

BUSINESS PLAN
FOR
GOLD TAILINGS PROCESSING PROJECT
FOR M/S
GRAVITY TECHNOLOGY GB ENTERPRISES LIMITED

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1. EXECUTIVE SUMMARY

This project document gives details on an investment proposal by **Gravity Technology GB Enterprises Limited** for gold tailings processing operations in Nyamongo, North Mara. The company has been promised access to the areas by the relevant authorities in the country. The company for which this Business Plan is written has a status of operating at National and International levels. It is a company limited by shares. The company intends to obtain partners from overseas and maintain a network of international contacts in and outside of Tanzania in order to facilitate its export and import activities. The company was registered on 1st April 2021 in **Dar es Salaam Tanzania** with the registration number: 151420699 under the Companies act, 2002.

This project intends to enhance the local gold production by recycling the material from the current inefficient gold recovery operations at Nyamongo, North Mara which are estimated to amount to several tones using modern gravity technology. The tailings have been sampled, analyzed for gold content and found to contain significant amount of gold per ton.

Consequently, Gravity Technology GB Enterprises Limited is hereby applying for a Certificate of Incentives from the Tanzania Investment Centre (TIC) under Section 17 of the Tanzania Investment Act and Part IV of the Investment Regulations 2002.

2. THE COMPANY DESCRIPTION

The Company is a Russian origin group of business minded people who want to use efficiency and effectiveness in gold tailings processing and consequent marketing of commodities to Dubai and other places.

The Core objective is to enhance mineral (gold) production and marketing for the benefit of the Tanzanians through strengthening the local economy using the locally available resources (Gold, diamond and other precious metals) fertile land.

3. BUSINESS DESCRIPTION

C. Mission Statement

To be a leading bridge from poor to better socio-economic status through business opportunities search, utilization and connection internationally.

4. BUSINESS ENVIRONMENT

Products / Services:

The main product to be extracted and sold by Company is gold. The product will be produced and exported in accordance with the agreed standards and quality. The Company will set agreement with foreign buyers/partners by which the standards and package will be clearly elaborated.

The major role of Company is to provide technical support in terms of appropriate technology for effective production, provision of equipment and facilities to facilitate smooth extraction by indigenous groups, value adding, quality assurance and market linkage to relevant sources of market (buyers).

The Company will take a leading role of processing gold tailings through gravity technology and exportation of gold to relevant buyers abroad. Before exportation of the commodities, the purification process, and quality assurance is to be carried out by Company supported by the relevant mineral departments locally. One of the fundamentally new technologies is the magneto-liquid separation (MLS), the use of which allows one to select from the free gold schlichs in the form of ligature. In recent years, instead of the amalgamation and stripping, enterprises are increasingly using the free gold extraction processes with a magnetic liquid separator (MLS). By analogy with the gravitational concentration, a process often referred to as MLS separation pseudo weighted environments.

The buyers will be assured of the constant supply of the product which is genuine according to the agreed standard measures, whereas the producers / sellers of the commodity will benefit from the reliable market and good prices for their commodities. This business is mutually exclusive and of beneficial to both parts. Using the approach of incorporating miner artisans, the Company and Buyers expect a big supply of Gold.

5. THE TECHNOLOGY TO BE APPLIED IN GOLD EXTRACTION:

5.1. Introduction

Tailings are waste materials from which a large amount of a mineral constituent (gold) has been removed but still contain some amount of it. Our company is going to use the gravity technology to extract gold from the tailings.

5.2: GRAVITY TECHNOLOGY PROCESS DESCRIPTION

OPERATING PRINCIPLE

The centrifugal concentrator's operating principle can be formulated as the forced separation of the processed material into two fractions: a "heavy" and "light" in a centrifugal field. Separation of the material into fractions takes place by the interaction of the flushing water flow, centrifugal forces and the gravitational field acting on a particle in an inclined or horizontal rotating rotor. The intensity of the separation process is increased by the density fluctuations mineral layer caused by the inclined or horizontal position of the rotor.

