otherwise the company will make severe losses.

The equipment operators will be responsible for operating the forklift, cutter, and trimmer, etc. The sawer operates the saw machine and runs the machines that saw the slate. The trimmer operates the trimming machine, which trims the slate to definite size, in the length and width.

The labourers will be responsible for extraction of slate slabs, assisting each operator and for general labour. The block cutters need to cut the blocks of slate from the quarried rock, suitable for making slates. The slate splitters makes slate from blocks, also known as the ‘slatemaker’. The packer is responsible for handling the finished product, stacks them and piles them.

6. FINANCIAL PLAN

The Financial Plan sets out the expected financial requirements to set up the slate slabs excavation and tile manufacturing plant and gives an indication of the estimated operational expenditures and likely incomes that could be generated by plant.

6.1 DEVELOPMENT PHASE AND CAPITAL EXPENDITURE

In order to set-up the mining operation, numerous aspects need to be undertaken prior to capital expenditure and actual operation of the undertaking.

The Table below Provides an indication of the costs involved with all of the aspects that need to be dealt with in the development phase.

Table 6.1: Development phase

Development requirements	Cost (in Rand)
Mine works programme	R 20,000
Geo-technical survey	R 50,000
Prospecting right	R 500
EIA and EMPR	R 300,000
Business plan	R 100,000
Social and Labour plan	R 60,000
Mining authorisation	R 200,000
Total Machinery Costs	**R 730,500**

All of the legal aspects that need to be fulfilled with during the development phase will total R730,500 and includes undertaking a mine works programme (which enables application for mineral rights), undertaking a geo-technical survey (which is relatively cheaper for slate and entails testing quality, quantity, etc), prospecting right, a Environmental Impact Assessment (EIA) and an Environmental Management Report (EMPR) which indicates the impact of the mine and how the area will be rehabilitated after mining operations have ceased, a business plan (to assist with obtaining funding), a social and labour plan, and a mining authorisation.

It should be noted that the above-indicated amount is needed on a risk basis and all of the components can be undertaken without being able to attain a mining authorisation. It is for this reason, that the above-indicated amount needs to be obtained as a grant.

It is relevant to note that the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry indicates that the industry agrees to assist HDSA companies in exploration and prospecting endeavours by, inter alia, providing institutional support and securing finance to fund participation in an amount of R100 billion within the first 5-years.

Once the above developmental aspects have been adhered to and a mining licence/authorisation has been obtained, the following machinery costs need to be acquired.

The following Table provides an indication of the costs involved with the construction of the plant.

Table 6.2: Machinery costs

Expenditure	Total (R)
Forklift	R 160,000
Light Delivery Vehicle	R 100,000
Tipper truck	R 300,000
Excavator	R 1,400,000
Saw machine	R 1,500,000
Trim machine	R 1,500,000
Total construction costs	**R 4,960,000**

The expected capital expenditure for the project during the total project period is indicated in the Table below.

Table 6.3: Capital Expenditure

Expenditure	Quantity	Unit Cost	Total (R)
Machinery			R 4,960,000
Construction hats	20	R 100	R 2,000
Overalls	20	R 100	R 2,000
Mining boots	20	R 150	R 3,000
Operational equipment	12	R 2,000	R 24,000
Prefab offices and ablution	1	R 100,000	R 100,000
Warehouse (per m^2)	500	R 2,500	R 1,250,000
Desks	4	R 2,000	R 8,000
Chairs	4	R 250	R 1,000
Telephones	2	R 1,000	R 2,000
Fax machine	1	R 1,000	R 1,000
Furnish with basic stationary	1	R 5,000	R 5,000
Computers	2	R 6,000	R 12,000
Printer	1	R 3,000	R 3,000
Total			**R 6,373,000**

The above calculations are based on the following:

- Machinery costs include all the costs incurred in the purchasing of machinery for the excavation slate and processing of slate tiles (as shown in the previous Table)
- Construction hats, overalls, and mining boots for the personnel
- Operational equipment such as chisels, mallets, wheelbarrows, hand saws, etc
- Prefab offices and ablution and a warehouse to store the machinery and the finished products. The warehouse needs to be at least 500m^2 in size.

- Office desks, chairs, computers and fax/copier/printer to be used by the managers and the staff

It is thus evident from the above Tables that capital expenditure amounts to **R6,373,000.**

A loan amount of R6.5 million (which includes miscellaneous costs) will thus be needed. It is suggested that the loan be repaid within 5 years, which will amount to an annual loan repayment of R1,893,343 (at 14% interest).

6.2 OPERATIONAL EXPENDITURE

The operational expenditure is the projected running costs of the project. These are the day-to-day costs including administration costs, material costs, salaries and wages, etc.

The following Table indicates the salaries and wages for the proposed staff.

Table 6.4: Personnel expenditure

Personnel	Amount	Annual Salary (R)	Total (R)
Entrepreneur/engineer	1	R 240,000	R 240,000
Administrative	1	R 60,000	R 60,000
Financial manager	1	R 120,000	R 120,000
Technical manager	1	R 120,000	R 120,000
Site supervisor	2	R 40,000	R 80,000
Mechanical maintenance, machine operators	8	R 30,000	R 240,000
Labourers	19	R 25,000	R 475,000
Total	**33**		R 1,335,000

Taking all of the above into account, the Table below sets out the overall expected operational expenditure per annum.

Table 6.5: Operational expenditure

Expenses	Annual Costs
Loan repayment	R 1,893,343
Salaries and wages	R 1,335,000
Water and Electricity	R 24,000
Marketing and promotion	R 250,000
Repairs and maintenance	R 250,000
Telephone, fax, e-mail	R 80,000
Stationary, printing consumables	R 60,000
Fuel	R 50,000
Crates	R 160,000
Consumables: nuts, bolts, blades	R 100,000
Royalties to state	R 250,000
Total	**R 4,452,343**

The above Table is based on the following:

- Loan repayment (as described above)
- Salary and wages (as described above)
- Water and electricity at R5000 per month.
- Marketing and promotion at R250,000 per annum. This is seen as being crucial to assist with sales of the final product and awareness of the product in the market
- Repairs and maintenance to the value of R250,000 per annum. Substantial provision has been made for the repairs and maintenance of the machinery as the machinery are costly and any down time will have severe negative consequences to operations
- Telephone, fax and e-mail at R80,000 per annum. The high costs associated with this are due to the sales and after-sale requirements.
- Fuel costs at R50,000 per annum. The fuel costs are to cover the cost of the Light Delivery Vehicle (LDV) as well as the Forklift and the tripper truck
- Crates, which need to be made from wood by the labourers. The wood costs are approximately R40 per crate, which can hold 1000 tons of slate. Approximately 4000 such crates need to be made per annum.
- Consumables such as nuts, bolts, blades, etc at R100,000 per annum
- 5% royalties to the state at an estimated R250,000 per annum

6.3 PROJECTED INCOME

The projected income is the expected income from the sale of all the slate tiles.

Table 6.6: Income expected from the slate tiles

	Tons sold	Price per ton	Income (R)
Slate tiles	4,000	R1250	5,000,000
TOTAL			**R5,000,000**

The above Table is based on the following:

- Approximately 4,000 tons of slate to be sold per annum. One ton of slate equates to 25m^2 of slate. Thus a total of 100,000m^2 of slate
- The per square meter sale price for slate (direct from the quarry) is R50 which includes costs for polishing and honing
- The total expected income if R5,000,000
- Active marketing will be done (see elsewhere in report) and stock will be purchased directly from the quarry. The transport costs thus need to be borne by the purchasers themselves. The sales staff should however be able to assist with the arrangement of transportation.

