



# BUSINESS PLAN

MAHENGE SITE

STMM TANZANIA

# **I.Executive Summary**

S&T Marble and Mining Limited (STMM) Tanzania is a mining entity which manages and operates the mining site near Mahenge town in Ulanga District of Morogoro region, Tanzania. The firm possesses a Mining License for the site of covering 19 hectares about 7 km. from Mahenge. The company is owned by owners who have deep experience in the mining business.

This document details out a plan to develop the site and carry out commercial operations. This business plan outlines the full project lifecycle, from site development of the quarry to the commercial production phase. The project intends to mine high-grade marble for domestic and export use, supporting Tanzania's construction and infrastructure development goals while creating local employment and adhering to sustainable environmental practices.

## **Key Project Specifications**

The key relevant info about the project is mentioned below

- Land area of site: 19 hectares (0.19 sq. km)
- Ownership: STMM Tanzania, a Tanzanian mining concern with office located at 13th Floor, Mwanga Tower, Plot Nos. 1 & 50, Block 45A, Kijitonyama, Bagamoyo Road, Kinondoni District, Dar es Salaam, Tanzania.
- Commercial production timeline: 12 – 18 months
- Expected output (once commercial production is stabilized): Expected output is 250 to 300 blocks per month. Each block will weigh about 15/16 metric tons.

Key Outputs of the project (may be expanded over the project lifecycle)

- I. Marble blocks
- II. Finished slabs/tiles (after setup of STMM's processing facility)

## **II. Project Overview**

The global market for marble is vast and spread across regions and market segments. The overall demand for marble is projected to tick upward in the coming decade as per market studies and surveys, this is especially the case for the premium segment of the market. STMM possesses the expertise and market insight to take advantage of the coming growth and position itself as the key supplier of Tanzanian marble both in Tanzania and the broader region.

STMM's strategy for the site involves setting up the Mining License site for production by preparing the site, moving on to commercial production once the site is ready for extraction. The project will be undertaken in a phased manner as per the project timelines given in this plan.

STMM has plans to setup a processing facility at a suitable location from the quarry to process the Tanzanian marble extracted. Once the commercial activity at the site picks up, the output will be sent to this local processing facility, which shall be developed in parallel. This facility will allow STMM to carry out processing in the region without the need to export the marble for processing/value addition, thereby adding to the value-addition and increasing the in-country value. Once the same is officially sanctioned, a plan for the same will be prepared.

The project will generate employment for local residents as well as facilitate the transfer of skills in relevant domains such as mining operations and logistics. Once the project matures and enters the sales stage, STMM will contribute to Tanzania's GDP. Further, the mining operations will be carried out in accordance with national mining regulations, environmental laws as well as local mining best practices.

A key highlight of the project is that the annual revenue, on average, is expected to gradually grow over the first 5 to 10 years of commercial production phase, due to expected increase in sale volume as well as price appreciation for marble due to growth of demand in the coming years. The

project is projected to be net cash flow positive from 2<sup>nd</sup> year of commercial operations.

As far as expected output goes, STMM plans to produce 250-300 blocks per month; it plans to reach this level during 8 to 12 months development timeline for the development and commercialization phase. The average weight of one marble block shall be 15 metric tons.

## **Overview of Resource**

The drilling and feasibility report concluded that, given the geological and geotechnical data points of the site, the project is technically and economically viable. The geological findings from the drilling and field observations suggest that the marble in certain zones may contain sections with small parts/sections slightly fractured, however, the region of the site holds significant economic value. The marble is found to be by and large medium-to-coarse grained, suitable for slabs, tiles and monument related use. There were also bands observed in some of the deposit zones.

The report concludes that a total of about 740 MT of resource has been confirmed at the site. This site estimate was arrived at by the geologists after completing drilling and field documentations, including petrography and geochemical, mineralogical and chemical analyses.

Even if 50% of this can be mined, this will be sufficient recovery percentage as the estimated size of the deposit is so substantial.

## **Overview of Logistics**

A study of the projects' logistical feasibility reveals that there are both rail and land options for transport of the marble to the intended destination, whether that's a port or point of sale. There will be a storage area at the site for temporary storage of marble ready for transport.

The various transport options have been studied and a suitable location for a processing plant has been finalised.