The processed material is fed into the spinning rotor, in which it is accelerated to an angular velocity close to the speed of the rotor. At the same time, the rotor is supplied with wash water at a predetermined pressure. Due to the horizontal or inclined (non-vertical) position of the rotor's axis of rotation by gravity the weak fluctuations of mineral layer are created in radial and axial directions and with the rotor's frequency of rotation As a result, particles of a material with greater proportion of a certain value ("heavy" fraction) under the action of centrifugal forces move toward the walls of the rotor, against the flow of the washing water

and are deposited on its walls. Particles of a material with lower specific weight ("light" fraction) are displaced to the inner surface of the cone and the stream of water goes on the plum through the rotor's edge. Gradually, due to the replacement of the light particles by heavy ones there is a change of sediment's structure and the accumulation of the heavy fraction. The process efficiency depends on the angular velocity, the washing water pressure, size grade and liquid / solid ratio in concentrator's feed.

5.3 PROPOSED PLANT ESTIMATED PRODUCTION

The total amount of tailings that this plant expects from the tailings materials is 0.8g/t. The capacity of the plant to treat these tailings will be 100 tons per day in the first year and increasing in the following years. The gold recovery is expected to be above 90%, thus the gold production rate per annum is estimated to be an average of 13,628 grams of gold.

The plant will consist of the following components:

- a) Screen separator
- b) Shaking table
- c) Oven
- d) Conveyor belt
- e) Vibro Mill
- f) Load machine
- g) Tractor
- h) Excavator
- i) Wheel loader;
- j) Lab. Equipment; and
- k) Power will be provided by a 35kw Diesel Generator.

6. PROJECT INVESTMENT

The proposed capital investment of the project to be undertaken by Gravity Technology GB Enterprises Limited for gold Tailings processing will be around USD 562,310 or TZS 943,243,000 as is shown below:

PROJECT COSTS in '000' Tshs

ITEM	Tshs	USD	USD	000' Tshs
Applied Exchange Rate	2,319	1		
Pre-Operational Expenses				
Mining License			4,083	9,468
Consultancy fees			2,227	2,000
Total Pre-Operational Expenses			6,310	11,468
CIVIL WORKS/INFRASTRUCTURE				
Site Clearance Costs			8,000	18,552
Warehouse complex			17,000	39,423
Fuel Storage Tanks (100,000 Litres)			1,500	3,479
Access road construction	1	3,500	3,500	8,117
TOTAL CIVIL WORKS		-	30,000	69,570
MACHINERY & EQUIPMENT		USD		
Screen separator	8	1,800	14,400	33,394
Shaking table	2	2,430	4,860	11,270
Oven	1	1,320	1,320	3,061
Conveyor belt	3	4,800	14,400	33,394
Vibro Mill	1	40,000	40,000	92,760
Load machine	1	10,000	10,000	23,190
Tractor	2	2,200	4,400	5,102
Excavator	1	146,620	146,620	340,012
Wheel loader	1	97,000	97,000	224,943
Pumps	1	7,000	7,000	16,233
			340,000	767,125
VEHICLES				
AAS machine and pumps	1	38,000	38,000	88,122
Utility pick up	1	20,000	20,000	46,380
Hand tractor	2	3,500	7,000	16,233
Tipper	1	80,000	80,000	174,525
Total Vehicles			145,000	134,502
Office Equipment & Furniture				
Security Equipment	5	500	2,500	5,798
Office furniture & Equipment	15	20	300	696
Computers	4	800	3,200	7,421
Safety gear	6	500	3,000	6,957
Auxiliary equipment & Furniture			32,000	74,208
Total Office Equipment & Furniture			41,000	95,079
TOTAL INVESTMENT COST			562,310	943,243

5.1 FINANCING

The financing will be both equity contribution by the Gravity Technology GB Enterprises Limited and debt from foreign investment banks.