6.4 PROJECT PROFIT AND LOSS STATEMENT

The Table below indicates the total income and expenditure expected.

It should be noted that the tile processing plant will likely only be fully operational in year 2 or 3, due to the development phase requirements, attainment of mineral authorisation and infrastructure which will initially have to be obtained. As a result the undertaking will not be fully operational from year 1.

It should, therefore, be noted that the estimated operational expenditures, potential incomes and expected profits provided are based on operations in Year 2/3 after all of the requirements have been complied with.

Table 6.7: Net profit and loss

Profit and Loss	**Income**
Income	R 5,000,000
Expenditure	R4,488,343
Expected Net Profit per year (income – expenditure)	**R 511,657**

The estimated net profit amounts to R 511,657 for the production of approximately 4000 ton slate tiles (30 cm x 30 cm in size) per year (from year 2/3 onwards). It should be noted that after the loan repayment for the capital expenditure has been repaid, slightly higher expenditures could be expected (due to maintenance of by then older machinery), although substantially higher net profit can be expected (due to the initial loan being settled).

7 IMPLEMENTATION GUIDELINES

7.1 POTENTIAL FUNDING SOURCES

Various institutions exist in South Africa that can give financial support, loans or grants for small-scale mines or people wanting to mine smaller deposits. Some of these are as follows (Csir, 2004):

- **National Steering Committee (NSC**): A small-scale mining fund is available, administered by Kindoc of the IDC. Suitable applicants for funding and/or technical assistance are assessed by the committee. Viable projects are then funded until operational by the IDC. Contact Details: c/o Small-Scale Mining Division, Department of Minerals and Energy, 234 Visagie Street, Private Bag X59, Pretoria, 0001.
- **Amalgamated Banks of South Africa (ABSA):** ABSA bank is known to be a supporter of the junior mining sector. Most mining ventures are exceptionally risky and financial support is difficult to come by. A carefully formulated business plan may be considered by ABSA. Contact Details: ABSA Bank, 160 Main Street, Johannesburg.
- **Industrial Development Corporation (IDC):** The Industrial Development Corporation of South Africa Limited was established in 1940. It provides financing to entrepreneurs engaged in competitive industries. Even though the IDC is state-owned, it functions as a private enterprise, following normal company policy and procedures in its operations, paying income tax at corporate rates and dividends to its shareholders, while reporting on a fully consolidated basis. The IDC recently established a special Black Economic Empowerment Scheme to make its financing programs available to black South African enterprises, entrepreneurs and employer organisations. The scheme can provide finance for the creation of a new enterprise, the expansion of an existing enterprise, and the acquisition of control or a significant stake in an existing enterprise. Contact Details: S. Vermaak (Project and Structure Management). Telephone: 011 269 3000, Facsimile: 011 269 3116, Website: www.idc.co.za; E-mail: minerals@idc.co.za or idc@idc.co.za; Physical Address: 19 Fredman Drive, Sandown, 2196; Postal Address: P.O.Box 784055, Sandton, 2146
- **Development Bank of South Africa (DBSA):** The DBSA was originally formed in 1983 by the South African Government to fund development projects in the formerly "independent" black homelands of Transkei, Ciskei, Venda, and Bophuthatswana. Today the DBSA plays a major role in mobilising and providing loan finance and technical assistance for major development projects in South Africa and in neighboring Southern African countries. DBSA membership is open to any country in Southern Africa. It functions as a "banker's" bank, providing soft loans to governments, local authorities, development corporations, and non-governmental organisations, which in turn make loans to individuals in bank-approved projects. DBSA's financial resources include share capital contributions from its members and loans obtained by DBSA. Contact Details: Postal Address: Halfway House, P.O. Box 1234, Midrand, 1685; Telephone: 011 313 3911; Fax Number: 011 318 1626; Website: www.dbsa.org
- **Khula Enterprise**: Khula Enterprise Finance Ltd was founded in 1996 as an independent, limited liability company dedicated to improving access to finance for small, medium, and micro enterprises (SMMEs). Khula was established to narrow

the funding gap. Capitalised by grant funding from government and overseas and local donors, Khula has developed a portfolio of products designed to assist in creating sustainable SMMEs. Contact Details: KhulaStart Team; Telephone: 011 807 8467; Fax Number: 011 807 9023 / 8477; E-mail: helpline@khula.org.za; Toll free Number: 0800 1188 15

- **Eccles Associates (EA):** Eccles Associates (EA) is a corporate finance and financial advisory firm with its headquarters in New York. In South Africa the firm specialises in providing financial structures for small and medium sized business. An initial amount of US$25 million has been allocated to the Supplier Finance Solution (SFS) program. The SFS program is ideal for suppliers that face cash flow constraints when implementing large orders presented by large companies and/or parastatal contracts. They work with the SME's to structure the correct financing terms based on the cash flows of the company. Contact Details: Steven Weddle (Director); Telephone: 011 881 5923; Facsimile: 011 881 5846; E-mail: corporatefinance@eccles.co.za; Website: www.eccles.com/
- **Zimele Investments (Pty) Limited**: Zimele Investments (Pty) Limited is an enterprise development and empowerment initiative of Anglo American. In line with Anglo American's commitment to South Africa's socio-economic growth, Zimele concentrates on the establishment and promotion of small and medium enterprises (SMEs). Zimele, derived from Zulu and Xhosa meaning, "to be independent", invests in the enterprises through its investment fund and holds minority stakes of up to 20%. Contact Details: Ms Natasha Hirala; Telephone: 011 638 4172; Facsimile: 011 638 5321; E-mail: nhirala@angloamerican.co.za

7.2 AVAILABLE TRAINING OPPORTUNITIES

Mintek has established a programme for training of artisinal and small-scale miners that will introduce the small-scale miner to the following (Csir, 2004):

- How to obtain a permit for prospecting or mining
- Rehabilitation and how to draw up an EMPR
- Basic geology/mineralogy
- Mining methods
- Mineral processing
- Beneficiation or adding value to products
- Safety
- Health and understanding AIDS
- Brick-making

The Small Scale Mining and Processing Technologies Department at Mintek is also developing a number of processes and equipment for application in the SSM sector. Some of the applicable technologies include the following:

- Electricity-free processing equipment - for use by small-scale miners who have no access to power.
- Efficient communication techniques: The application of conventional ball mills in the grinding of ore leads to loss of gold behind the liners.

MEETI (Mineral and Energy Education and Training Institute) in association with the Graduate School of Public and Development Management offers some advanced courses in topics such as energy policy, minerals policy, environmental policy etc. A

course is offered specifically targeted at women and entrepreneurs in mining. “Opportunities for Women and Entrepreneurs in Mining” is a four-module course.

