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NGUVU ZETU INVESTMENT LIMITED

FEASIBILITY STUDY REPORT



**MANUFACTURING OF STEEL CORRUGATED
ROOFING SHEETS & RELATED PRODUCTS**

Nguvu Zetu Investment Limited P.O. Box 18, KIGOMA

TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY.....	4
1.1	PREAMBLE.....	4
1.2	PRODUCTS & SERVICES	4
1.3	MARKET ANALYSIS.....	5
1.4	STRATEGY & IMPLEMENTATION	5
1.5	MANAGEMENT.....	5
1.6	INVESTMENT STRUCTURE.....	6
2.0	COMPANY AND INDUSTRY INFORMATION.....	7
2.1	COMPANY.....	7
2.2	MISSION STATEMENT.....	7
2.3	TANZANIA INDUSTRY & TRADE SECTOR.....	7
2.4	LEGAL ENTITY & OWNERSHIP	8
2.5	COMPANY HISTORY TO DATE.....	8
2.6	PROJECT LOCATION / PREMISES	9
2.7	POTENTIAL SUCCESS OF THE BUSINESS	9
3.0	PROJECT DESCRIPTION AND ALTERNATIVES.....	10
3.1	Raw Materials.....	10
3.2	Production Process.....	11
3.3	Specific Project site.....	12
3.4	Utility and Accessory Items.....	12
3.5	Envisaged Sustainability	12
3.6	Project Alternatives Considered	12
4.0	PRODUCTS AND SERVICES	14
4.1	DESCRIPTION	14
4.2	FEATURES & BENEFITS	14
4.3	COMPETITION	14
4.4	COMPETITIVE ADVANTAGE/BARRIERS TO ENTRY.....	14
4.5	FUTURE DEVELOPMENT	15
5.0	MARKET ANALYSIS.....	16

5.1	MARKET SIZE.....	16
5.2	TARGET CUSTOMER.....	16
5.3	MANUFACTURING SECTOR TRENDS.....	16
5.3.1	IMPORTANCE OF THE SECTOR AND PERFORMANCE.....	16
5.3.2	EXPORT DEVELOPMENT.....	17
5.3.3	POLICIES AND REGULATORY FRAMEWORK.....	17
5.3.4	INDUSTRIAL SUPPORT ORGANIZATIONS.....	17
5.3.5	CHALLENGES FACING THE MANUFACTURING SECTOR.....	18
5.4	SWOT ANALYSIS.....	18
5.4.4	Threats.....	18
5.5	STRATEGY & IMPLEMENTATION.....	19
5.5.1	MARKETING STRATEGY.....	19
5.5.2	SALES STRATEGY.....	19
5.5.3	STRATEGIC ALLIANCES.....	19
5.6	TECHINICAL OPERATIONS.....	19
5.6.1	Sources of supply of inputs.....	20
5.7	GOALS.....	20
5.8	EXIT STRATEGY.....	20
6.0	MANAGEMENT & ORGANAZATION STRUCTURE.....	21
6.1	ORGANIZATIONAL STRUCTURE.....	21
6.1.1	Board of Directors/Senior Management Team.....	21
6.1.2	General /Operational Manager.....	21
6.1.3	Production Manager.....	21
6.1.4	Accountant/cashier.....	21
6.2	MANAGEMENT AGREEMENTS.....	21
6.3	CONFIDENTIALITY AGREEMENTS.....	21
7.0	FINANCIAL PLAN.....	23
7.1	FINANCIAL PLAN.....	23
7.1.1	FINANCING STRUCTURE.....	23
7.2	USE OF FUNDS.....	23

7.2.1	INVESTMENT COST STRUCTURE	23
7.3	INCOME STATEMENT PROJECTIONS	23
7.4	CASH FLOW PROJECTIONS	24
7.5	BALANCE SHEET	24
7.6	ASSUMPTIONS.....	24
8.0	ENVIRONMENT IMPACT ASSESSMENT	25
8.1	POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK.....	25
8.1.1	Environmental policies of Tanzania	25
8.1.2	National Legal Instruments.....	25
8.3	FACTORY WASTE MANAGEMENT SYSTEM.....	28
8.4	ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	29
8.4.1	Description of the existing and anticipated impacts.....	29
8.5.1	Construction and Safety.....	34
8.6	Operational Phase.....	34
8.7	ENVIRONMENTAL MANAGEMENT PLAN.....	37
9.0	PROJECT IMPLEMENTATION SCHEDULE	39
10.0	EMPLOYEES.....	0
11.0	PROJECTED FINANCIAL STATEMENTS.....	40
12.0	CONCLUSION &RECOMENDATION	47

