SASA MINING GROUP

GRAPHITE MINING BUSINESS PLAN

2023 - 2027

TANZANIA

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EXECUTIVE SUMMARY

SASA Mining Limited (SASA) is a private owned company registered in Tanzania founded by Salim Hamud Salim and Salim Alaudin Hasham in 2021. The company has a number of sites across Tanzania prominent for extraction and producing different type of minerals. This move is in line with Tanzania's 2025 Vision that projects mining sector contribution will be 10% of the Gross Domestic Product (GDP). SASA Mining has a team of well-versed and experienced individuals in the mining sector.

In 2015, The Ministry of Energy and Minerals (MEM) announced the abundant discoveries of graphite fields across the country making Tanzania one of the largest producers of graphite in the world. The announcement came at the right time that Tanzania was reforming its mining legal and policy framework to stimulate and promote various players for the mining sector's general development. Tanzania's estimated graphite reserves in 2019 was 18 million tons ranking 5th in the world after Turkey (90 million tons), China (73 million tons), Brazil (72 million tons) and Mozambique (25 million tons).

Two forms of graphite used in the world today, are natural and synthetic.
Natural Graphite is a gray, crystalline, allotrope of carbon, with its atoms arranged in a hexagonal structure and has a metallic luster. High temperature and high pressure are the pre-requisites conditions for the conversion of amorphous carbon materials to crystalline graphite. Graphite is not a metal but consist of metal-like properties that includes heat and electrical conductivity.

Synthetic graphite is manufactured by using high temperatures furnaces of 2500-3000°C and long heating times to graphitize carbon materials such as petroleum coke and coal tar pitch for the production, making it is a high-cost product.

In the global market, China is a leading country producing roughly 780,000 metric tons in 2017. According to the United States of America Geological Survey, China accounted for about 65% of global graphite mining in 2016, and 35% of consumption. India follows China with the highest production level of 150,000 metric tons, others are Brazil, Mozambique, Madagascar, Zimbabwe and Russia.

In 2019 the global graphite market was valued at $14.3 billion, and is expected to reach $21.6 billion by 2027, registering a Compounded Average Growth Rate (CAGR) of 5.3% in seven years. The global price of graphite per metric ton in 2019 was $690.

In Tanzania apart from SASA Mining, other investors both local and international have started graphite development activities including Magnis Resources, Volt Resources, EcoGraf, Walkabout Resources, and Black Rock Mining. Most of these companies are still at exploration that full production stages have not been realized yet.

SASA taking cognizance of this opportunity has acquired graphite sites of Kiruani, Simanjiro for graphite business development, which includes putting graphite quarries in Kiruani, Simanjiro and purifying plant at Kiruani, Simanjiro in Manyara Region. The sites have enough deposits to sustain supply of SASA Graphite purifying plant.

The company seeks loan financing capital of Usd 2 Millionsa to undertake the project – details in **Annex 4.** Upon commissioning the plant, Group revenues are estimated to be above Tshs 100 billion annually, enough to cover operations cost and resultant cumulative retained earnings in year six is over Tshs 718 billion. The cash flows are enough to repay loan plus 6% interest fully by year 2.

In addition to generating profits, other benefit of the project includes foreign exchange earnings and creation of employment (direct & indirect).

IMPORTANT NOTICE TO INVESTORS

SASA Mining has prepared this business plan with the intention of guiding prospective investors/lenders/financiers to make informed decision of funding the graphite production in Tanzania.

The information contained in the Business Plan has been compiled with due professional care and in good faith and reflects prevailing conditions as of the date of publication. No representation or warranty is made regarding the accuracy or completeness of the Plan.

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ABBREVIATIONS

SME	-	Small to Medium-sized Enterprises
TBS	-	Tanzania Bureau of Standard
NEMC	-	National Environmental Management Council
EAC	-	East African Community
PPP	-	Public Private Partnership
TIC	-	Tanzania Investment Centre
ICT	-	Information Communication Technology
OSHA	-	Occupation Safety Health Association
TGC	-	Total Graphitic Carbon
GDP	-	Gross Domestic Product
CAGR	-	Compounded Average Growth Rate
STAMICO	-	State Mining Corporation
MEM	-	The Ministry of Energy and Minerals
USA	-	United States of America
EU	-	The European Union
SASA	-	SASA Mining Limited

GLOSSARY OF TERMS

Equity Capital: The Equity Capital sourced from investors in relation to financing of this project.

Loan Capital: Borrowed funds usually from a bank or other lending institution. Normally loans bear interest, are granted for a fixed term (period), are repayable over that period (at fixed intervals) and are secured by guarantees.

Forex: Foreign exchange

Investment criteria: The conditions that these projects satisfy in order to attract investors to consider making an investment (e.g., market prospects, management capability, financial adequacy, enabling environment, etc.).

Enabling environment: This consists of the infrastructure, legislation, government policies, public and private sector institutions and social services available in Tanzania, that assuredly and consistently provide the paper industrial sector with the minimal requirements necessary to operate competitively and profitably.

1. INTRODUCTION

SASA Mining Limited (SASA) is a private owned company registered in Tanzania founded by Salim Hamud Salim, and Salim Alaudin Hasham in 2021. The company has a number of sites across Tanzania prospecting for extraction and production of different type of minerals, including; Graphite, Nickel, Gold, Diamond, Feldspars, Clear Quartz, Green Aventurine, Gypsum, Apatite, Blue Apatite, Green Apatite, Magnesite, Iron ores, Blue agate, Moonstone, Rhodolite garnets, Red Garnets, Green Garnets, Sunstone, Kyanite, Green Kyanite, Rutilated Quartz and Limestone.

This move is in line with Tanzania's 2025 Vision that projects mining sector contribution will be 10% of the Gross Domestic Product (GDP). SASA Mining is a fully operating company with a team of experienced and well-versed individuals in the mining sector.

The company project to mine, process and produce 500 tons of Graphite per day short term to 1,000 tons long term horizon. It has in its possession a total area of 884.58 square km for minerals prospecting and 168.47 Hectors ready for mining of Graphite, Feldspar, Gold and Black granite. The company is set to start with graphite mining and processing.