6. SITUATION ANALYSIS

Social Analysis:

The project has both positive and negative effects. Positively, Social life (living standard) of partners and miner artisans and their families will be improved as they shall be able to meet their needs respectively and relatively. On the negative side, diseases like HIV / AIDS can also cause deaths to people in mining areas. This is happening due to the fact that many people crowd in mine sites due to certainty and easy way of getting gold as a result they can make social contact and relationship by which sexual behavior will be prevailing and dominating. HIV transmission rate is higher in such areas to about 15% in mine centers.

6.1 Political Analysis

The Tanzanian government allows such projects since it is within their investment policy and Mining companies have the potential to become leading partners in achieving the Sustainable Development Goals (SDGs). Through their direct operations, mining companies can generate profits, employment, and economic growth in low-income countries. And through partnerships with government and civil society, they can ensure that benefits of mining extend beyond the life of the mine itself, so that the mining industry has a positive impact on the natural environment, climate change, and social capital.

6.2 Peace and security process:

The government and private security systems are ready for supporting to rescue the situation if any. Also, we can use strong rooms and bank for keeping the gold during collection process.

6.3 REMEDIAL MEASURES / STRATEGIES FOR RISKS

The following measures or strategies should be set so as to overcome the challenges of the

project.

1. All tailings will be stacked neatly, in a systematic and uniformed manner. Any area of tailings which is considered to be final and which won't see any further stacking will be rehabilitated
2. All rubbish from the plant will be disposed off in supplied pits and covered over when full
3. Proper constructed pit latrines will be built on site to be used by workers during working hours
4. The management will ensure that rehabilitation is a progressive exercise and done all the time
5. All records of water tests, soil test and tailings residue tests will be kept in the company's office when the construction is completed.
6. Environmental sanitation campaign and involvement of environmentalist and health expertise to provide advice on how better to minimize or prevent the hazardous effects associated with mining processes at all the sites. This will be associated with community health sanitation education and environmental campaign
7. Health campaigns through resource centers, TV to address HIV/AIDS, prevention and other social problems. The project can engage social groups, health centers or make a direct performance to rescue the lives of miner artisans
 1. To control dust by:
 - i. Applying water splashing before and after extraction.
 - ii. Use dust container sheet around the crusher machines
 - iii. Insist on applying personal protective equipments like helmet, boot, mask etc
 2. Use alert to escape from accidents
 3. Use rescue equipment like fire extinguishers.
 4. To stop robbery, pirates and plundering, use security guard companies build a strong room and encourage communities of mineral artisan groups to make

- police making to every member of the community.
5. Possess a license and other necessary document pay tax and meet other necessary regulations for government set standards legality.
 6. Encourage forestation by facilitating plant nurseries and trees planting.
 7. Covering of holes.

7. MARKET ANALYSIS

The expected market for the Gold produced by the Company is in Dubai and probably **Russia**. The Cost of Gold extraction is relatively cheaper based on gravity technology and labour intensive.

Specific package and labeling with the brand seal to be made using the company name to be associated with the relevant authorities.

The communication and delivery channel from the commodity to safely reach the buyer to be identified and justified by the Company and supported by the buyers, price fluctuation is expected due to some factors including stiff competition and low production.

Guaranteed safety and security of the business transaction is the key area of the business success.

7.1 OPPORTUNITIES

A significant organization and coordination is planned by our company to provide a clear link for effective production and marketing of the products. The Company will establish a salient social capital in different areas with small indigenous miner artisans who are ready and willing to accept partnership and support from other partners.

Therefore, it is a good opportunity for **Company** and the foreign partners to capitalize in the available local sources of commodity (ies) minerals, but with just a little investment support to enable them effectively extract the products so as to have an adequate supply and good quality of minerals.

7.1.1 Strategy:

For successful execution of this business plan, the Company will mobilize its staff in Tanzania who will be given technical support and training in leadership, self-management and keeping record of production levels from field, e.g. No of Kg / grams extracted in a particular period of time records of income and expenditure.