1.0 EXECUTIVE SUMMARY

1.1 PREAMBLE

M/s Nguvu Zetu Investment Limited is a newly established company created to carry on the business of Manufacturing of Corrugated Steel Roofing sheets and other related products. The feasibility study is prepared to ascertain techno-economic viability and social desirability of implementing the project. M/s Nguvu Zetu Investment Limited initial plan is to create a precision manufacturing facility to produce prototypes and moulds for clients. M/s Nguvu Zetu Investment Limited goal is to provide our customers with fast turnaround, exceptional quality, unparalleled customer service, and competitive pricing.

The company is incorporated in Tanzania under the company act of 2002 on 21st February 2020 and awarded certificate of incorporation No. 141098233. M/s Nguvu Zetu Investment Limited expects to hire project managers who have good experience in Business Project Management especially in manufacturing project.

The shareholders of this Company having been in business for several years in as Wholesale business of Hardware business in Tanzania. Project promoters have seen great potential and bright future in the demand of corrugated steel roofing sheets products in building Industry and now the Company's management has made decision to invest manufacturing of corrugated steel roofing project. The Infrastructures for this project will be located in Kigoma Municipality.

The proposed project is estimated to cost about USD 415,000 over a period of five years. The project will be financed by both sponsors and a loan from financial institution but profits gained from operation shall be reinvested.

The objectives of this Feasibility Study Report are of two fold. First is to determine the viability of the proposed project. Second is to facilitate the application for Tanzania Investment Centre (TIC) Certificate of Incentives so as to access exemptions on duties, VAT deferments and other benefits and protections as statutorily provided for under Tanzania Investment Act (1997) for the Project.

1.2 PRODUCTS & SERVICES

M/S NGUVU ZETU INVESTMENT LIMITED will fabricate, design and manufacture steel corrugated roofing sheets and related products such as roofing nails & roof ridge caps. The company will work in real-time with our customers to meet their design needs, which reduce errors and detect design flaws early in the process. In turn, this will save the customer time and money.

M/S NGUVU ZETU INVESTMENT LIMITED plans to position itself as a forward-thinking company that continually invests in new ideas and technologies - unlike current medium competitors, which are similar mould manufacturing facilities. Because of the

good intention of Nguvu Zetu Investment Limited to invest in unique sophisticated technology and efficient processes, the Company will be in a position to potentially compete on price and quality.

1.3 MARKET ANALYSIS

The demand for roofing sheets and steel products in Tanzania and Regional in general is projected to increase substantially in near future given high growth rate of the real estate and construction industry western regions of Tanzania and bordering countries . In Tanzania, the construction industry in Tanzania includes real estate, transport infrastructure, and other civil works, including water supply.

Construction contributed 13.6% to Tanzania's GDP during 2015, reaching almost USD6b. In 2010 the sector accounted for only 7.8% of the country's GDP or USD1.6b. The growth rate of the Tanzanian construction sector was 4.3% in Q1 2016, compared to 23.2% in Q1 2015. According to the Tanzania National Bureau of Statistics (NBS), the slowing of the growth rate was due to reduced investments in construction activities. However, for the fiscal year 2016–2017 the government of Tanzania has budgeted TZS5.47t equivalent to 25.4% of the total budget, excluding public debt service, for infrastructure development projects. Given the current sectors growth, the demand for explosives in Tanzania is projected to double in 2-3 years to come.

The increasing demand for roofing corrugated sheets and steel products for building industry in the country and the regional together with the rising cost/price of imports provide an opportunity for Investment in the domestic production of the product. It is estimated that the current imports of the product in Tanzania can be met by domestic investment of around \$ 22 million.

1.4 STRATEGY & IMPLEMENTATION

To achieve our business goals the M/S NGUVU ZETU INVESTMENT LIMITED plan to promote and corrugated steel roofing sheets and Steel products aggressively by targeting in Kigoma, Rukwa, Geita, Katavi, Tabora Rwanda, Congo and Burudi, markets as well; the marketing campaign will include a media campaign, print and online advertising and a targeted direct-mail campaign. In addition, the Company will focus heavily on establishing our presence within the industry at relevant trade shows.