Further, deal with the railway logistics will be finalised along with related charges based. Once the production stage begins, STMM will arrange for a nearby warehouse to use as its storage facility for its inventory of blocks before transporting the same for shipping or sale via a logistics provider.

The logistics related arrangements, such as contract with transporters and shipping/logistics firm will be finalised at the appropriate time once the production stage begins.

## **Potential Market**

The market for the marble extracted is divided into 2 broad categories – local demand in Tanzania and the regional & export markets.

### **Domestic Demand**

There exists domestic demand for marble within Tanzania mainly in residential construction projects, government initiatives and civil/landscaping works. There is rapid urbanization and infrastructure development taking place across the country, which is expected to ramp up in the coming years.

The demand for natural stone in residential, commercial as well as civil projects is expected to be a source of business. There is also scope of supplying to public works and national building projects, in places such as Dodoma, Arusha and Magufuli City. Further, there are key initiatives and projects planned by the Government and quasi-Government bodies aimed at developing public infrastructure and buildings. The key initiatives which are relevant to STMM are listed below –

- Development of Dodoma city and its infrastructure as the new capital of Tanzania
- Urbanization plan for Dar es Salaam
- Bagamoyo Port
- East Africa Commercial and Logistics Center, Ubungo District, Dar es Salaam

## **Regional & Export Market**

Apart from the growing domestic market, there is demand for marble in East African nations around Tanzania, mainly Kenya, Uganda and Rwanda. Further, the Middle East, which is a major market for natural stones and luxury gemstones, is another key target market. The key markets in this region are UAE and Saudi Arabia, especially for premium marble varieties used in interiors, landscaping etc.

Besides these 2 key markets, India will be a major potential market.

Apart from the above, there is the potential to export the marble via containers through Dar es Salaam port to wherever the demand or buyers are, such as China, one of the biggest markets for marble, and India.

All in all, marble offtake can take the form of various deals, such as sale to builders and public firms for residential construction and government contracts for public and civil works.

## **III.Operations and Site Development Plan**

To start off, the basic infrastructure and site area will be prepared so that there is ease of access to the site and the overburden where the extraction will start. Over the initial months, the site setup process will involve setup of the access paths/roads, leveling and clearing and putting in place of critical site infrastructure such as a generator and potable water system, rest area etc. Excavators and wheel loaders will be used in the site clearing process.

The production process will involve targeted block extraction based on the study of the region's geography, topology and related factors. The study of the site has been carried out by geologists, mining experts and engineers with a view to minimize wastage of marble and ensure an efficient production schedule given the local terrain and geology. Based on the results, it was decided that bench mining shall be suitable for the site. Bench mining is an open-pit mining approach where the deposit is extracted in horizontal layers known as benches, to ensure a safe, stable and efficient method of extraction of marble blocks.

The process involves the design of the site layout, followed by clearing overburden and preparation of the access ramps. Next, each bench created will be clearly marked and the marble face will be cut using wire saws. Holes are drilled along planned edges of the deposit. Wedges, shims or drills will be used to separate the marble from the bench wall without blasting.

Once detached, the marble blocks shall be lifted by a loader and transported to the storage area while waste rock is temporarily moved to a dump site to be later used for site rehabilitation. The bench is then advanced both horizontally and vertically depending on the marble deposit, repeating the cutting until the deposit is exhausted.

Throughout the extraction cycle, the site engineers and technicians will maintain proper bench height and width, slope stability and drainage to ensure safety and preserve the marble's integrity.

The list of key equipment used at the site is mentioned below –

- Wire Saw / chain saw

- LD4 drilling machine
- Jack hammer
- Excavator
- Wheel loader
- Compressor

Apart from the above, there is more equipment required at the site to ensure the output rate of 300 blocks per month. This rate of output will require additional equipment and tools.

STMM shall setup a state-of-the-art processing facility at a suitable location near its Mahenge site.

This facility will process the marble block extracted and will be able to process the 300 blocks extracted from the quarry. Once the facility installs the required machinery and tools to reach full operational capacity, The output will translate to 300 blocks being processed at 3,000 sq. meters per day, which comes to an output of 90,000 sq. meters per month.