There are two forms of graphite used in the world today, natural and synthetic.
Natural Graphite is a gray, crystalline, allotrope of carbon, with its atoms arranged in a hexagonal structure and has a metallic luster. The substance is one of only two naturally occurring forms of carbon and occurs in a planar molecular structure of two dimensional. The substance is formed through the development and metamorphosis of carbon-intensive materials found in rocks leading to graphite lumps, amorphous graphite, and crystalline flakes. High temperature and high pressure are the pre-requisites conditions for the conversion of amorphous carbon materials to crystalline graphite. Graphite is not a metal but consist of metal-like properties that includes heat and electrical conductivity.

Natural graphite is only formed in either metamorphic or eruptive environments. Occurrences in metamorphic environments are much more common than those in igneous environments. It can also be found in a sedimentary environment system as a product of erosion. Natural graphite comes in three forms: amorphous, vein, and flake.

Amorphous, due to its tendency to strongly adhere to the surrounding minerals, is difficult to recover to purities above 85% Total Graphitic Carbon (TGC) using conventional mineral

processing methods and is therefore not used in high-tech applications due to additional processing costs. An in-depth analysis of how and why amorphous graphite forms is beyond the scope of this business plan. Suffice it to say, graphite is found in the earth's crust in various geologic environments where solid carbon was deposited, in one form or another, and then converted by heat and pressure into graphite.

There are two types of Graphite mines are found all over the world Open mining and Underground mining. Open pits mining uses a process called quarrying, where graphite is obtained by breaking rocks with explosives or through drilling. Underground mining which is undertaken when the graphite ore is deep underground, and uses processes like drift mining, hard rock mining, shaft mining, and slope mining.

On the other hand, Synthetic graphite is manufactured by using high-temperature treatment to graphitize carbon materials such as petroleum coke and coal tar pitch. The high temperatures of 2500-3000°C furnaces and the long heating times for production of synthetic graphite makes it is a high-cost product.

In the early twentieth century, the use of alloys and composites led to a revolution in materials technology, resulting production of materials that were stronger and lighter than their predecessors. Recently, scientists and engineers have discovered that these alloys and composites can become even more astounding, by using as an additive to a revolutionary material called graphene. Graphene is used in alloys and in many other capacities.

In the global market, Asia is the leading continent with China in 2017 producing roughly 780,000 metric tons. According to the United States of America Geological Survey, China accounted for about 65% of global graphite mining in 2016, and 35% of consumption. Second to China is India with the highest production level of 150,000 metric tons. Apart from Asia having the highest mining production, there are also mines activities in South America led by Brazil, Africa, and Europe. In 2017 Brazil produced 95,000 metric tons of graphite.

In 2019 the global graphite market was valued at $14.3 billion, and is expected to reach $21.6 billion by 2027, registering a Compounded Average Growth Rate (CAGR) of 5.3% in seven years. The global price of graphite per metric ton in 2019 was $690.

In Africa before the discoveries of Graphite in Tanzania the following countries were already producing graphite for the world market, that is Mozambique, followed by Madagascar and Zimbabwe.

The discoveries of graphite in Tanzania are not a surprise as the country is endowed with vast quantities and types of mineral resources whose extraction has been central to the country's economic growth. Among its mineral riches the country has vast amounts of gold, diamonds, gemstones and gas deposits.

Historically, the mineral sector was among the investments that was affected by nationalization policy to produce the State Mining Corporation (STAMICO) in 1970. STAMICO's role was to supervise the minerals sector development. Although a number of mining operations were opened, sector growth was restricted by the nature of the mining activities which are capital intensive needing expensive investments, unfriendly market regulations and restrictions, and smuggling, consequently STAMICO failed to meet the challenges hence forth a number of mines especially Gold were closed. While the contribution of mining sector to Gross Domestic Product (GDP) was 3 to 4%, by 1980s, this dropped to only 1%.

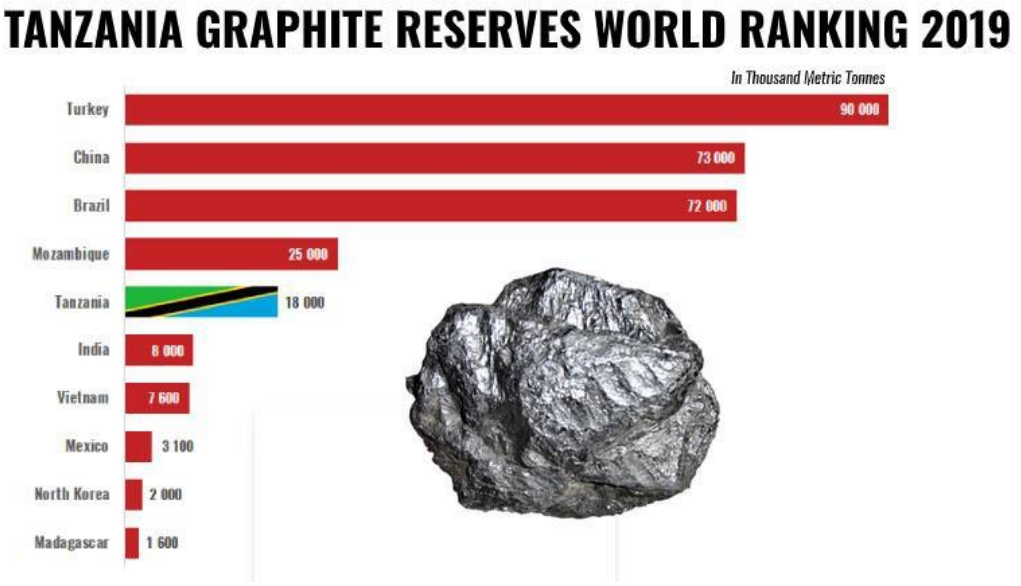
In the early 1990's Tanzania started changing its policies and move away from a centralized state to a market-based economy, letting private sector to engage in the operations of different industries including mining to boost the declining economy. Through the reforms, Government's role in the mineral sector changed to that of providing clear policy guidelines, stimulating and promoting the sector's various players for the sector's general development.

The reforms such as the 1998 Mining Act and the 1999 Mining Regulations led Tanzania's mineral sector to experience a flourishing business and hence the country's high and stable economic growth registered so far. Gold led the growth with the commissioning of six large scale mines at Geita, Bulyanhulu, North Mara, Nzega, Buhemba and Tulawaka, in addition to various mineral prospects and extraction including Diamond, Tanzanite, coal, hydrocarbons, nickel and uranium across the country. This made the mineral sector the fastest-growing sector after tourism, almost doubling its contribution to GDP from 2% of GDP in 1998 to 3.5% of GDP in 2008.