The Geological Society of South Africa (**GSSA**) through the Directorate of Professional Programmes (DPP), offers a broad range of short courses and training that can help geoscientists stay abreast of technological advances. They are fairly advanced but may be of use to the experienced small-scale miner. These courses have included the following applicable modules (Csir, 2004):

- Title Deeds, SG Diagrams, Mineral Rights – DPP. With the introduction of the new minerals bill, the draft regulations, and the mining charter, some confusion has arisen about applying for, and granting of, prospecting and/or mining licenses. To clarify and to debate these issues, a two-day short course is presented by the DPP together with the Council for Geosciences and the Department of Mineral and Energy Affairs. This workshop is for all professionals in the mining industry and legal fraternity who are involved in deed searches, plan preparation, and who submit applications for reconnaissance permits, prospecting permits and mining licenses.
- Alluvial diamonds in South Africa – DPP: Project evaluation, the new Minerals Bill, financing small-scale mining and black empowerment.
- Clays and other Industrial Minerals in South Africa – DPP: The aim of the course is to give an overview of the geology, processing, metallurgical applications and the current state of mineral commodity exploitation in the industrial minerals field in South Africa. It is intended to add to the knowledge base of students of geology and metallurgy, hard-rock geologists, plant metallurgists, and geosciences and metallurgy researchers who have limited exposure to the geology, economic and mineral processing aspects, importance and the potential of industrial minerals in developing economies such as South Africa.
- South African Mineral Deposits in Perspective: The first two days of this short course provide an overview of mineral deposits and the minerals industry. The nature, origin and concentration mechanisms of mineral deposits with a focus on South African examples were discussed. Mineral exploration strategies, philosophies and budgets were addressed and the various techniques used to locate new mineral deposits reviewed. Current mining and exploration projects in South Africa as well as the impact of the New Minerals Bill, the SAMREC code and Black Economic Empowerment (BEE) in mining, were reviewed as well as smaller scale mining opportunities. The last three days of the course provided more details of the important mineral deposits in South Africa including gold, platinum, chrome, vanadium, copper, coal, diamonds and industrial minerals. Geology, exploration, mining, mineral beneficiation, environmental issues and mineral economics as well as the future potential of South Africa's most important minerals were reviewed.

7.3 AVAILABLE SUPPORT STRUCTURES

The Department of Minerals and Energy (DME) is working to legalise the small-scale mining operations that currently exist, and find ways to help make them economically viable in a way that is relevant, understandable and affordable to small-scale miners.

The Directorate of Small-Scale Mining **assists aspiring small-scale miners** in the following ways:

- Establishment of a legal entity;

- Guidance towards the identification of mineral deposits;
- Environmental impact assessment (EIA);
- Legal and contractual arrangements, mineral rights, etc;
- Reserve estimation of the selected deposits;
- Mining feasibility study;
- Market study; and
- Development of the mining equipment.

A **Small-Scale Mining Board** has been set up as a point of delivery for the services required by the small-scale mining sector. It co-ordinates a substantial amount of expert capacity and experience and specialises in planning and developing a viable mining project through the pre-feasibility stages. The contribution of each board member is essential for professional development of a successful mining project. The Contact person for the small-scale mining board and the mining support fund which it operates is Mr Gad Kwata from the National Department of Minerals and Energy (DME).

Organisations assisting the small-scale mining sector include (Csir, 2004):

- Mintek, which has a small scale mining division that assists SSMs to make their projects viable. Its policy is to develop rural communities and therefore to emphasise processing, beneficiation and value addition. This division is mainly funded from various State grants. In addition, the European Union through Godisa has funded a non-profit section 21 company called “Zenzele Technology Demonstration Centre”. This company assists SSMs by demonstrating the viability of their projects; they handle about 36 projects per year. Contact details: 200 Hans Strijdom Drive, Randburg
- Private Bag X3015, Randburg; 2125 South Africa; Phone: +27 (11) 709-4111; Fax: +27 (11) 709-4326
- The Mining Technology Business Unit of the CSIR – Miningtek has been involved with small-scale mining on various levels since the mid 1990's and has assisted small producers for several years through technical expertise and related capacity building. A vast database of experience has been established through this time, which also includes exposure to small-scale mining practices in neighboring Southern African countries. In additional to this impact, CSIR Miningtek has been very involved in the establishment and functioning of the Department of Mineral and Energy Affairs' National Steering Committee of Service Providers to the small-scale mining industry. Contact details : Corner of Rustenburg and Carlow Roads, Auckland Park, Johannesburg; P.O. Box 91230, Auckland Park; Telephone : (011) 358 0000
- Council for Geoscience – for geological information and mineral occurrences. Contact details: 280 Pretoria Street; Silverton, Pretoria; Telephone (021) 841-1911

Furthermore, a National Steering Committee of Service Providers to the Small-scale Mining Sector (NSC) was established to provide technical, managerial and financial support to small-scale mining projects (Csir, 2004). The NSC is made up of institutions including the Council for Geosciences, the Industrial Development Corporation, Khula Enterprise Finance, Minerals and Energy Policy Centre, CSIR-Miningtek, Ntsika Enterprise Promotion, MINTEK and the South African Diamond Board. The NSC is chaired by the Department of Mineral and Energy Affairs and its work is co-ordinated by a Secretariat at the DME. Meetings are held on a monthly basis where applications are

screened. Viable concepts are then adopted as official NSC projects. The NSC considers all commodity groups. Application forms for assistance from the NSC can be obtained from any regional office of the DME. Each regional Directorate: Small scale Mining then forwards suitable applications to Pretoria.

The following Tables provides contact details for some relevant organisations that have expertise to assist the small-scale mining sector with regards to specific technical issues. This list is by no means exhaustive but rather a starting point for obtaining assistance.

Table 7.1: Organisations with small-scale mining expertise

Field	Organisation	Contact Details
Geology	Council for Geosciences	Paul Wipplinger (012) 841 1097 pwip@geoscience.org.za
Mining methods	CSIR - Miningtek	Jeannette Mc Gill (011) 358 0296 JMcgill@csir.co.za
Processing	Mintek	Mr Rob Guest (011 709 44445 robg@mintek.co.za
	Zenzele	Colin T Logan (011) 709 4429 colinl@zenzeletech.co.za
Supply of Equipment	Waltkru Holdings	Ettiene de klerk 011 397 5180 waltkru@wol.co.za
Courses	MEETI	Mike Mangena (011) 709-4771 info@meeti.org.za
Social/Policy	MEPC	Hudson Mtegha (011) 498 7468 Hudson@mepc.org.za

Source: Csir, 2004

A variety of small-scale mining associations already exist within South Africa. The details of some of the larger ones are given below together with the names of some of the smaller ones that represent groups of miners in a particular area. Such bodies would be able to advise new entrants into this sector of the associated pitfalls and other factors (Csir, 2004).

- **African United Small Miners Association (AUSMA):** Contact: Mr Trevor da Silva Pikwane; Tel: 027 531 31530; Fax: 027 531 31530. AUSMA is the umbrella body for all the other small miners associations. The main office is in Kimberley and core membership comes from the diamond diggers in the region.
- **South African Women in Mining association (SAWIMA):** Contact: Ms Vuyokazi Nyengule. Tel: 011 834 9039; Email: sawima@mweb.co.za. SAWIMA represents women within the mining industry

- **Gauteng small scale miners**: Contact: Duma Maseko Tel: 011 339-1858; Mobile: 082 450 9219/
- **Steinkopf Small Scale Mining Association**: Contact: Mr Raynold Amrosini; Tel: 027 7122607. The association has 18 members mining pegmatites, mica and feldspar with the prospect of opening a feldspar milling plant for production of flint spar.
- **Sedibeng small miners forum**: Contact: Mr John Landela; Tel: 053 832 5675; Mobile: 082 403 6880. This forum consists of the following small-scale mining associations: Nation Building, Northern Cape women in mining, PASMAIN, OSMA Association (an orphanage association).
- **North West Small & Medium Miners' Association:** Chair: K.D. Mogashoa; Mobile: 072 278 0415; Fax: 053 474 0596; email: info@kolong.co.za

With regards to support it is also relevant to note that Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry notes that the Charter will apply to mining companies in respect of their involvement in beneficiation activities, specifically activities beyond mining and processing. These include production of final consumer products (such as slate tiles in this case). Mining companies will be able to offset the value of the level of beneficiation achieved by the company against its HDSA ownership commitments.