1.5 MANAGEMENT

The management of M/S NGUVU ZETU INVESTMENT LIMITED shall be constituted by the following organization set up:- Board of Directors, General Manger who is responsible on the supervision on the entire operations of the Company, a company accountant, Marketing Manager, Production Manager who will be directly responsible for all matters pertaining manufacturing of the products.

1.6 INVESTMENT STRUCTURE

The project is estimated to cost 415,000 \$ at fully capacity, the money covers investment in Machineries and Equipment, furniture and fittings, pre expenses and working Capital. The equity contributed by the shareholders is 415,000 \$ equivalent to 100% which is the local Capital a loan will be sought later from financial institution. However a financial policy of the Company state that the profits generated will be re-invested.

Forecasted financial Information, Financial information of M/S NGUVU ZETU INVESTMENT LIMITED is projected within five years. The company projected profit and Loss, account show a respectable turnover of more than 9,213 \$ in the second year. The profits gained on fifth year are projected to be 13,779 \$. The projected balance sheet, shows the increase of more than 256,522 \$ in the second year of operation and more than 53,931 \$ in the 5th year of the usefully lifetime of the implementation during which the business will be evaluated again. The financial documents show that the business has a positive net cash flow.

2.0 COMPANY AND INDUSTRY INFORMATION

2.1 COMPANY

M/s M/S NGUVU ZETU INVESTMENT LIMITED is a newly established company created to carry on the business of manufacturing corrugated steel roofing sheets and other steel related products for building industry in Tanzania Mainland.

2.2 MISSION STATEMENT

M/S NGUVU ZETU INVESTMENT LIMITED with its Dealers & Distributors mission is to become the recognized leader in its targeted market of fabrication and manufacturing of corrugated steel roofing sheets and aluminum products

2.3 TANZANIA INDUSTRY & TRADE SECTOR

Manufacturing sector in Tanzania remains relatively small, with most activities concentrating on the creation of simple consumer products such as foods, beverages, tobacco, textiles, furniture and wood allied products. In spite of its declining size, however, the sector continues to be of considerable importance to the Tanzania economy as is still one of the most reliable sources of government revenue in terms of import sales as well as for both corporate and income taxes, accounting for over half of the annual government revenue collection.

The contribution of the manufacturing sector to the overall GDP of the country has averaged 8% over the last decade, however activities within the sector have been registering an annual growth of over 4% and the sector is currently the third most important to the Tanzania economy behind agriculture and tourism. In 1986, the Tanzania government made the decision to liberalize trade and investment policies within the country.

As a result of this decision and because they could not stand up to competition from import manufacturers, many firms began to fail. Therefore, with this in mind, a number of measures were taken to increase both the competitiveness of the local industries and their ability to penetrate the export markets.

In the early 1990s, the government launched a program that was designed to restructure and privatize the publicly owned enterprises. Between 1990 and the turn of the 21st Century, the general use of the installed industrial capacities rose from an average of 20% to approximately 50% as a result of the launch of this program.

In addition, some of the recently privatized industries have also improved their capital structure, their production technologies and their management and marketing system and, in addition, they have also reduced the amount of employees in order to better match with production levels, and have improved the quality of their products and lowered their production costs.

Further discussion on the industrial development of Tanzania has also been explained in the 'Sustainable Industrial Development Policy - SIDP,' where the main purpose to design a plan for industrialising Tanzania so that, by 2025, the country has become semi-industrialised in such a way that industry can be said to account for over 40% of the GDP.

The Tanzania SIDP agrees with and encourages the ideas of a market-led economy and, to this end, states that the Tanzania industry sector will be able to succeed with increased private sector participation in the decision making and implementation practices.

In order to comply with these findings, the government of Tanzania has agreed to continue to provide a welcoming, attractive, stable and encouraging environment for investors who are interested in examining the private sector opportunities within the country.