8. THE COMPANY ROLES:

The Company will be responsible for providing technical support on exploration of minerals at mining sites, laboratory test of the mineral sand, processing, purification and packaging / branding. Another Company role is to search for external market for the commodity, negotiate reasonable price for the commodity; quality control and assurance of the commodities.

Facilitate exportation of the commodities, to facilitate availability and purchase of required input for mineral extraction and processing, do follow-up on the mining progress; conduct regular / periodic survey and assessment at various mineral sites to identify new mining sites, identifying needs and requirement for executing and running activities; follow -up on the legal and mineral policy requirement ensure security and safety of mining workers as well as environment. The Company will have a team of experts who can adequately provide all the required technical support/facilitation.

8.1 Implementation

The Company intends to start implementing this plan soon after completing the preliminary phase which involves negotiation with overseas partners (investors) buyers, the local authority the reason which this plan is being submitted to the Tanzania Investment Centre and the targeted communities in North Mara.

8.2 Gold Packaging and delivery to the market:

i. Packaging of gold

Gold bars shall be packed in special packing materials and be sealed with the name of Company and Mineral department in Tanzania.

ii. Raw gold minimum and maximum purity

The minimum and maximum purity of gold that we expect ranges from 70 % and above. This grade range corresponds to the minimum level of technology applied.

8.3 Gold delivery procedure from the collection points to buyers (partners) abroad.

The planned steps include legal requirement to be adhered by Company of passing the collected and purified sum of gold via the mineral sector department for re-checking, official sealing and payment of loyalty; and then be taken to Tax Authorities for clearance ready for export. So, the cleared package of gold is to be taken by the Company's designated official to the market, being it overseas or internal market

10. MANAGEMENT TEAM

The Management of Company is proposed to be composed of Management Committee with four personnel i.e. Managing Director, General Manager, Marketing Coordinator, Accountant and other supporting staff. This team has the responsibilities of planning, coordinating, evaluating, linking and networking with partners and miner-artisan groups.

Specific roles of each personnel

i. General Manager - He / She is the overall in charge of the project operations. He / she is responsible for providing directives, technical advice to the management team, support staff and the field officers. Technical staff He / She also represent the organization to the partners, He is the custodial of the organization fund properties He / She is supported by technical staff.

ii. Marketing Officer

He/she is responsible to provide technical support in marketing research, Quality assurance, packaging, branding, and marketing, linkage and coordination of Gold market activities.

He / She also supported by field Officer who have a direct link with the indigenous miner artisans.

iii. Finance and Administrative Officer/Accountant

Is responsible for dealing with all financial transactions for the project and for the company; He / She undertake s financial forecasting, preparing budget, effecting payments, including all bank transactions of money transfer, banking, financial accounting and preparing quarterly and annual financial statement. He / She is also responsible for all administrative issues of dealing with all staff affairs at the project and company level, controlling of project assets to ensure the proper use of all the properties to avoid damage, misuse or loss

iv. Field Officers:

These are the technical officers who deal directly with the communities. The main roles are supervising and monitoring of Gold extraction and processing from tailings, they are also responsible for Management of Gold production activities.

12. KEY PARTINERS AND THEIR ROLES

1. The main partners of Company shall be foreign supporter and buyers of Gold from Tanzania. They create important market place for our commodities; they play a vital role of providing technical and material support to enable the running of this project by the Company.
2. The Ministry of Minerals and Energy through its regional department of minerals & energy in Tanzania and its Chamber of Commerce. Their roles are to provide policy guidelines, rules and regulation regarding import & export procedures.
3. Government Authorities in the district to maintain peace and order.