In terms of the aforementioned Charter is also relevant to note that government will support HDSA companies in exploration and prospecting endeavours by, inter alia, providing institutional support. It is also relevant to note that the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry indicates that the industry agrees to assist HDSA companies in securing finance to fund participation in an amount of R100 billion within the first 5-years. Participants agree that beyond the R100 billion-industry commitment and in pursuance of the 26 per cent target, on a willing seller - willing buyer basis, at fair market value, where the mining companies are not at risk, HDSA participation will be increased.

7.4 ACTIONS NECESSARY TO START IMPLEMENTATION

A breakdown of tasks, milestones, project initiation and co-ordination of the development process, which needs to be achieved for the realisation of the project, are as follows:

- **Appoint implementer:**
- In order to implement the project successfully, a dedicated person needs to take responsibility for the implementation (this can either be done in-house if sufficient capacity and know-how exists, or can be put out on tender for development facilitators). In order to ensure that the implementation and management of the project is driven successfully, the implementer must ensure that the project produces the required deliverables to the required standard of quality and facilitate handover of successfully implemented project. Consequently, the implementer must be appropriately empowered and provided with sufficient decision-making authority to fulfill his or her responsibilities.
- The project implementer needs to meet regularly with the community/potential owners of the project as well as with the LED manager on a weekly basis to ensure that the learning process is shared with all members and to effectively evaluate the progress of the project.

- The implementer must take responsibility for the following: liaison with the municipality, project programming and execution, monitor overall performance of members, undertake accounting administration of project, time frame management, setting up implementing user agreements, monitor and manage risks, establish and enhance reporting mechanism, conduct regular team meetings, monitor quality assurance and deliverable acceptance, monitoring construction phase and skills training phase, monthly progress reports and status reports in order to ensure that the study is in line with the required outputs, timeframe and budget.
- **Legal requirements prior to commencement of mining operation and mining rights application (see Annexure A):**
- The surface rights status of the area must be established
- Access to both mineral and land rights must either obtained from the state or negotiated with the legal surface right title holder
- A mine works programme needs to be prepared which finalises the payment of royalties to Government
- A permit to prospect needs to be obtained. Note: a mining permit may only be issued if (a) the mineral in question can be mined optimally within a period of two years, and the mining area in question does not exceed 1,5 hectares in extent.
- A sample of the slate needs to be obtained and inspected for quality
- Geosciences need to be obtained to undertake a geo-technical survey for exact quantification of quantity, quality, type, demand for type, appropriate pricing, etc. Such a survey involves sampling of rocks, soil, stream sediment, water or vegetation in a chosen area, to identify and measure the various elements present. By carrying out a geochemical survey, you can detect variations in the abundance of specific elements in an area, which might indicate the presence of a mineral deposit. Once the survey results are in target areas to be tested by drilling can be identified. Samples of the rock penetrated are recovered as chips or cylindrical pieces of drill core, and may be sent to a laboratory for analysis of their mineral content. When the deposit is struck, further diamond drilling and sampling are necessary to outline the dimensions and consistency of the deposits such as grade, tonnage, type, nature, colour, etc. This will assist in determining that the deposit is economically viable where after mine development can commence.
- An appropriate Environmental Impact Assessment (EIA) and Environmental Management Programme Report (EMPR) outlining how the area concerned will be rehabilitated during and after the mining operation must be compiled and submitted to DEAT.
- Obtain a mining authorisation
- Compile a social and labour plan (if over 1.5 ha of area to be mined).
- Report annually to DME
- Once mining has commenced the operator must ensure that he or she is complying with the necessary environmental and health safety standards as stipulated in the Mine Health and Safety (1996) and Minerals (1991) Acts.
- Adherence to the National Environmental Act of 1998
- Adherence to the Minerals and Petroleum Resources Development Act of 2002
- Adherence to EIA guidelines of 1997, and the Environmental Conservation Act of 1986 and the Aide Memoir requirements of 1992 that govern environmental legislation in South Africa.
- **Finalise ownership:**
- Identify local people interested in becoming involved in this project

- Identify local communities that need to be involved in planning and decision making process
- Undertake strategic workshops to engage with relevant project stakeholders. This includes obtaining local business interests with regards to the projects and to obtain community-based interests. It is essential that this participation be fostered, as the acceptance of the outputs of the projects needs to be in line with business and community desires. The purpose of these workshops will also be to ascertain stakeholder visions for the project, so that key issues not previously attained can be taken into consideration. It is essential to attain such input from the start of the study.
- Undertake negotiations with the community, tribal authorities from the relevant villages where the slate deposits are found, in order to finalise ownership
- **Develop detailed business plan:**
- In order to be in a position to approach a financial institutional for finance it is essential that the mining project is properly scoped and that a detailed business plans are prepared. Without this, financial institutions are not able to consider funding a small-scale mining project, as a mineral deposit in the ground is insufficient for a financial institution to consider granting a loan.
- Once the body responsible for implementation has been identified, such a person needs to develop a detailed action plan, which consists of: project scope and work breakdown structure, programme and milestones, agenda's and minutes of meetings, correspondence, progress reports, communication schedule, coordination of parties involved, time frame management, working capital, liaison with end users, ongoing monitoring plan, facilitation and final handover, etc
- Indicate income and expenditure flows over a three-year period providing an indication of the monthly profit/loss, when the project will break even and the sustainability of the project
- The business plan should contain the following guidelines and actions to facilitate the implementation: project description, vital issues that need to be addressed before the business can be started, economic impact, key roleplayers that need to take responsibility for the development, nature and possible sources of additional financing for the business, facilitation plan (what needs to be done to ensure successful implementation), implementation timeframe and phasing, institutional arrangements (Legal form of company and registration details, shareholding and responsibilities, strategic partners, organisational structure, internal monitoring mechanisms), Operating plan, actuals, forecasts and timeframes, financial requirements, income creation, final capital costs, operating costs, outputs and outcomes, resource requirements, budget, cash flow, funding sources, investment opportunities, returns, income/expenditure and revenue stream, balance sheet, etc
- Business plan assessment and refinement is also needed. This entails: ensuring attainable vision, goals, strategies and objectives; detailed outcomes and project indicators exist, ensuring alignment to policy frameworks; obtain detailed understanding of risks and identifying risk ameliorations; verify timeframe for implementation; revise financial plans and resource requirements; ensure effectiveness – to ensure it contains all investors need to know, etc
- **Tender:**
- The project needs to be put out to tender. The advertising and the presentation of the project is of vital importance and will clearly indicate what customer needs will be met, the product or service being sold, the innovative qualities, the uniqueness of

the project, etc. The tender will also indicate exactly what is required from interested parties, as well as: definitions, project information, short and long term goals, strategies to achieve goals, procedural aspects, scope of study, conditions of contract, ability to perform, empowerment, declaration of interest, legal jurisdiction, information to be submitted by tenderers and the format, timeframes, requirements and selection criteria.