According to Bank of Tanzania statistics, the quarter ending December, 2013, mineral exports were the leading forex earners accounting for $539.4 million (33.6%) of the total $1,606.8 million. Moreover, the sector contributed 3.3% to GDP growth in 2013, much of this contribution coming from gold mining which is the largest mining sub-sector in the country. Mining sector

contribution to Tanzania's macroeconomy is linked to Foreign Direct Investment (FDI), exports/foreign exchange generation, fiscal payments, GDP enhancement and increased employment.

By end of 2015, The Ministry of Energy and Minerals (MEM) announced the abundant discoveries of graphite fields across the country making Tanzania one of the largest producers of graphite in the world. The announcement comes at the right time now that Tanzania has a new mining legal and policy framework in place. Tanzania's estimated graphite reserves in 2019 is 18 million tons ranking 5th in the world after Turkey (90 million tons), China (73 million tons), Brazil (72 million tons), and Mozambique (25 million tons)



Already various investors both local and international have started activities in Tanzania's graphite including Magnis Resources, Volt Resources, EcoGraf, Walkabout Resources, and Black Rock Mining. Most of these companies are still at exploration that full production stages have not been realized yet. SASA has identified the present opportunity of mining graphite and is set to put quarries in Kiruani, Simanjiro, and purifying plant at Kiruani, Simanjiro, Manyara. Kiruani, Simanjiro sites have enough deposits to sustain supply of SASA Graphite purifying plant.

The company seeks loan financing capital of Usd 2 Millionsa to undertake theproject – details in **Annex 4.** Upon commissioning the plant, Group revenues are estimated to be above Tshs 100 billion annually, enough to cover operations cost and resultant cumulative retained earnings in year five is over Tshs 718 billion. The cash flows are enough to repay loan plus 6% interest fully by year 2. In addition to generating profits, other benefit of the project includes foreign exchange earnings and creation of employment (direct & indirect).

2. VISION

SASA is striving to be the best producers and suppliers of purified graphite flakes in Africa to meet and exceed the customers' expectations.

3. MISSION

SASA's mission is to provide best purified natural graphite flakes in the World market to cover supply gaps existing due to availability.

The company will operate business in an environmentally responsible, efficient, safe and respectful manner, using sustainable practices both for the products as well as the process used. As such the company is committed to work and cooperate with all key stakeholders; Government, employees, shareholders, customers and the people in the communities surrounding, in a responsible; mindful of the economic, environmental and social impacts of its operations.

The company's approach to achieve its business mission is based on committed team values and quality management.

Company Values

- ➢ Best producers
- ➢ Quality Oriented
- ➢ Safety and Reliability
- ➢ Integrity

4. OBJECTIVES

The main objective of SASA business plan is to guide prominent financiers to take informed decisions and fund the purchasing of equipment and machinery for the graphite purifying plant in Tanzania for the production and supply of purified graphite flakes to the world market.

4.1 COMPANY STRATEGY

SASA's focus is on producing best graphite flakes and all other small quantities of minerals found during the processing of graphite flakes will be regarded as bye products due to smaller quantities obtainable.

Overall, the company's strategy is to provide quality products. SASA's success will be attained through employment of able management, committed employees and appropriate mining and purifying technology.

The keys success factors are:

- Attaining targeted revenues levels for profit maximization.
- Controlling costs while spending reasonably on its operations.
- Mining and processing
- Quality products through operations, carefully monitoring and following up market in terms of customers' quality response, essentially for continuous improvement, flexibility in service provision and customer retention.

SASA is highly flexible in monitoring and reviewing implementation plans and revise its strategies and tactics whenever necessary, while continuously researching on information that will enable tapping potentialities within the industry, identify opportunities and constraints for developing appropriate technology and innovative mechanisms.

At all times the company will collaborate with value chain partners and stakeholders who are critical to the success of the business, including Suppliers, Banks, Government, investors, Customers, and employees.

5. MARKETING PLANS

The target market is global Industries dealing in electrodes, refractories, lubricants, foundries, batteries, graphite shapes, recarburizing, and others. **Annex 1**

5.1 Market Driver Analysis

Leading market-deriving forces of natural graphite are refractories, steel, batteries, and expandable graphite. Natural flake graphite improves the resistance of refractory materials toward heat and erosion.

Looking ahead, demand from the steel industry is expected to remain flat given the maturity of this market. Demand for graphite from the lithium-ion battery market holds a lot more growth opportunity and is set to pick up more speed.

Grade, shape, flake size, and purity (carbon content) are the determinant factors for each application. Markets may demand all the aforementioned types of graphite. The particle size of graphite flake is usually classified as supper jumbo, large flake and fine.

Removal of any impurities within the lattice structure helps to attain a highly purified graphite material for high-end technological applications.

According to the USA and EU markets, graphite is considered a critical material for both industry and security. The demand for graphite is expected to continuously increase in the coming years. In 2015–2016, the total graphite production in the world was about 2.5 million tons, major producing countries being China (66%), India (14%), Brazil (7%), Turkey (3%), Canada (3%) and North Korea (3%). Globally, natural graphite usage for 2016 was as follows: electrodes (34%), refractories (20%), lubricants (6%), foundries (5%), batteries (4%), graphite shapes (4%), recarburizing (1%), and others (24%).

Market segment	2018 consumption in thousand t	2025 demand in thousand t	CAGR
Batteries	133	695	27
Refractories	436	437	<1
Foundries	133	152	<1
Other	245	298	2
TOTAL	**947**	1,582	**7.6**

Current and future demand for major natural graphite applications (ROSKILL 2019)

5.2 Market Restraint Analysis

The monetary value of natural graphite flakes depends largely on carbon content and flake size. Purified high-quality graphite material with impurities reaching about 10 - 100 mg/kg, attracts a lot of end users.

The physical separation of graphite from its ore body is expensive, energy intensive and time-consuming.

5.3 Industry Challenges

Bulk packaging and transportation mode to reach the market. Synthetic graphite & graphene usage in some Industrial applications is reducing usage of natural graphite flakes and its pricing.

Due to limitation on availability of natural graphite flakes globally, the demand is high that customers are exploring new technologies to cover the gap. Natural graphite mining and purification requires heavy investment in term of equipment and machinery.

6. PRODUCTION PLANS

SASA Graphite is produced from the mining and purification process. Since the graphite at the site is exceptionally close to the surface, SASA use open pit methods to extract rock, that is quarrying process where graphite will be obtained by both breaking rocks with explosives and through drilling.