11. FINANCIAL ANALYSIS OF THE PROJECT

11.1 Basic Assumptions

11.1.1 Revenue Projections:

Revenue projections are based on the following parameters:

- The feed rate for the plant is 100 tons per day in the first year increasing thereafter.
- The plant will operate on a single shift of 8 hours a day
- The plant will operate for a total of 300 days per annum, other days used for maintenance and holidays.
- Plant production capacity utilization is estimated to start at 30% in the first year increasing to 45% in the second year, and to 50% in the third year, to 55% in the fourth year and to 60% in the fifth year.
- Gravity technology processing plant recovery is assumed to remain at 90% over the entire life of the tailings project.
- Gold yield is projected at 0.8 g/ton.
- Annual production of gold is estimated to be 6,480 g in the first year, 14,580g in the second year, 21,600 g in the third year, 23,760g in the fourth year and 25,920 g in the fifth year.
- The price of gold is kept constant at *USD 50 dollars per gram*.

11.2 Operating Expenses

The main operating expenses include fuel costs for power generation which is projected at 5% of turnover, fuel costs for heavy duty equipment projected at 5.5% of turnover, repair and maintenance costs projected at 2.5% of turnover, water pumping costs projected at 2.5% of turnover and consumables projected at 3.5% of turnover. Others are administrative costs treated as percentage of turnover as indicated in *Appendix 6*.

Salaries and Wages

Salaries, wages and 30% social security benefits for 45 workers are indicated in *Appendix 6*.

Re-investment Expenditure:

Re-investment is undertaken in year 5 for vehicle and year 9 for machinery and equipment, buildings, vehicles and furniture.

Corporate income

Income tax rate of 30% is assumed to remain unchanged over the projected period of ten (10) years.

11.3 Financial Highlights

Financial forecasts over a ten-year period for the project have been worked out. Project Costs are presented in *Appendix 1*, whereas the assets depreciation schedule is presented in *Appendix 2*. Loan repayment schedule is presented in *Appendix 3A* and Overdraft facility repayment schedule is presented in *Appendix 3B*. *Appendix 4* shows the gold production plan whereas *Appendix 5* presents the income statement. *Appendix 6* presents operating expenses, administrative costs and manpower requirements. The projected income statement is then presented in *Appendix 7*. Initial working capital projections are presented in *Appendix 8*. Cashflow projections are presented in *Appendix 9* and the payback period is presented in *Appendix 10*. Break-even analysis is presented in *Appendix 11* and discounted cashflow projections in *Appendix 12*.

11.4 Turnover and profit

Revenue is projected to increase from Tshs 1751,356,000 in the first year, to Tshs 1,690,551,000 in the second year and Tshs 2,504,520,000 in the third year, Tshs 2,754,972,000 in the fourth year and Tshs 3,005,424,000 in the fifth year.

Total production costs are projected to increase from Tshs 880,345,000 in the first year, to Tshs 1,198,826,000 in the second year and Tshs 1,506,121,000 in the third year, Tshs 1,591,049,000 in the fourth year and Tshs 1,708,819,000 in the fifth year.