- When the projects/businesses have aroused interested parties and parties have been short listed, the next step is to launch initial discussions and negotiations.
- In the evaluation of the tender process, the personality, professional and social competence, and motivation of the team needs to be evaluated so as to ensure successful implementation. Someone who cannot quickly get a group of people enthusiastic about working may have problems in getting customers enthusiastic about the product.
- **Obtain funding (ongoing):**
- Find ways to obtain and secure capital (see below listed mining related funding institutions)
- Determine how much money the owner has, how much the owner is willing to risk, how much they are going to invest, etc.
- Determine whether or not the owner is going to obtain a loan, make use of investors or all of the aforementioned?
- Contact all funding sources and programmes and obtain buy-in and support
- Utilise feasibility study to market the business to potential funders
- Submit applications for funding, such as to the Department of Provincial and Local Government' s LED Fund. Funding of development is often one of the most constraining issues faced during the implementation of projects. Development funds is a scarce resource and all sources should be mobilised with due care.
- Alignment with council policies is essential in order to get funding.
- Government support mechanism for the SMMEs also need to obtained, as well as other support mechanisms. These programs aim to assist people to apply for new projects (e.g. close corporation), expansion of an existing project and skills support programmes.
- **Location and facilities:**
- Determine requirements in terms of location such as identifying local authority regulations and permits needed for business in the area
- Finalise the location of the first slate processing plant. After successful implementation of the first slate processing plant, roll-out can be undertaken to the other two villages where slate deposits are found.
- Appoint specialists as and when needed such as quantity surveyor, architect, construction company, etc
- Finalise immediate furniture and equipment requirements
- Obtain quotes for costs and discus with owners
- Provide assistance with regards to purchase of equipment, tools and furniture that are needed for the project
- Management team:
- Finalise exact legal requirements for the ownership of small-scale mining operation
- Finalise involvement of community
- Contact institute involved and obtain required and updated membership forms, stamps, etc

- Assist in setting up the co-operative, selection of most appropriate candidates, selection of board members, registration of co-operative
- **Staffing:**
- Assist with the appointment of manager: this position is extremely important, as the manager will drive the project.
- Ensure that the adequately skilled people are appointed
- Developed detailed Job descriptions with roles and responsibilities in association with the community
- **Human resource development:**
- Identify needs through research, meetings, seminars and workshops with the members', in order to put idea in working
- Undertake this identification of training and technical needs of members in collaboration with relevant and interested organizations
- Identify cost of training required
- Identify sources of training
- Assist (financially and technically) those interested to become involved in obtaining the required skills and training
- Collaborate with relevant and interested organisations to train members who are currently involved in the informal mining sector in appropriate mining methods and minimisation of environmental degradation
- Contact and rope in relevant SETA's and submit applications to obtain learnerships
- Monitor the training programmes to meet these needs
- Ensure team have: complementary skills and strengths, shared vision, flexible approach to problems, sticks together – especially in difficult situations, relevant experience, etc
- **Marketing plan:**
- Draw up a detailed marketing plan that identifies the nature of the product, the price, the place and promotions
- Determine the customers that make up the target segment and determine how large the market is, how it can be developed, who the competitors are, what substitutes exist for the product, how the market share and sales volume will develop, what distribution channels will be used, how much will advertising cost, etc
- Interpret the information for the stakeholder or investor in terms of potential for market penetration in order to undertake targeted marking thus selling the product as a viable investment
- Assist in marketing of the slate tiles and in establishing sales contracts
- **Financial and accounting system:**
- Profitable small businesses often face cash crises and even bankruptcy. Managing this at the onset is critical.
- Efficient management of working capital includes the following: reducing the duration of the working capital shortage (and hence reducing the cost of the product due to lower interest expense), selecting the best option available for financing any working capital shortfall, ensuring that the time required to bring the product to the market is not underestimated, ensuring that market acceptance is not overestimate – realistic goals are required, the need for increased working capital must be taken into consideration as turnover rises, not to use short-term finance for long-term requirements, make allowance for peak cash requirements just prior to month end, make allowance for monthly salary deductions, determining how large the companies' capital requirements will be until break-even, etc. How much cash will

be needed in the worst case? Determining where the capital will come from, what returns investors can expect, determining how profits can be realized, etc
- The financial and accounting system needs to be implemented.
- **Monitoring and evaluation and final handover**
- The final step in the implementation process of the project includes the progress and performance monitoring of the project and the final handover.
- Establish indicators/proxies for monitoring the development by the new business partners. An indicator can be defined as a generally acceptable expression that is seen as being representative (quantitatively and qualitatively) of the aspects that need to be addressed.
- Once the requirements are met with, the projects will be handed over. However, ongoing support needs to be provided in terms of: providing key focus areas for future intervention, intervention priorities that will require implementation in the event of pre-identified risks transpiring, sustainability guidelines, likely future growth forecasts, the priority future needs of the business, realistic general performance indicators, etc, important milestones will be identified as well as timeframes
- Furthermore mentoring needs to be continuously provided after handover. This implies that continuous monitoring needs to occur and as soon as any problems are noted, key specialists need to be appointed to attend to the specific problem within their field of specialisation. This will ensure that problems are identified and rectified as soon as possible before serious problems are encountered.
- Norm the process by providing constant support for the new entrepreneurs in order to ensure the success of the establishment
- Ensure long-term viability of the business by revisiting the initial concept