From the mining quarry Graphite processing plant will crush and grind graphite ore and separate the flakes of graphite from the waste rock - flotation. The result is a concentrate that is generally 94 percent graphitic carbon or higher.

The concentrate is then screened to separate flakes of different sizes because larger sizes sell for higher prices. A premium is also paid if the purity is higher than 94% and the price is discounted if it is less. Production plans are availed in annex 2.

7. SWOT ANALYSIS

7.1 Strengths

- SASA is reputed for working honestly, transparent and with integrity.
- Discovery of large deposits of natural graphite. World market demand of natural graphite.
- SASA graphite mining sites are situated closer to rail transport.
- Graphite processing machinery will apply latest available and modern technology to ensure quality products.

7.2 Weakness

- SASA will need capital loan to implement this project.

7.3 Opportunities

- Availability of financiers worldwide who eager to fund developmental projects.
- Increased demand of natural graphite.

- Government industrialization promotion and encouragement of private sector participation in industrial investment opportunities.

7.4 Threat

- Higher transportation costs to the market.
- High cost of investment in infrastructure, technology and expertise.
- Usage of synthetic graphite as substitute for natural graphite.

8. PROJECT BENEFIT ANALYSIS

8.1 Justification

The project justifies being implemented since graphite demand in the world market is increasing while supply is limited with only few suppliers. Large deposits of graphite found in Tanzania justifies extraction, an opportunity that SASA would take advantage to be one of the world graphite suppliers.

8.2 Social and economical

The products are traded in foreign trade attracting foreign currency earnings. Employment opportunity creation in the mining and purifying activities. Support the mining sector in attaining the contribution of 10% to the Country's GDP in 2025 vision.

8.3 Environmental impact

SASA will undertake environmental impact analyses with a view of drawing up programs to addressing negative impacts. To cope with the increased environmental regulations in mining sector, in the years to come SASA is positioned to invest in new and improved technologies as the need may arise.

9. PESTLE ANALYSIS

Without sound macroeconomic policies many of the national benefits arising from mining unravel.

Political

Government is improving investment and business environment by tackling various challenges hindering investment though Acts and Guidelines. The Government is stimulating exploration and mining development offering incentive schemes to promote mineral beneficiation

Politically, Tanzania is a relatively stable country with a strong democratic tradition and currently there is limited domestic pressure for reforms or improvements in governance. This has implications for the degree to which the economic and social benefits of mining can be enhanced.

Economical

Large deposit of graphite discovered sustain long term mining prospects. Government institutions promotes and facilitate mineral and mineral-based products marketing arrangements integration of mining sector into the economy for a creation of a strong backward and forward linkages.

Fostering of economic inter-dependence between mining and other sectors by ensuring that mining benefits accrue to the rest of the economy especially through value addition maximization.

The Government concentrates its efforts on being the sector's regulator, promoter, facilitator and service provider.

Notable improvements on how the Government solve various challenges existing when doing business in Tanzania such as access to work permits, taxes, payments delays, bureaucracy.

Development of small-scale mining is given more emphasis, there is more focus to promote economic integration of the mineral sector with the rest of the economy, including the promotion of value-added activities.

There is increase in the amount of revenue that government receives from the sector and allow for strategic government participation in mining projects. Opportunity for developing the country's ability in providing essential inputs to the mining sector.

Encouraging mining companies to contribute to local economic development by using local inputs whenever this is economically viable.

Investment infrastructure is promoted through Tanzania Investment Centre (TIC) provides a number of benefits and incentives to be enjoyed by investors upon registration and implementation of projects plans.

Social

Efforts are undertaken to ensure that mineral resource extraction not only put Tanzania into the map of foreign capital flows but also benefits its local citizens. There is tendency that mineral extraction causes problems for people living at the local mine-site level.

The country is taking precautions against Covid pandemic through all measures undertaken worldwide including voluntary vaccinations.

Human capital development and local community involvement and participation in mining activities.

Encouraging and motivating foreign investors in mining to train Tanzanians in different skills;

Facilitating the establishment of strategic partnerships between mining companies and the local communities.

Technological

Graphite structure-property relationship it affords a variety of technologically innovative applications or performances in industries, such as lithium-ion batteries, fuel cells, two-dimensional graphene, water purification, electronics, fiber optics, spintronics, refractories, electrical products, electric vehicles, etc Encouraging the acquisition of modern cost-effective technologies to produce high quality mineral products for world markets.

Graphite is a good conductor of heat and electricity and has a high regular stiffness and strength. Graphite can sustain its firmness and strength up to temperature more than 3600 C.

It is a highly lubricating material with chemical inertness and corrosion resistance.

Legal

The Government's role in the mineral sector is to provide clear policy guidelines, stimulate and promote the sector's various players, and see to the sector's general development.

The Mineral Policy and Mining Act of 1997 and 1998

The Mineral Policy of 2009 aims to address a number of challenges faced by investors, and strengthen the sector's legal and regulatory framework in order to enhance government capacity. Fiscal and tax regulations for the mining sector are regularly reviewed.

Mining Act (2010) was enacted to guide the legal and regulatory framework for the sector. Relevant policy to ensure that mining wealth supports sustainable economic and social development. A country drive to minimize or eliminate adverse social and environmental impacts of mining

Environment

The country requires large scale mining companies to undertake social impact analyses on the communities and project areas and explicitly incorporate results in the project viability and draw up programs for addressing negative impacts. The increased environmental regulations associated with mining, in the years to come will require mining companies to invest in new and improved technologies.

10. THE MARKETING STRATEGY (4 P'S)

10.1 Pricing Strategy

There are no standard quoted prices for natural graphite and there is no spot or futures market. Actual transactions in the marketplace are largely based on direct negotiations between the buyer and seller. SASA prices are provided in **Annex 1**

10.2 Product Strategy

SASA will produce Graphite of the following flake sizes: Super Jumbo, jumbo, large and small flake. The flakes are of different sizes because larger sizes sell for higher prices. A premium is also paid if the purity is higher than 85% and the price is discounted if it is less. **Annex 1**

10.3 Promotion Strategy

Graphite flakes need to be of acceptable quality and size to compete in the market. Since the market is foreign, the strategy is to promote the product in international media both digital and hard news, indoor and outdoor advertising to creating awareness of the products availability and quality**. Annex 1**

10.4 Place Strategy

SASA mining and production of graphite will take place at Manyara Region. Selection has considered proximity of mines to transport and other vital services required for production. The quarries are in Kiruani, Simanjiro, and purifying plant at Kiruani, Simanjiro, Manyara. Kiruani, Simanjiro sites enough deposits to sustain supply of SASA Graphite purifying plant.