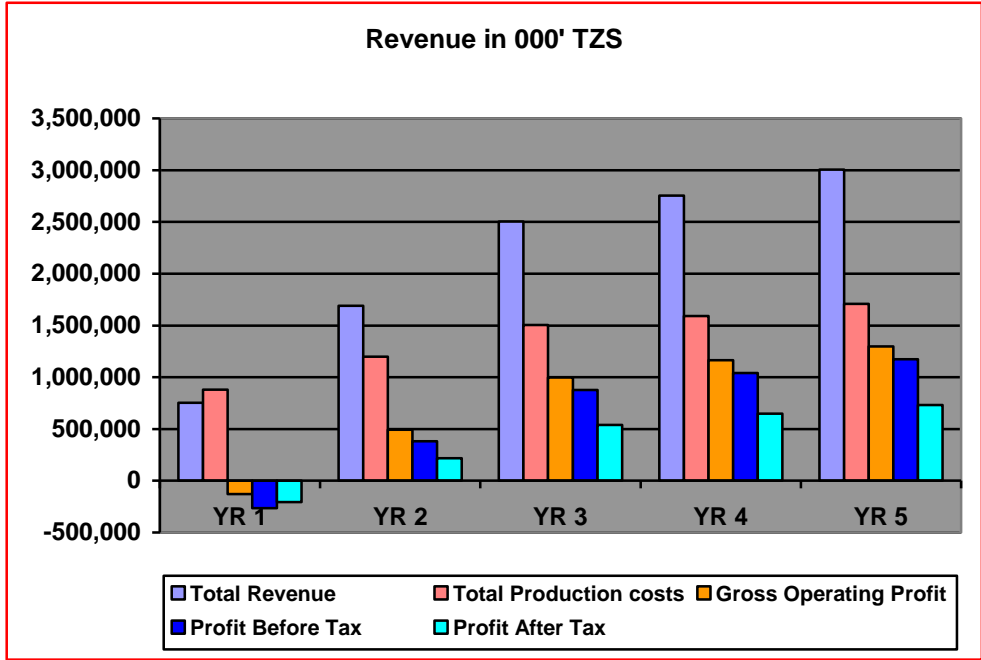
Gross operating profit is projected to increase from Tshs (128,989,000) in the first year, to Tshs 491,725,000 in the second year and Tshs 998,399,000 in the third year, Tshs 1,163,923,000 in the fourth year and Tshs 1,296,605,000 in the fifth year.

Profits after capital and financial charges (depreciation, pre-operational expenses and loan interest expenses) are projected to start at Tshs (264,003,000) in the first year, to Tshs 381,387,000 in the second year and Tshs 876,057,000 in the third year, Tshs 1,041,580,000 in the fourth year and Tshs 1,174,262,000 in the fifth year.

Profits after taxation and Government royalties are projected to start at Tshs (207,343,000) in the first year, to Tshs 216,255,000 in the second year and Tshs 538,104,000 in the third year, Tshs 646,457,000 in the fourth year and Tshs 731,821,000 in the fifth year.

Accumulated retained earnings are projected to increase from Tshs (207,343,000) in the first year to Tshs 1,925,294,000 in the fifth year as shown in *Appendix 7*.

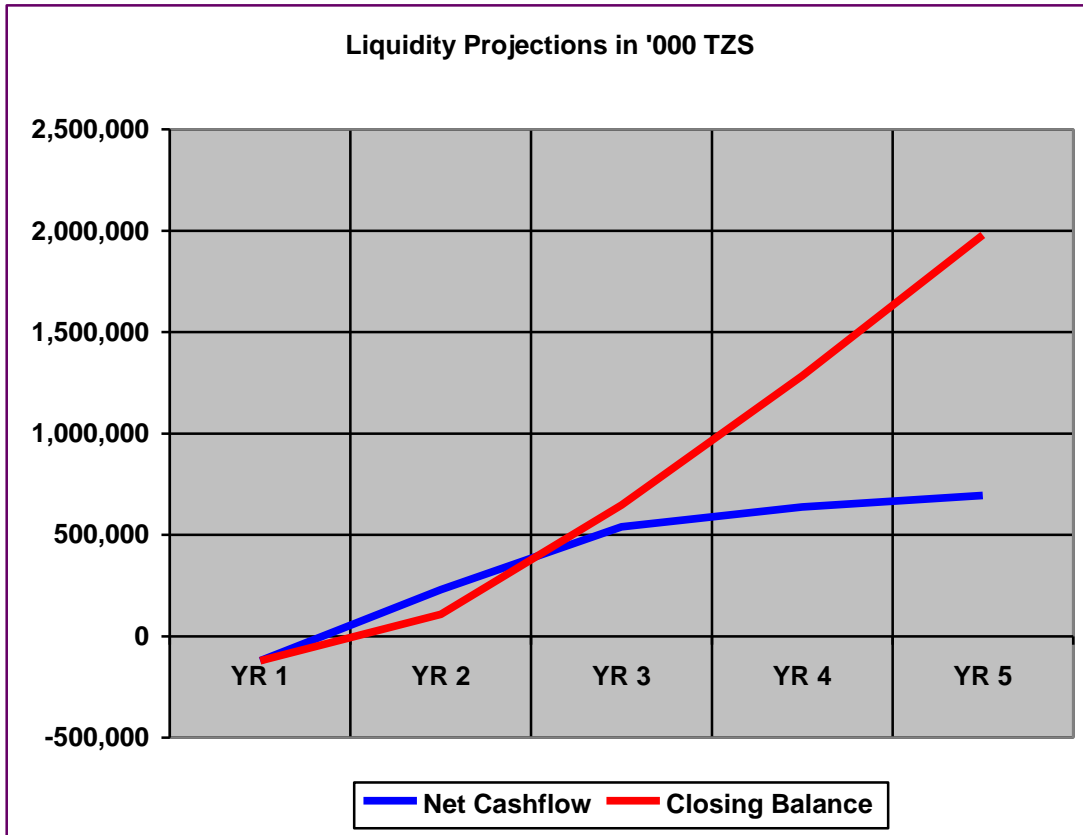
Figure 6: Projected financial performance in Million TZS