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www.dme.org.za

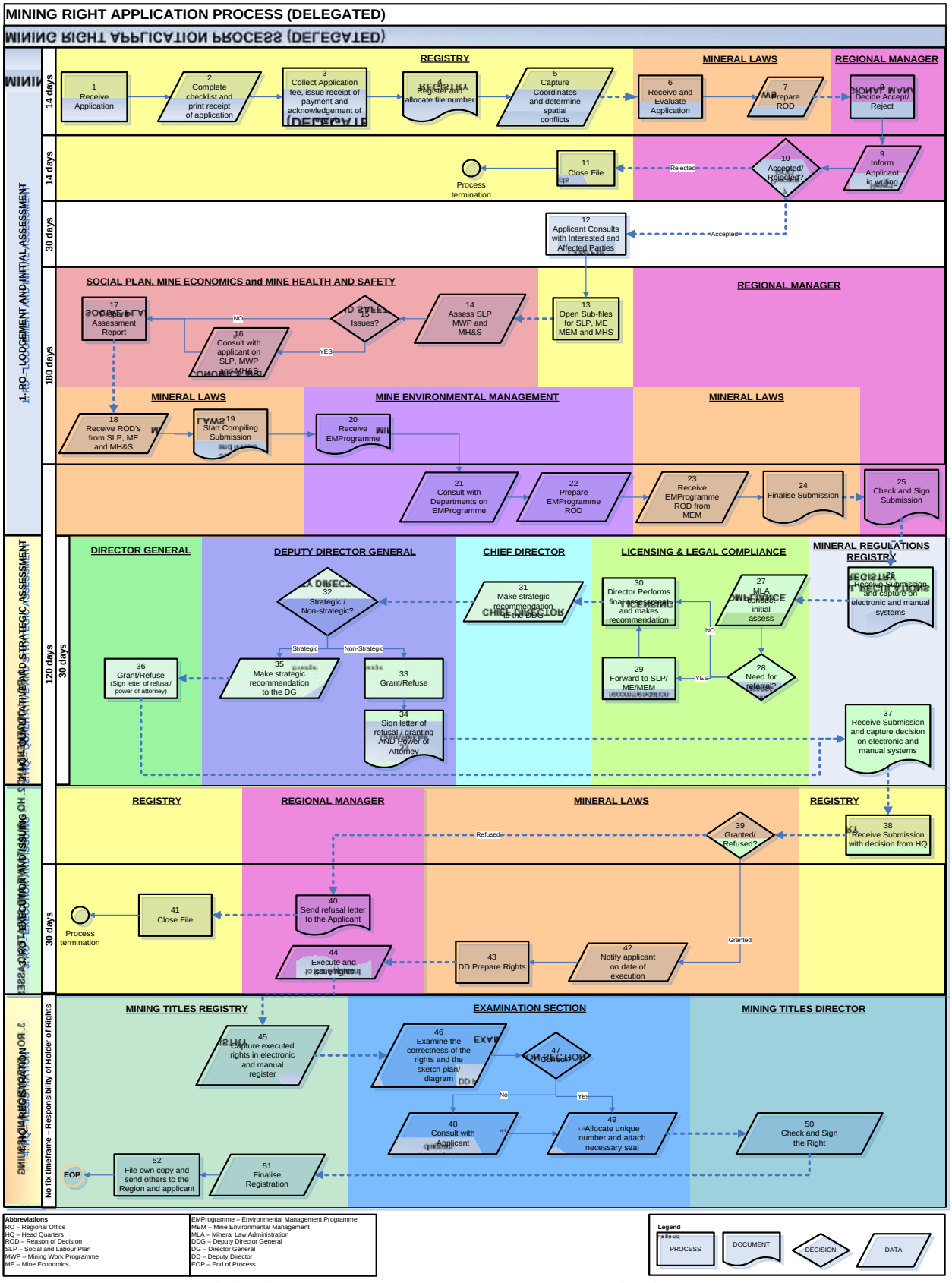
Interviews:

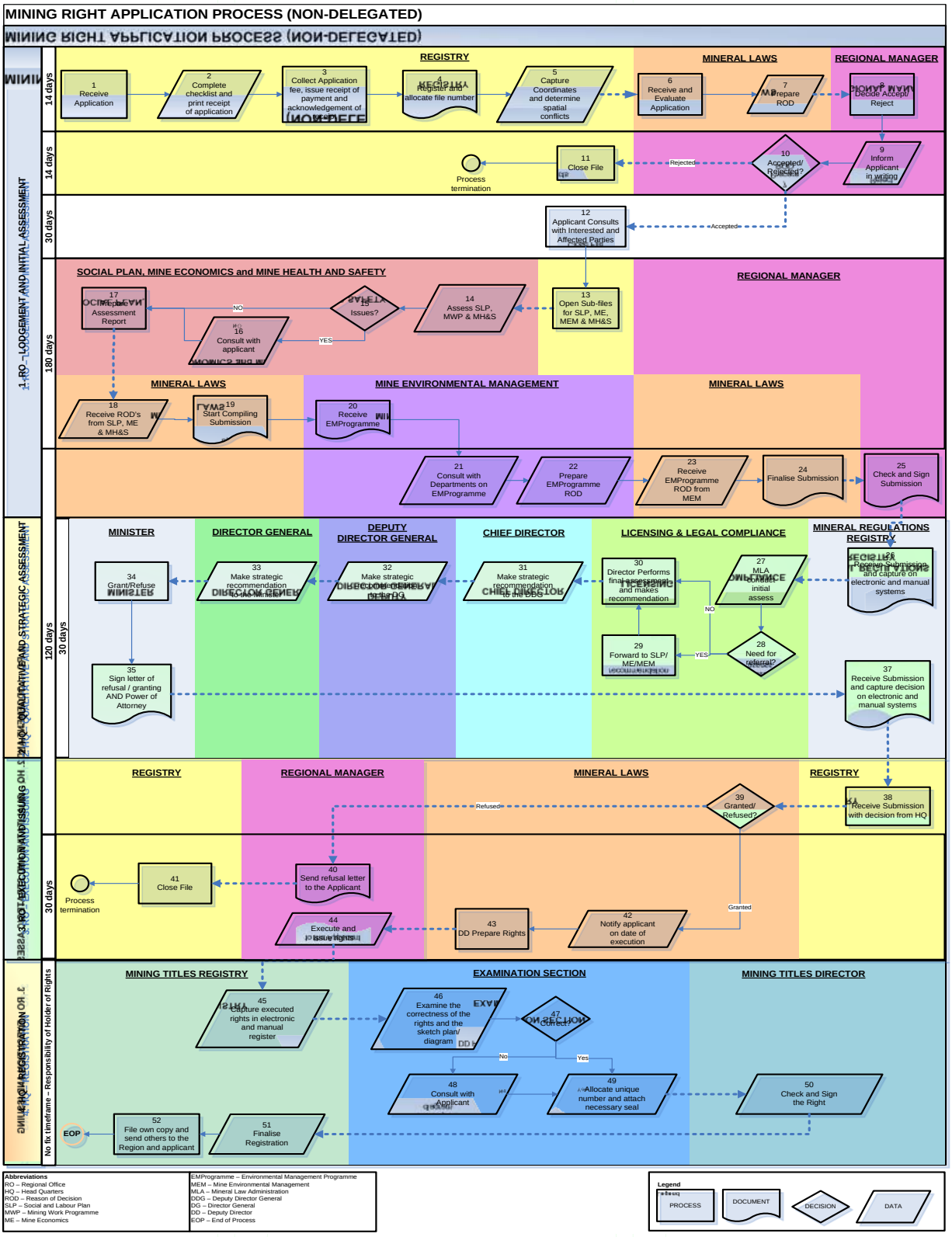
Council for Geosciences: Mr. R. Belcher

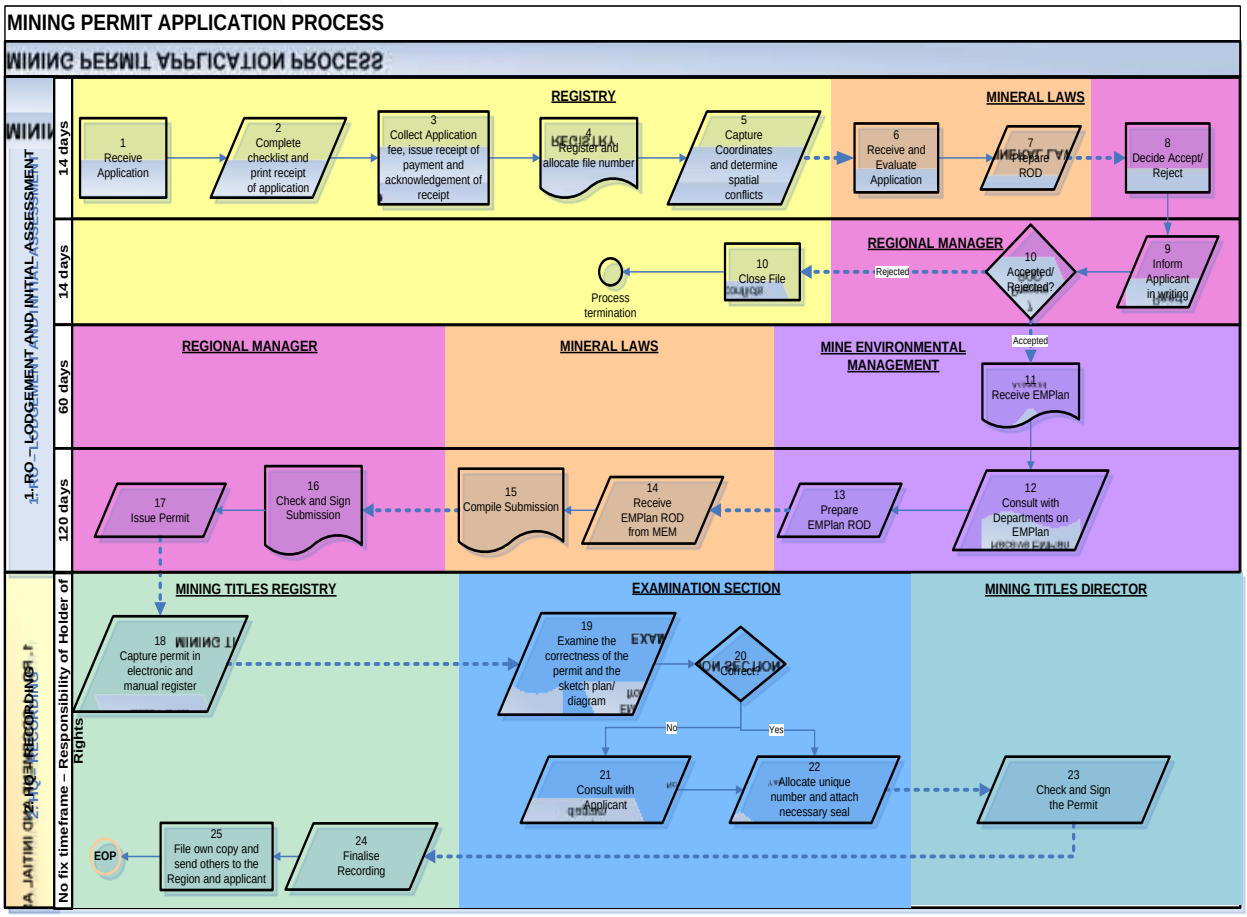
Mr. Ntike

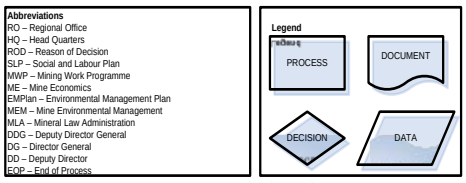
Mr S. Malepe (MSJ Project Manager)

ANNEXURE A: MINING RIGHT, MINING PERMIT AND PROSPECTING RIGHT APPLICATIONS




MINING RIGHT APPLICATION PROCESS (NON-DELEGATED)
REGISTRY
MINERAL LAWS
REGIONAL MANAGER
1 Receive Application
2 Complete checklist and print receipt of application
3 Collect Application fee, issue receipt of payment and acknowledgement of
4 Register and allocate file number
5 Capture Coordinates and determine spatial conflicts
6 Receive and Evaluate Application
7 Prepare ROD
Decide Accept/ Reject
9 Inform Applicant in writing
10 Accepted/ Rejected?
11 Close File
Process termination
Rejected
12 Applicant Consults with Interested and Affected Parties
Accepted
SOCIAL PLAN, MINE ECONOMICS and MINE HEALTH AND SAFETY
REGIONAL MANAGER
13 Open Sub-files for SLP, ME, MEM & MH&S
14 Assess SLP, MWP & MH&S
15 Issues?
16 Consult with applicant
NO
YES
17 Prepare Assessment Report
MINERAL LAWS
MINE ENVIRONMENTAL MANAGEMENT
MINERAL LAWS
18 Receive ROD's from SLP, ME & MH&S
19 Start Compiling Submission
20 Receive EMProgramme
21 Consult with Departments on EMProgramme
22 Prepare EMProgramme ROD
23 Receive EMProgramme ROD from MEM
24 Finalise Submission
25 Check and Sign Submission
1. RO – LODGEMENT AND INITIAL ASSESSMENT
14 days
14 days
30 days
180 days
MINISTER
DIRECTOR GENERAL
DEPUTY DIRECTOR GENERAL
CHIEF DIRECTOR
LICENSING & LEGAL COMPLIANCE
MINERAL REGULATIONS REGISTRY
34 Grant/Refuse
33 Make strategic recommendation to the Minister
32 Make strategic recommendation to the DG
31 Make strategic recommendation to the DDG
30 Director Performs final assessment and makes recommendation
27 MLA Compliance initial assess
26 Receive Submission and capture on electronic and manual systems
NO
YES
28 Need for referral?
29 Forward to SLP/ ME/MEM
35 Sign letter of refusal / granting AND Power of Attorney
37 Receive Submission and capture decision on electronic and manual systems
2. RO – EVALUATIVE AND STRATEGIC ASSESSMENT
120 days
30 days
REGISTRY
REGIONAL MANAGER
MINERAL LAWS
REGISTRY
38 Receive Submission with decision from HQ
39 Granted/ Refused?
Refused
Granted
40 Send refusal letter to the Applicant
41 Close File
Process termination
42 Notify applicant on date of execution
43 DD Prepare Rights
44 Execute and issue rights
3. HQ – EXECUTION AND ISSUING
30 days
MINING TITLES REGISTRY
EXAMINATION SECTION
MINING TITLES DIRECTOR
45 Capture executed rights in electronic and manual register
46 Examine the correctness of the rights and the sketch plan/ diagram
47 Correct?
No
Yes
48 Consult with Applicant
49 Allocate unique number and attach necessary seal
50 Check and Sign the Right
51 Finalise Registration
52 File own copy and send others to the Region and applicant
EOP
4. HQ – REGISTRATION
No fix timeframe - Responsibility of Holder of Rights
Abbreviations
RO – Regional Office
HQ – Head Quarters
ROD – Reason of Decision
SLP – Social and Labour Plan
MWP – Mining Work Programme
ME – Mine Economics
EMProgramme – Environmental Management Programme
MEM – Mine Environmental Management
MLA – Mineral Law Administration
DDG – Deputy Director General
DG – Director General
DD – Deputy Director
EOP – End of Process
Legend
PROCESS
DOCUMENT
DECISION
DATA