This level will be adjusted as required. The key equipment to reach this level of production at the facility is mentioned below –

- 1 Multi cutter
- 1 Slab line
- 1 tile line
- 1 Resin treatment plant
- Packaging tools/machinery

Further tools and/or equipment will be added as required by the site team. This equipment would prefer to be procured locally from Tanzanian retailers/dealers. The next preference would be order from partners and signatories to treaties such as the East African Community (EAC) Treaty, African Continental Free Trade Area (AfCFTA) and Global System of Trade

Preferences (GSTP) to avail tax/tariff concessions and minimize transport costs.

At the initial stage, STMM has made provision for storage at the respective sites. After the production kicks off, there may be storage facilities made at the site or at a suitable nearby location. This storage capacity may be expanded as and when required, based on the level of output.

## **IV. Manpower**

As the site will be developed in a phased manner, initial months will involve the hiring of relevant staff to setup the site. This will consist of a mix of experienced expatriate professionals to run day to day operations and local Tanzanian workforce to support them. The local workers from nearby locality/villages will be given a priority to work at the site.

The site team will include qualified engineers, geologists and technicians; the compensation will be according to the industry norms and market rates.

The local Tanzanian workers will be skilled through relevant on-the-job training and guidance. Further, they will be mentored by the experienced staff in quarrying methods as well as relevant safety protocols and procedures. The training regime for the local workers will be practical yet simple; it will include machine/tool usage, safety briefings and hands-on experience with the relevant equipment.

The plan is to provide on-the-job training to the local staff who do not have the required skills so that they can learn to manage the necessary tools and machines. This will allow them to learn how to operate the required equipment and also get a sense of how a quarry is run. For example, for operating the tools and machinery, the local workers will work alongside the experienced expat workers and learn to operate tools such as wire saws etc. correctly under the expat worker's guidance. Over time, after completion of their onsite job training and based on their skillsets, the local workers will move on to independently handling the mining equipment/machinery.

Some of the training will also take place at STMM's parent company in India. Over the project lifecycle, the goal is to have at least 70% of the workforce as Tanzanian nationals, as the long-term goal is to have Tanzanian nationals' makeup a majority of the site workforce. Over the project lifecycle, there will be a various categories of workers deployed; the broad categories are mentioned below –

- Technical staff such as engineers, machine operators, mechanics etc.
- Finance personnel which will include CPAs, accountant etc.
- Operational and administrative staff such as managers and supervisors
- Support staff such as cleaners, guards etc.
- Marketing and sales staff including marketing manager and sales agents

## **Manpower succession plan**

The operations require a high degree of skill' a machine operator should ideally come with 10 to 15 years of experience in the mining industry. This is because the process of drilling, cutting and extracting marble without cracks, wastage or breakage requires expertise and cannot be carried out by someone who is new to this.

The equipment generally requires 2 persons to operate properly. For example, the wire saw requires 2 people to use - one skilled technician who will operate the saw and one helper who will support the technician. With this context, the plan is to have an experienced expat to operate the equipment and have a local Tanzanian worker to support the expat. This practice will allow the local worker to learn from the skilled technician, so that in due course of time, the local workers can take over the operation of the equipment. Using this approach, over the duration of the project, a majority (at least 70%) of the site workforce will be made up of locals.

## **V. Legal & Compliance**

The project will be carried out keeping in mind the required compliances and guidelines from the Ministry of Energy, the Mining Commission and the Tanzania Revenue Authority (TRA). The site has the necessary Environmental Clearance from National Environment Management Council (NEMC) and has paid its dues to the TRA. Further, STMM is in compliance with other regulatory dues and will continue to abide by the applicable fees and taxes, such as and royalties on sale of output and duties on sale/export etc, as the commercial production begins.

Apart from the above plans, which are site specific, STMM shall prepare a tailored Waste Management and Disposal Plan for the site in consultation with various stakeholders including the local community such as village leaders and local NGOs. As a responsible corporate citizen, STMM will ensure that it follows an environmentally sustainable approach of its operations, from site development all the way till winding down up of the quarry and disposing of waste materials.

Moreover, the Waste Management Plan will detail out the various waste materials at the sites or waste generated as part of the development or production process, including rocks, charcoal, wood etc, the plan will provide for the disposal of all of these materials. This may include donation and/or sale of useful or saleable material to the local community or villages.