11. SALES STRATEGY

Excellence in quality service offering is the first step toward retaining customers and a key to closing the doors for competitors. SASA strategy is to ensure quality products are offered in the market, plus offering bulk orders discounts to customers.

12. COMPETITION

Competition Analysis using Porter 5 Forces Model assures that the company is able to obtain profits as analyzed below:

Competition among existing firms: Competition is low. Industry profitability is high due to low operating cost and rising demand of quality and affordable graphite.

Threat of new entrants: This is low due to limitation on the availability of graphite ore in only certain areas. Also, the availability of foreign loan/finances at moderate interest rates for mining investment is lower hence may deter new entrants.

Threat of substitute products: High. The products can be substituted to realize same productivity – synthetic graphite. Batteries industries prefer using synthetic graphite.

Strength of buyers: Buyer bargaining power is moderate because of limited supply as well as availability of substitute synthetic graphite.

Strength of suppliers: Moderate. Suppliers of natural graphite are few and the cost of investment is high.

13. HUMAN RESOURCES PLANS

Human resource is key asset of the company. With proper usage and management, SASA is set achieve its business objectives as planned. The selection and recruitment of staff is done commensurate with the required qualification and further in-house staff trainings is provided.

Organization structure is available completed with clear roles and responsibilities that assures individual and group performances are managed. Achievements of business and individual goals will form the basis for salary reviews and bonus considerations. Skills training are enhanced to improve competence levels of human resource. Organization structure is provided in **Annex 3.**

14. FINANCIAL PLANS

Company financial reporting system is enhanced and continuously developed to cater for managerial reporting needs as well as for taxation purposes. Half year and Full year management reporting will be enhanced so that shareholders and other stakeholders are kept abreast of company performance. A complete set of financial projections for a 6-year period is displayed at **Annex 4** and

is to be read in conjunction with the commentary set out below. All values are shown in Tanzanian Shillings unless specified otherwise.

In accordance with standard practice, all income, investments, costs and expenses are shown in constant value, i.e. do not include any adjustment factor for inflation. The rationale for this is that:

(a) the inclusion of inflation assumptions is arbitrary, subjective and unlikely to prove realistic, while running a real risk of constituting a distorting factor that would prejudice intended purpose of the projections;

(b) the use of constant value projections is preferable when calculating returns on investment since results give a true and more conservative present value of a discounted series of future cash flows.

14.1 Fixed Assets

14.1.1 Additions and Renewals

The company has a policy of replacing machinery, furniture and equipment when they are worn out and beyond repair. The company does not anticipate incurring renewals costs in the next 6 years.

14.1.2 Depreciation

All tangible fixed assets are depreciated on a fixed sum straight-line basis. Machinery is depreciated at the annual rate of 12.5%, Furniture & Fittings are depreciated at the annual rate of 12.5%. ICT equipment and software is depreciated at the annual rate of 50%. Other equipment is depreciated at the annual rate of 12.5%. Fees and pre-opening costs are depreciated at the annual rate of 25%.

14.2 Staffing levels

SASA organization structure and cost associated with positions is provided in **Annex 3**

14.3 Projected Income and expenditure

The income and operating costs for 6 years period is presented in **annex 4.** On the basis of the assumptions used, the Profit & Loss Account for the project shows retained net earning after-tax and loans increasing year after year.

14.4 Cash Flow Projection

Cash flow projections show positive overall net cumulative cash position throughout the 6-year period under review. The Project cash flow is entirely regulated by the incoming flow of revenue from sales, which are made to correspond with outflows of funds in expenditures. **Annex 4**

14.5 Balance Sheet Projections

The year-on-year increase in assets is observed throughout first six years planning reflecting the internal growth in assets of the company financed through the annual Revenues. After two years the project is no longer being leveraged through borrowings thus has no long-term liabilities. **Annex 4**

15. EXIT STRATEGY

In the event of implementation, the project becomes unsuccessful, SASA will apply all necessary measures to cover its debts and obligations. Any remaining debt will be paid by shareholders in the form of negotiated and agreeable monthly payment installments until all debts are paid in full.

16. CONCLUSION

SASA is set to start graphite mining, processing and producing flakes of different sizes as required by the market. The discovery of large deposits of graphite ore in the country is a great opportunity available to investors like SASA and sustain long term mining prospects. The company project to mine, process and produce 100 tons of Graphite per day short term to 1,000 tons long term horizon. This is facilitated by the company's possession a total area of 884.58 square km for minerals prospecting and 168.47 Hectors ready for mining of Graphite.

The Government of Tanzania and its institutions have been promoting and facilitating mineral and mineral-based products marketing arrangements, as a way of stimulating exploration and mining development.

Global production of graphite year 2015–2016 stood at about 2.5 million tons,

major producing countries being China (66%), India (14%), Brazil (7%), Turkey (3%), Canada (3%) and North Korea (3%). Likewise, its usage was in various industries such as electrodes (34%), refractories (20%), lubricants (6%), foundries (5%), batteries (4%), graphite shapes (4%), recarburizing (1%), and others (24%), making it a worthwhile business for investors.

The monetary value of natural graphite flakes depends largely on carbon content and flake size. Purified high-quality graphite material with impurities reaching about 10– 100 mg/kg, attracts a lot of end users.

In Tanzania various investors both local and international have shown interest in Tanzania's graphite including Magnis Resources, Volt Resources, EcoGraf, Walkabout Resources, and Black Rock Mining. Nevertheless, most of these companies are still at exploration that full production stages have not yet been realized.

SASA has embarked business plan to guide prominent financiers to take informed decisions and fund the purchasing of equipment and machinery for the graphite purifying plant in Manyara, Tanzania, for the production and supply of purified graphite flakes to the world market. The company's focus is on producing best graphite flakes and all other small quantities of minerals found during the processing of graphite flakes will be regarded as bye products due to smaller quantities obtainable.

SASA is set to put quarries in Kiruani, Simanjiro, and purifying plant at Kiruani, Simanjiro, Manyara. Kiruani, Simanjiro sites have enough deposits to sustain supply of SASA Graphite purifying plant.