2.4 LEGAL ENTITY & OWNERSHIP

M/S M/S NGUVU ZETU INVESTMENT LIMITED is Incorporated Company with Certificate of Incorporation Number 105693 Issued on 21st February, 2020 at Dar es Salaam .The Company's principal shareholders who hold equal shares of ownership in the Company are as follows:-

NAME OF DIRECTORS	NATIONALITY	NUMBER OF SHARES %
Baraka Mbwilo Mwakalonge	Tanzania	70
Edina Anyosisye Mwatambo	Tanzania	30

Project promoters/investors are all Tanzanian entrepreneurs with diverse businesses in Tanzania. Having been in business for many years as importers and distributors of hardware in Kigoma, the project promoters have identified the business investment Opportunities in manufacturing corrugated steel roofing sheets and steel products for in Western Regions for building industry

2.5 COMPANY HISTORY TO DATE

The company is a new business that will create prototypes corrugated steel roofing sheets and quality moulds, utilizing the latest design technology, high tech machinery and innovative operations processes. Shareholders experience includes dealership and distribution of hardware for construction industry as sole proprietor; they decided to create M/S NGUVU ZETU INVESTMENT LIMITED as Local in Tanzania which shall be investing in manufacturing of corrugated steel roofing sheets and steel products.

2.6 PROJECT LOCATION / PREMISES

M/s NGUVU ZETU INVESTMENT LIMITED requires a 3,700 - 4000 sq. Meters facility to accommodate factory and engineering works, a mould shop, a tool shop, quality assurance area, inventory storage and administrative offices. As the business grows, The Company intend to add corrugated steel roofing sheets -moulding capabilities.

2.7 POTENTIAL SUCCESS OF THE BUSINESS

M/S NGUVU ZETU INVESTMENT LIMITED will be the first company to establish the corrugated sheets manufacturing project being located in peripheral regions like Kigoma, Rukwa and Katavi. The presence of this project in Kigoma provides a great market potential to M/s Nguvu Zetu Investment Limited at Kigoma, Rukwa and Katavi regions. Currently agents of hardware in Kigoma, Rukwa and Katavi obtain supplies of roofing sheets from Dar es Salaam at very expensive price. Also the location of this project in Kigoma provides a market gateway to Burundi.

3.0 PROJECT DESCRIPTION AND ALTERNATIVES

M/s Nguvu Zetu Investment Limited integrated corrugated iron sheet and nails producing project is going to be established in Kigoma Manucipality, around Ujiji area. The Main objective of the factory is going to produce and supply high quality nail and sheet metal products. The products include different types of nails and different gauge metal sheets used for multipurpose buildings. The project has received 7500M² plot of land factory setup and building of different stores, rest rooms and the like. The goal of the project is to produce quality corrugated iron sheet and nail which in a high demand at the project area and its surround.

Land is required to accommodate plant building, management offices, social building for workers, stores, internal roads, adequate space for expansion and other industry related activities. The total land area for the envisaged plant is estimated at 7,500 m². The built-up area for the factories is estimated at, 4,000 m². The remaining land will be allocated to different buildings (store, office and the like buildings), for open space for vehicles and planting of indigenous trees to protect the environment from any type of damage.

The proposed plan of the factory comprises the construction of production plant, store for inputs, store for finished products, administrative offices, septic tank, employees' cafeteria, common latrine etc. The input for the production of the iron sheet and nails will be imported for the time being and when it is available in the country it will be substituted. The higher the factories rate of return, the promoters strives to promote this factory in to a large scale industry. The required amount and the production capacity of the project are depicted on the tables below. The rapid and sustainable economic growth of the country has contributed for the increase in the income of citizens, which in turn, enhanced them to construct their grass covered houses with iron sheets. This has dramatically raised the demand for iron sheet and nails throughout the country (rural, urban). Despite the large number of iron sheet & nail producing factories in different regions, the demand for the products is ever increasing. The establishment of the envisaged project will generate diversified social and economic benefits. In addition to its tax payment to the government and support the overall development, it also will generate employment opportunity for unemployed citizens and promote the poverty and unemployment reduction strategies of the government.