## **VI.Environment & Community**

STMM runs its business keeping in mind community engagement as well as environmental stewardship, ensuring that the location where it operates is not damaged or degraded after its wraps up operations.

The environment and sustainability strategy followed by STMM covers the following domains to ensure that the project is carried out in line with STMM's core principles of sustainability –

- Environmental Sustainability
- Social Sustainability
- Water Management
- Energy and Carbon management
- Monitoring and review

Further, STMM plans and carries out activities to enhance the value of the site area. These includes various activities to improve and enhance the site in various ways as summarized below –

- Put in place processes for dust suppression and noise control
- Repurpose marble waste (sludge) into aggregates for use/sale, where possible
- Carry out some level of treatment of wastewater from the site so as to avoid contamination of the local groundwater
- Provide for medical and support facilities for all site staff
- Prepare for progressive land reclamation and reforestation at the time of wind up of operations

STMM has outlined an overarching strategy with the goal of responsible social and environmental stewardship. With this mindset, STMM has provided a

timeline for implementing the above plan spread across a 20-year period; this timeline is indicative in nature and do not reflect the actual Life of Mine (LOM).

STMM shall develop and run the site in a sustainable and ethical manner, ensuring that the natural resources at the site are not be damaged or poisoned. Further, the area as well as the local workforce and community will benefit from STMM's presence, as indicated by the plans above.

The above vision of a sustainable and environmentally friendly site will be achieved by applying a context-specific, multi-stakeholder approach that aligns with Tanzanian mining regulations, respects local ecosystems and communities and ensures long-term environmental, economic, and social well-being.

The site development phase will involve plans to participate in local charity activities and social responsibilities as a responsible and involved corporate citizen. All of these will benefit the local community and workforce. The above activities will be carried out in consultation with local Government bodies, village authorities and local NGOs.

## **Health and Safety**

STMM will keep in mind the safety and environment concerns when it begins commercial operations. The health and safety of all its site workers will be taken care of via procedures and plans put in place at the sites office and implemented by the site manager.

Further, STMM is in talks with a local security firm to provide security services at the sites. The same will be finalized after conversion of the PMLs.

## VII. Risk Management

There exist a few specific kinds of risks with respect to such mining projects, the primary ones being environmental risk, market risk and regulatory risk. The key types of risk and the relevant mitigation strategy is summarized in the table below

<b>Risk</b>	<b>Mitigation Strategy</b>
Geological Risk	Further drilling can be carried out to determine where to carry out extraction in the Mining License area.
Environmental Risk	<ul style="list-style-type: none"><li>• Prepare a suitable Environmental Management Plan (EMP) to ensure that the team can minimize the project's environmental impact.</li><li>• Combine this plan with the insights gained from the Environmental Impact Assessment (EIA) prepared for the site.</li><li>• Carry out monitoring to ensure that the project does not lead to damage or degradation</li></ul>
Market related risk	<ul style="list-style-type: none"><li>• Explore various untapped markets outside of Initial target regions</li><li>• Pursue and obtain deals and foster partnerships with long-term clients and buyers</li><li>• Adopt a flexible approach to sales and vary production accordingly</li></ul>

<b>Risk</b>	<b>Mitigation Strategy</b>
Regulatory risk	<ul style="list-style-type: none"> <li>• Ensure that the legal advisor monitors relevant announcements and directives</li> <li>• When required, take suitable course correction measures based on the reliable advice</li> <li>• Carry out periodic review of the compliance and regulatory oversight to ensure</li> </ul>
Operational Risk	<ul style="list-style-type: none"> <li>• Provide required training to local staff</li> <li>• Build and maintain supply chains and have a logistics backup plan in place in case of emergency</li> </ul>

## VIII. Fund Allocation for the Project

The processing facility that will be setup will have a production rate of 300 blocks/month, resulting in a monthly output of 90,000 sq. meters of slabs/tiles. The initial capex at the site will cover the site development including the quarry setup costs, such as machinery, equipment, civil & MEP, access roads etc. Next, STMM will bear capital expenditure to enhance the processing facility to be able to achieve the above production rate.

The initial operational expenditure for site development will be spread among staff related costs including salaries, repair & maintenance costs, overheads including compliances and utility fees, which will be different from the capital expenditure going forward.