The company seeks loan financing capital of **Usd 2 Millionsa** to undertake the project – details in **Annex 4.** Upon commissioning the plant, Group revenues are estimated to be above **Tshs 100 billion** annually, enough to cover operations cost and resultant cumulative retained earnings in year six is over **Tshs 718 billion**. The cash flows are enough to repay loan plus 6% interest fully by **year 2**.

In addition to generating profits, other benefit of the project includes foreign exchange earnings and creation of employment (direct & indirect).

ANNEX 1 MARKET PLANS

1. Marketing Objectives

SASA is set to produce and supply quality graphite flakes of different size to satisfy graphite market. The Company recognizes that customer experience is the key differentiator to stand out in the market, and essential for increasing customer satisfaction.

2. Products

SASA Graphite is gray to black in color, opaque to visible light even in thin section, and has a metallic luster. It is soft, with a Mohs hardness of 1-2 (Mohs 1=talc, Mohs 2 = gypsum, Mohs 10= diamond), is flexible, not elastic, and is sectile. Graphite has high thermal and electrical conductivity, is highly refractory (infusible in blowpipe), and chemically inert.

The products will avail in the market Graphite flakes in the following sizes.

Classification	Flake size	Total Graphite Content
Super Jumbo	>500	>85
Jumbo	300 – 500	85
Large Flake	150 – 300	>85
Flake	106 – 150	>85
Large Flake	150 – 300	83 – 85
Flake	106 – 150	83 – 85

3. Target Market

China, India and Korea

Customers	Common
Electronic, refractories, automobiles, aerospace and medicine industries.	High quality graphite flakes of TGC >85

4. Competition

Image	Company	Activity	Capacity
	Volt (Australian) 2018.	Bunyu Graphite project - Mtwara	400,000 tons of ore and 23,700 tons per year
	Evolution Energy Minerals (Australian) 2022	Chilalo Graphite Project in southeast Tanzania	

	Kibaran Resources	Epanko Graphite Project – Mahenge	60,000 tons per year
	Black Rock Mining Ltd (Australian)	Mahenge Graphite	212 m tons deposit
	Magnis Resources (Australian)	Nachu Graphite Project Lindi	240,000 tons per year
	Walkabout Resources (Australian) 2021	Jumbo Graphite Project – Lindi	

Production stages have not been reached yet.

5. Marketing Strategy

The Company will use forward contract sales with prospective customers.

6. Products Strategy

SASA plant will be optimized for flake size retention, without damaging or breaking large flakes, thus increasing its product grade above 85% TGC whilst preserving and maintaining exceptional large flake size distribution.

In recent years, due to the more and more extensive use of lithium-ion batteries, graphite, as one of the main raw materials for the production of lithium-ion batteries, has attracted more and more attention from the international mining industry.

Description Image	**NATURAL GRAPHITE FLAKES** 
Value & Benefits	Ideal for uses in electronic products such as electrodes, batteries, and solar panels, useful in refractories in high temperature material processing applications, widely used in automobiles to aerospace and medicine industries.

Uniqueness	Excellent conductor of heat and electricity, good chemical stability at room temperature, and resistance to acid, alkali, and organic solvents.

7. Pricing Strategy

The monetary value of graphite depends largely on carbon content and flake size. SASA having considered the global price range of carbon content and flake, it has discounted the products prices to be as follows:

Classification	Flake size	Total Graphite Content	Price $
Super Jumbo	>500	>85	4,000
Jumbo	300 – 500	85	3,000
Large Flake	150 – 300	>85	2,500
Flake	106 – 150	>85	2,000
Large Flake	150 – 300	83 – 85	1,000
Flake	106 – 150	83 – 85	850

Method	Tactics	Price Factors
Market rates less discounts.	The prices are calculated based on global graphite prices less company discount.	Marketing Objectives
		Demand and Supply
		Carbon Content & Size

8. Place Strategy

SASA is set to put quarries in Kiruani, Simanjiro, and purifying plant at Kiruani, Simanjiro, in Manyara region. Kiruani, Simanjiro sites have enough deposits to sustain supply of SASA Graphite purifying plant, and also has an advantage of being closer to rail and road transport, necessary for hauling bulk cargo to Dar es salaam port.

9. Promotion Strategy

Key Promotional messages for customers

High quality graphite flakes- product of Tanzania – **quality, affordable, and good appeal**.

Channel of communicating products

- Establish business relationships with buyers of graphite flake within the target market.
- Develop an online presence by developing a website and placing the Company's name, Product range and contact information with online directories.

ANNEX 2. PRODUCTION PLAN

1. Production Planning

Planning is a vital function that ensures company's ability in providing products and services according to specifications, quality and time as specified by customers and thus satisfying their demands.

MINING							
Graphite Mining	TGC	10%	10%	10%	10%	10%	10%
Graphite ore p.d - tons	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Graphite ore p.m - tons	26 Days	31,200	31,200	31,200	31,200	31,200	31,200
Graphite ore p.a – tons		374,400	374,400	374,400	374,400	374,400	374,400
Contained graphite p.d		117	117	117	117	117	117
Contained graphite p.m		3,042	3,042	3,042	3,042	3,042	3,042
Contained graphite p.a		36,500	36,500	36,500	36,500	36,500	36,500

GRAPHITE PROCESSING PLANT

PROJECTED PRODUCTION	**TGC**						
Graphite Flake Plant	10%						
Description							
Working Hrs. per Shift / day		8	8	8	8	8	8
Number of Shifts / days		3	3	3	3	3	3
Working days p.a.		312	312	312	312	312	312
Plant Capacity p.a.		374,400	374,400	374,400	374,400	374,400	374,400
Plant cap utilization		90%	100%	100%	85%	80%	80%
Av Production Cap p.m.	tons	3,120	3,120	3,120	3,120	3,120	3,120
Production Target p.m.	tons	2,808	3,120	3,120	2,652	2,496	2,496
Production Target p.a	tons	**33,696**	**37,440**	**37,440**	**31,824**	**29,952**	**29,952**
PRODUCT MIX (Tons)							
Super Jumbo	**3%**	1,011	1,123	1,123	955	899	899
Jumbo	**3%**	1,011	1,123	1,123	955	899	899
Large Flake	**9%**	3,033	3,370	3,370	2,864	2,696	2,696
Flake	**15%**	5,054	5,616	5,616	4,774	4,493	4,493
Large Flake	**30%**	10,109	11,232	11,232	9,547	8,986	8,986
Flake	**40%**	13,478	14,976	14,976	12,730	11,981	11,981
	100%	33,696	37,440	37,440	31,824	29,952	29,952

2. Production Capacity

Quarry Production

Kiruani, SimanjiroSite is located 20 km from Manyara – potential for graphite flakes 3,000 tons per day and nearby site of Mkuyuni 2,000 tons few kilometers from Kiruani, Simanjirosite. The two sites are capable of producing 5,000 tons per day. Quarry activities will be executed using the following machinery:

Mining Equipment & machines

Type & Qty	Image
Wheel loader 2 pc	
Excavator 3 pc	
Forklift 2 pc	
Dumper trucks 4 pcs	
Crane 50 tons 1 pc	
Generator 3mw diesel 1 pc	
Ridge and compressor 2 pcs	
Site housing light steel structures for living base, offices, Lab, sanitary facilities, changing rooms, dispensary, canteen and workshop.	