MINING PERMIT APPLICATION PROCESS
1. RO – LODGEMENT AND INITIAL ASSESSMENT
14 days
14 days
60 days
120 days
No fix timeframe – Responsibility of Holder of Rights
REGISTRY
MINERAL LAWS
REGIONAL MANAGER
MINERAL LAWS
MINE ENVIRONMENTAL MANAGEMENT
MINING TITLES REGISTRY
EXAMINATION SECTION
MINING TITLES DIRECTOR
1 Receive Application
2 Complete checklist and print receipt of application
3 Collect Application fee, issue receipt of payment and acknowledgement of receipt
4 Register and allocate file number
5 Capture Coordinates and determine spatial conflicts
6 Receive and Evaluate Application
7 Prepare ROD
8 Decide Accept/ Reject
9 Inform Applicant in writing
10 Accepted/ Rejected?
Rejected
10 Close File
Process termination
Accepted
11 Receive EMPlan
12 Consult with Departments on EMPlan
13 Prepare EMPlan ROD
14 Receive EMPlan ROD from MEM
15 Compile Submission
16 Check and Sign Submission
17 Issue Permit
18 Capture permit in electronic and manual register
19 Examine the correctness of the permit and the sketch plan/ diagram
20 Correct?
No
Yes
21 Consult with Applicant
22 Allocate unique number and attach necessary seal
23 Check and Sign the Permit
24 Finalise Recording
25 File own copy and send others to the Region and applicant
EOP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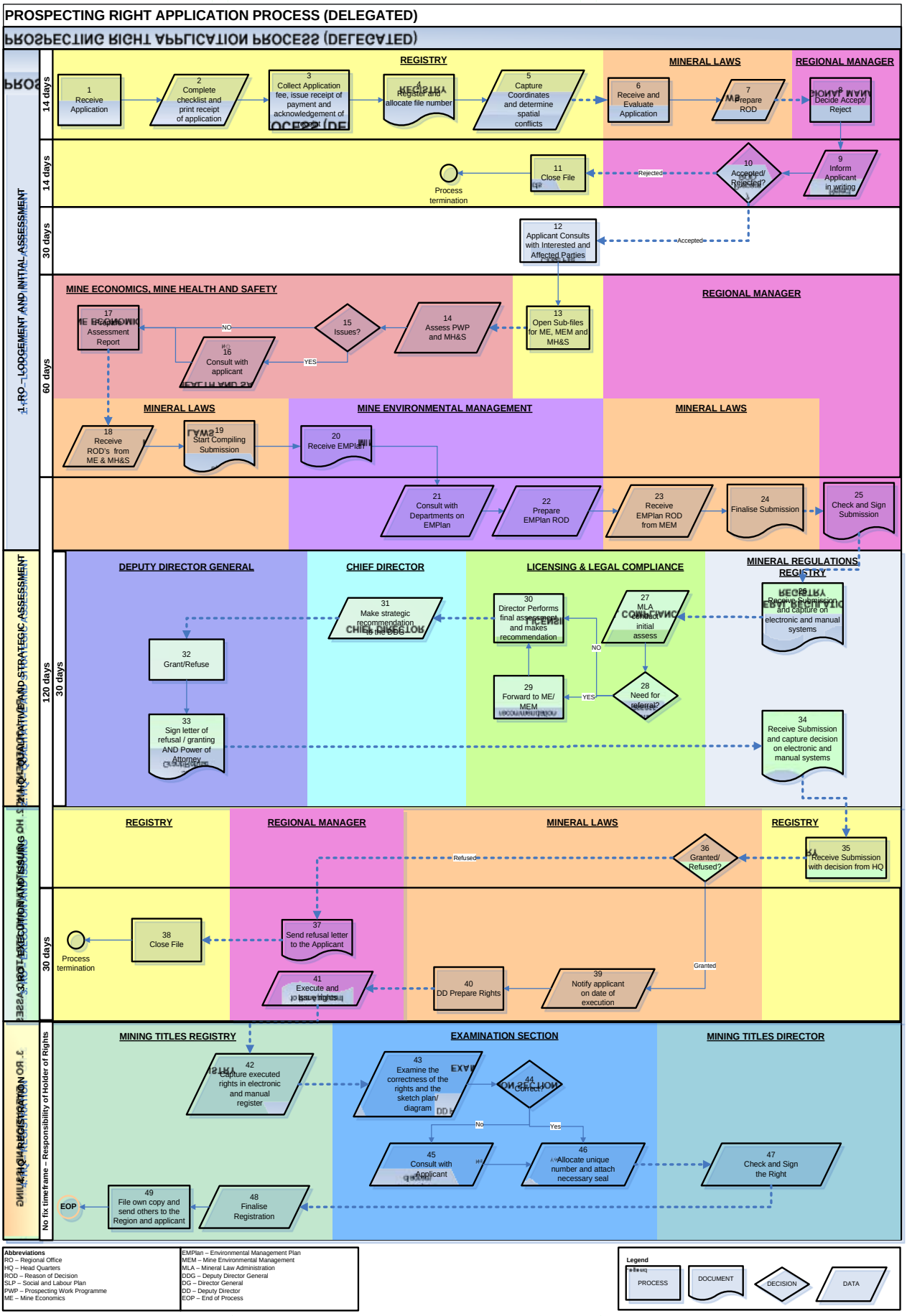
Legend
PROCESS
DOCUMENT
DECISION
DATA


PROSPECTING RIGHT APPLICATION PROCESS (DELEGATED)
1. RO – LODGEMENT AND INITIAL ASSESSMENT
2. RO – QUALITATIVE AND STRATEGIC ASSESSMENT
3. RO – EXECUTION AND ISSUING OF RIGHT
4. RO – REGISTRATION OF RIGHT
14 days
14 days
30 days
60 days
120 days
30 days
30 days
No fix timeframe – Responsibility of Holder of Rights
REGISTRY
MINERAL LAWS
REGIONAL MANAGER
1 Receive Application
2 Complete checklist and print receipt of application
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7 Prepare ROD
8 Decide Accept/ Reject
9 Inform Applicant in writing
10 Accepted/ Rejected?
11 Close File
Process termination
Rejected
12 Applicant Consults with Interested and Affected Parties
Accepted
MINE ECONOMICS, MINE HEALTH AND SAFETY
REGIONAL MANAGER
13 Open Sub-files for ME, MEM and MH&S
14 Assess PWP and MH&S
15 Issues?
16 Consult with applicant
17 Assessment Report
NO
YES
MINERAL LAWS
MINE ENVIRONMENTAL MANAGEMENT
MINERAL LAWS
18 Receive ROD's from ME & MH&S
19 Start Compiling Submission
20 Receive EMPlan
21 Consult with Departments on EMPlan
22 Prepare EMPlan ROD
23 Receive EMPlan ROD from MEM
24 Finalise Submission
25 Check and Sign Submission
DEPUTY DIRECTOR GENERAL
CHIEF DIRECTOR
LICENSING & LEGAL COMPLIANCE
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26 Receive Submission and capture on electronic and manual systems
27 MLA General initial assess
28 Need for referral?
29 Forward to ME/ MEM
30 Director Performs final assessment and makes recommendation
31 Make strategic recommendation to the DDG
32 Grant/Refuse
33 Sign letter of refusal / granting AND Power of Attorney
34 Receive Submission and capture decision on electronic and manual systems
NO
YES
REGISTRY
REGIONAL MANAGER
MINERAL LAWS
REGISTRY
35 Receive Submission with decision from HQ
36 Granted/ Refused?
Refused
Granted
37 Send refusal letter to the Applicant
38 Close File
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39 Notify applicant on date of execution
40 DD Prepare Rights
41 Execute and issue rights
MINING TITLES REGISTRY
EXAMINATION SECTION
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Abbreviations
RO – Regional Office
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ME – Mine Economics
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MLA – Mineral Law Administration
DDG – Deputy Director General
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Legend
PROCESS
DOCUMENT
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DATA

Production of slate slabs