The overall project funding is summarized below –

<b>Project phase</b>	<b>Major expenses</b>	<b>Expected investment amount (USD)</b>
Setting up of processing facility	Machinery and equipment	4.75 million
Enhancing quarry capabilities	Additional equipment and tools	1.5 million
Operational expenditure during development phase	Hiring and staffing costs, insurance, repair/maintenance of existing machinery, overheads etc.	1 million
Operational expenditure after development phase	Staffing costs, repair/maintenance costs, overheads etc.	1.5 million
Total		8.75 million

The source of funding for the site will be a combination of the company's equity and, as and when required, concessional loans/debt and reinvested revenue (once the project is cash flow positive). The average rate of inflation is taken at 3 -4% per year based on the inflation data for Tanzania.

### **Breakup Of Commercial Production Timeline**

<b>Phase</b>	<b>Expected months as per project timeline</b>
Site preparation, equipment procurement and workforce onboarding	0 – 12
Begin trial production and explore test sales	12 – 14
Scale up to full production (as per planned output of blocks produced per month)	14 – 18

## **IX. Marketing and Sales**

As mentioned in the Project Objective section above, there exists various opportunities to market Tanzanian marble to the masses. Coupled with the expected growth of marble demand in certain segments such as interiors and tiling, there is scope to establish STMM as the primary player in Tanzania.

Further, the quarry will be the leading marble quarry in the region, as the rest are small artisanal mining setups run by locals using basic equipment and machinery. Once fully developed and operational, the site will position STMM as a trendsetter in the region for developing and promoting marble.

STMM will be the vanguard for organized and professional marble mining in the Morogoro region.

The key target market for STMM is mentioned below -

- Tanzania (Dar, Arusha etc.)
- East Africa region, mainly Kenya and Rwanda (to start with due to established markets)
- MENA region – Key markets here are the UAE and Egypt

The key revenue channels for the marble are marble blocks and slabs and certain byproducts of the marble extraction process as summarized below -

- Raw marble blocks, which is the primary output of the project
- Cut-to-size blocks or slabs as addition once the processing facility is live
- By products - Marble chips, dust etc. for industrial use. For example, in the local cement industry

The main channel utilized as part of the sales strategy will involve a B2B sales approach coupled with leveraging the existing network and connections of the firm and its parent entity. Over the course of time, as the reputation and

credibility of the marble from the site is built, STMM will expand its marketing strategy to include expanded online response and content.

The key channels that shall be used to drive business development and sales are summarized below –

<b>Type of sales channel</b>	<b>Phase of project lifecycle</b>
Direct B2B sales (including construction & interior firms, builders, wholesalers etc.)	From start of commercial production
Agents, third-party firms & exporters	From start of commercial production
Digital presence (B2B portals, professional website, digital catalog etc.)	From ramp up of operations and/or securing of large/long-term contracts

## **X. Social Responsibility/CSR**

STMM is committed to protecting and improving both the local environment and the larger community in the region around their sites. With this mindset at the heart of all its operations, the firm plans as well as executes its day-to-day activities with the underlying principle of preservation of the environment and the local community.

With this context, the site team will ensure that the mining carried out will not damage the local ecology via pollution of local water bodies or dumping of harmful waste materials from the site. There are no toxic by-products of marble extraction; further, the waste generated at the site will be taken care of in a responsible manner. As commercial operations ramps up after the development phase, STMM shall participate in local charity activities to further support the local community. In order to maximize the impact on the ground, this process will be based on consultations with local Government bodies, village authorities and local NGOs.

Th above vision of a sustainable and environmentally friendly site will be achieved by applying a context-specific, multi-stakeholder approach that aligns with the local community, ensuring environmental and social well-being. This process will involve conversations with local stakeholders, including local village heads and workers/volunteers from non-profits operating in the region. STMM will also carry out sustainable management of the local flora and soil with a view to allow for land reclamation post quarrying.

Over time, this project will be in sync with the global (small scale) mining best practices as well as contribute to relevant total Sustainable Development Goals (SDGs) out of the 17 broad goals designated by the UN.

Overall, the project will lead to local job creation as well as development of a local logistical ecosystem around the site.