Graphite processing plant – two production lines using the following machinery and equipment.

Equipment	Image
Jaw Crusher Capacity 50 – 2100 t/h Feed size 510 – 2100 mm 4 pcs	
Ball Mill Capacity 60 t/h 2 pcs	
Heavy Disc Vibrating feeder 2 pcs	
Hopper 2 pcs	
Top Screw Separator Machine - 2 pcs	
Floatation Machines 20 pcs	
Conveyors belts 20 pcs	
Bricks making machines For processing by product - Sand.	

The company will be flexible to modified capacity depending on market behavior and demand.

3. Production Process

Mining

Mining is planned to be conducted utilizing a competent and experienced mining staff employed the company. Mine operations will utilize conventional dumper truck and shovel open-pit mining methods, drill and blast using light charging, and technologies proven at other locations in graphite mining industry. Mine operations are expected to be a dayshift-only operation, with the flexibility to operate on a 24-hour basis when required.

Graphite purification plant

The plant will comprise two production lines. The processing plant is designed to treat 1.5 million tons per year of graphite ore. The ore will be two-stage crushed primary in a jaw crusher and secondary and secondary in a cone crusher, followed by grinding in a rod mill, with graphite recovered by flotation. The process includes multi-stage regrind milling and cleaner flotation

to improve liberation and product purity. The flotation concentrate is then dewatered by filtration and drying. The product is screened and bagged as a final product in five different size fractions.

The power requirement for the main process plant is estimated at a total connected load of 3.2 MW including all duty and standby equipment with an estimated average running load of 3 MW. Dry graphite will be packed in bulk bags of 1 ton each then loaded in a 20 feet container with a capacity of 25 tons load, read for transportation to the Dar es salaam port located 150km away for shipment. Clearing will be done by contracted local agents likewise shipping by renowned international agents such as Maersk.

4. Machines Suppliers

Various machine suppliers exist worldwide notable China, India and Japan. At the time of implementing the project appropriate inquiry will be conducted to source and acquire the best machines for the intended production.

5. Quality Control

The company will produce graphite flakes as per international market requirement to remain competitive, as such quality issues will be dealt with without delays. The use of efficient machine, equipment and skill manpower assures the company meeting quality standards.

6. Business and Operations Hours

SASA plant will operate 6 days – Monday to Saturday, 24 hours per day (three shifts) that is 144 hrs a week. A day work start at 6.00 am. Offices will start business at 8.00 am, working 9hrs to 5.00pm that is 45 hrs per week. Office is not open on Saturday.

7. **License, Permits and Regulations**

a) Municipal license
b) Business license
c) OSHA Certification
d) Fire Safety certificate
e) Pension Funds – Yes for staff
f) Insurances
g) NEMC – Environmental protection certificate
h) Tax clearance certificate

i) VRN Certificate

j) TIN Certificate

k) Certificate of Incorporation

l) TIC Certificate

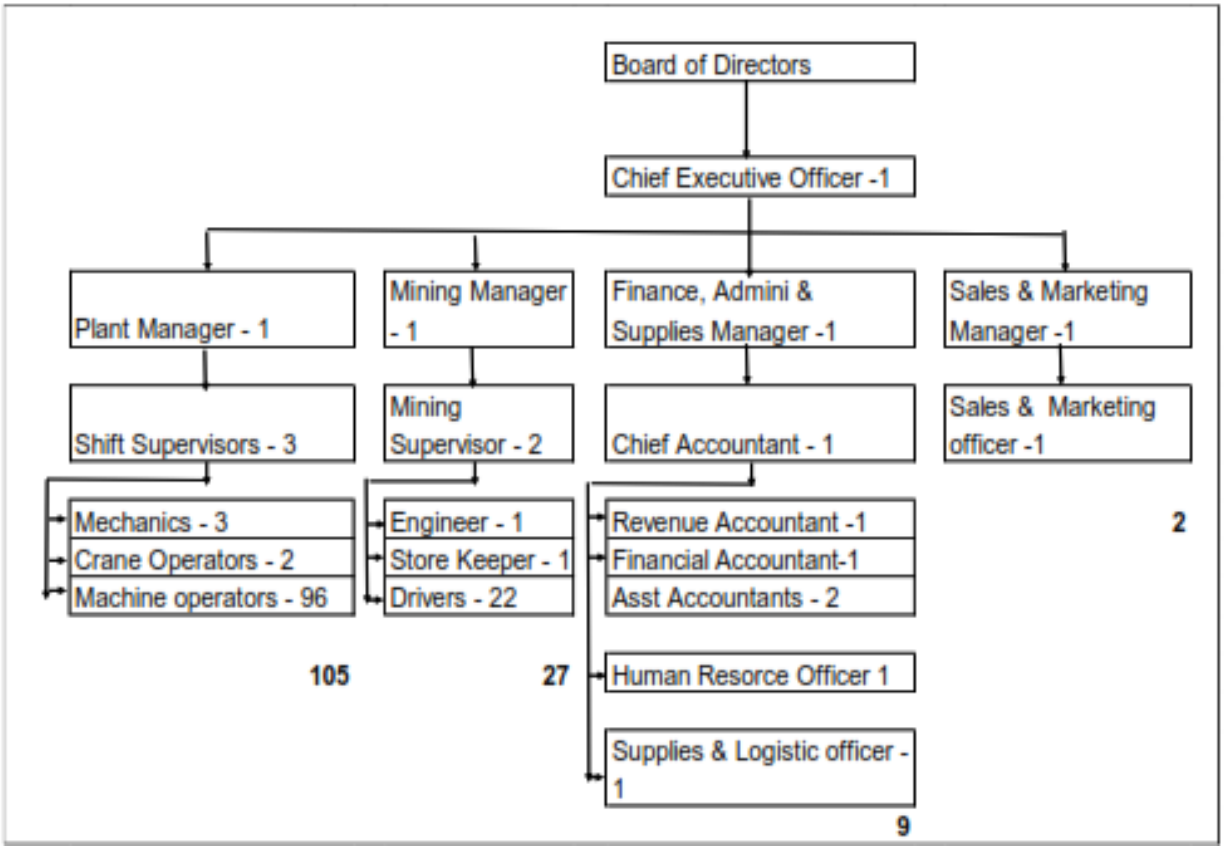
m) Export License

ANNEX 3. MANPOWER PLANNING

Manpower requirement for SASA business is as follows.