11.5 Project Liquidity

The project is very profitable. It generates positive net cashflows from the first year of operations with net cashflow of TZS 234,221,000. Positive net cashflows are recorded in each year of operation thereafter. Due to its sound liquidity, the project will be capable of comfortably repaying its term loan liabilities (principal repayment) starting from the first year of operations and still retain adequate funds each year for its operations. Cashflow projections are presented in *Appendix 9*.

Figure 7: Liquidity projections in 000'TZS



The project is able to achieve an attractive payback period of 3 years and 6 months as indicated in *Appendix 10*. That is to say the whole project cost of TZS 943,243,000 will fully be recouped in that period.

Break-even revenue is projected at TZS 750,965,000 with a break-even production capacity utilization of 29.98% as shown in *Appendix 11*.

11.6 Internal Rate of Return

Through the Discounted Cash Flow (DCF) method (*Appendix 12*) the project realizes an attractive Internal Rate of Return (*IRR*) of 20% which is way above the applied cost of capital. This indicates that the project is financially viable.

Since financial projections are only as good as the assumptions on which they are built, an analysis of the impact of changes in some of the major parameters is worthwhile being carried out.

12 ECONOMIC AND SOCIAL BENEFITS

The successful operation of proposed Tailings Processing Project will have significant economic and social benefits in Tanzania and its Regions as a whole. In summary, the benefits which will be realized include:

- (i) Creation of employment opportunities for over 39 Tanzanian employees
- (ii) Provision of income to employees and other service providers (individual entrepreneurs) thus contributing to Government efforts in improving citizens' living standards.
- (iii) Provision of a new market for food products and other goods required by the company, its customers and workers, thus generating an economic multiplier effect to the project area and surrounding areas.
- (iv) Provision of revenue to the Government through loyalty. It is projected that during the period of five years, the project will contribute a total of TZS 962,785,000 to the Treasury in the form of corporate tax and TZS 192,557,000 to the Government in royalties over a period of five years.

13 CONCLUSION AND RECOMMENDATIONS

- 13.1 This project document has provided descriptions of a detailed investment proposal by *Gravity Technology GB Enterprises Limited* for gold tailings processing operations in Nyamongo, North Mara, in Tanzania; the project's total investment cost is estimated at *USD 562,310 or TZS 943,243,000*.
- 13.2 Through the various parameters, which have been considered, it has been established that the proposed project is technically feasible, financially viable, and economically and socially beneficial.
- 13.3 In view of the above intended investment, it is recommended that the Gravity Technology GB Enterprises Limited be assisted to secure the requested Certificate of Incentives from the Tanzania Investment Centre (TIC) under Section 17 of the Tanzania Investment Act and Part IV of the Investment Regulations 2002.