The Chief Executive Officer will be stationed at Head Office and he will be responsible and accountable for all affairs including mining, processing, Sales Distribution and Marketing and Finance, he will be reporting to the Board of Directors.

Mining activities will be headed by Mining manager, Processing Plant head will be Plant Manager, Marketing, Sales & Distribution will be headed by a manager and lastly finance function by Finance manager. The organization structure shows all the reporting structures accordingly.



The Plants will work two shifts of 8 hour per shift with a complete supervision. The shift workers include Machine operators, attendants, forklift drivers and mechanics.

Pay structure per month

Position				**Tshs**
Chief Executive Office	1	3,000,000		3,000,000
Finance & Admni mng	1	1,200,000		1,200,000
Plant Mngr	1	1,200,000		1,200,000
Mining Mngr	1	1,200,000		1,200,000
Sales & Marketing	1	1,200,000		1,200,000
Chief Accountant	1	1,500,000		1,500,000
Shift Supervisors	3	800,000		2,400,000
Mining Supervisor	2	800,000		1,600,000
Sales & Mkt officer	1	800,000		800,000
HR Officer	1	1,200,000		1,200,000
Supplies & Log officer	1	800,000		800,000
Revenue Accountant	1	800,000		800,000
Financial Accountant	1	800,000		800,000
Engineer	1	1,500,000		1,500,000
Mechanic	3	700,000		2,100,000
Store keeper	1	800,000		800,000
Drivers	5	400,000		2,000,000
Machine Operators	45	300,000		13,500,000
Crane operators	2	700,000		1,400,000
	73			39,000,000
		12		**468,000,000**

ANNEX 4 FINANCIAL PROJECTION

INVESTMENT DETAILS

Mining equipment			Total
		$	$
Wheel loader	2	100,000	200,000
Excavator	3	100,000	300,000
Forklift	2	70,000	140,000
Dumper Truck	4	200,000	800,000
Crane 50t	1	170,000	170,000
Generator 3 mw	1	90,000	90,000
Ridge & compressor	2	30,000	60,000
Safety equipment	50	600	30,000
Electical Installations	1	50,000	50,000
Camp/Shades installation	2	50,000	100,000
Working Capital		60,000	60,000
			[illegible]
			2,000,000

Projected Income and Expenditure – 6 years

FINANCIAL PROJECTION							
Particulars		**Year1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Production Cap p.a (tons)		37,440	37,440	37,440	37,440	37,440	37,440
Target Production (tons)		33,696	37,440	37,440	31,824	29,952	29,952
Figures in Tshs '000							
Sales Revenue Tshs '000		**87,914,970**	**97,683,300**	**97,683,300**	**83,030,805**	**78,146,640**	**78,146,640**
Cost of Production							
Explosives Materials (5% of sales)		4,395,749	4,884,165	4,884,165	4,151,540	3,907,332	3,907,332
Fuel Diesel		17,582,994	19,536,660	19,536,660	16,606,161	15,629,328	15,629,328
Packaging (Containers)		9,720,000	10,800,000	10,800,000	9,180,000	8,640,000	8,640,000
Insurance (fire 5% of Investment Cost		1,150,030	1,150,030	1,150,030	1,150,030	1,150,030	1,150,030
Utilities (10% sales value) water & Elect.		8,791,497	9,768,330	9,768,330	8,303,081	7,814,664	7,814,664

Packaging Bags - Flakes graphite	50	6,435,000	6,435,000	6,435,000	6,435,000	6,435,000	6,435,000
Lubricants (3% of sales)		2,637,449	2,930,499	2,930,499	2,490,924	2,344,399	2,344,399
Protective clothing	100	28,600	28,600	28,600	28,600	28,600	28,600
Cost of Production		**50,741,319**	**55,533,284**	**55,533,284**	**48,345,336**	**45,949,353**	**45,949,353**
Gross Profit		**37,173,651**	**42,150,016**	**42,150,016**	**34,685,469**	**32,197,287**	**32,197,287**
Salaries (annual increase 5%)		468,000	491,400	515,970	541,769	568,857	597,300
Admin Exp (5% sales value)		20,350,688	22,611,875	22,611,875	19,220,094	18,089,500	18,089,500
Selling & Marketing Exp (5% sales value)		4,395,749	4,884,165	4,884,165	4,151,540	3,907,332	3,907,332
Repair & Maint. (10% sales value)		8,791,497	9,768,330	9,768,330	8,303,081	7,814,664	7,814,664
Profit before Interest & Depr		**23,518,406**	**27,006,121**	**26,981,551**	**21,689,080**	**19,906,434**	**19,877,991**
Depreciation		3,426,302	3,426,302	3,426,302			
Profit before term loan and tax		**20,092,104**	**23,579,819**	**23,555,249**	**21,689,080**	**19,906,434**	**19,877,991**
Interest on term loan (6%)		276,007	276,007	276,007	276,007		
Profit before Tax		**19,816,097**	**23,303,812**	**23,279,242**	**21,413,073**	**19,906,434**	**19,877,991**
Tax (30%)		5,944,829	6,991,144	6,983,773	6,423,922	5,971,930	5,963,397
Profit after Tax		**13,871,268**	**16,312,668**	**16,295,469**	**14,989,151**	**13,934,504**	**13,914,594**
Loan Repayment		1,250,000	1,250,000	1,250,000	1,250,000		
Profit Reserve		**12,621,268**	**15,062,668**	**15,045,469**	**13,739,151**	**13,934,504**	**13,914,594**
Cumulative reserves		**12,621,268**	**27,683,936**	**42,729,405**	**56,468,556**	**70,403,060**	**84,317,653**

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