3.1 Raw Materials

Most nails are made of steel. Aluminium, copper, brass, bronze, stainless steel, nickel silver, Monel, zinc and iron are also used. Galvanized nails are coated with zinc to give them added corrosion resistance. Blued steel nails are subjected to a flame to give them a bluish oxide finish that provides a certain amount of corrosion resistance. So-called cement-coated nails are actually coated with a plastic resin to improve their grip. Some brads are given a colored enamel coating to blend in with the color of the material they

are fastening. In addition the raw materials used for producing corrugated iron sheets are plain iron sheets. Depending on the required thickness of the iron sheet, the product can be of gauge thickness of 32, 30 and 28. The raw materials needed for four months will be purchased in advance before the factory starts its production. The annual requirement of the raw & auxiliary material at full capacity production, including its cost is shown below.

S.N	Description	unit of measure	Amount needed per day	Amount needed per month	Annual Requirement in (tone)
1	Low carbon steel wire	Tone	0.9	18	180
2	Cold rolled steel sheet	Tone	0.7	17.5	210
3	Saw dust (powder)	Tone	0.7	17.5	210
4	Zinc	Tone	1	25	300
5	HC1	Tone	1	23	276
6	Ammonium chloride	Tone	0.6	15	180
7	Packing material	Tone	0.4	10	120

Raw Materials list and amount needed in the first year (for metal sheet production)

SN	Description	Unit of measure	Amount need in a day	Amount needed in a month	Amount needed in a year
	28 gauge	Tone	0.6	13.8	165.6
	30 gauge	Tone	0.80	18.4	220.8
	32 gauge	Tone	0.81	20	243
	Subtotal				629.4

3.2 Production Process

Nail making does not require highly advanced knowledge or technique, and it's making capacity can freely be fixed according to the demand in the locality. The plant can be built at any place without environmental restraint. The nail making plant can easily be expanded, rationalized, automated or can adopt a labor saving device. Wire is drawn from a coil and fed into the nail-making machine where it is gripped by a pair of gripper dies. The shape of the head of the nail has been machined into the end of the dies. While the dies clamp the wire in place, the free end of the wire is struck by a mechanical hammer. This deforms the end of the wire into the die cavity to form the head of the

nail. With the wire still clamped in the dies, a set of shaped cutters strike the opposite end of the nail, forming the point and cutting the nail free from the rest of the wire coming off the coil. The dies open and an expelling mechanism knock the nail into a collection pan below the machine. The free end of the wire is drawn from the coil and fed into the machine. The cycle then begins again.

The production process of making corrugated iron sheet consisted of cleaning the rust and other ingredients from the plain iron sheet, then drying by dry, hot air. Then the iron sheet is passed into the molten lead to attain the required thickness. It is then dried by forced air from where it is fed to feeding table by a suitable hoist or crane. Then they are conveyed to the corrugating machine. After corrugation, the product is passed to correcting machine where deformation is corrected. The product is then cut to standard size and trade mark of the company is printed.

3.3 Specific Project site

The factory is located in Ujiji Kigoma Municipality. The location is designated for Industrial development where some other factories are will be located. Ujiji is selected as to be the location site of the plant considering the location advantage with the nearby towns like Tabora, Kagera, Geita, Rukwa and Katavi where the construction building of both governmental and nongovernmental is at an increasing rate.

3.4 Utility and Accessory Items

Electricity and water are inputs required for the envisaged factory. Annual requirements of electricity and water at full production capacity are estimated to be 211,251 kWh and 1900m³, respectively.

3.5 Envisaged Sustainability

All the raw materials needed for the manufacture of corrugated iron sheet and nails are not imported from abroad. Some types of inputs used for the production of nails shall be sourced from the domestic industries which produce different types of metal such as ALAF, MM Steel, and Kamal Steel etc.

3.6 Project Alternatives Considered

Alternative 1:

No project option: This suggests that the proposed project should not be executed. This negates the need to increase domestic production and conserve foreign exchange therefore, this alternative was rejected.

Alternative 2:

Import Bulk **metal types used** for the production of different types of nails: This option is presently being practiced by several companies in Tanzania. However, this option is not acceptable because most of the employment opportunities available to the people from the process of nails production will be lost to the country where finished bulk

metal will be imported from. In addition to this, the loss of foreign exchange to the exporting country is a disadvantage. For these reasons, this option is rejected.

Option 3: Manufacturing from Import already finished metal sheet and nails (considered option): To import finished metal sheet and nails will create a wider range of employment opportunities. The proposed corrugated iron metal sheet and nails production plant is expected to provide more than 26 direct jobs in all categories. In addition, there is the transfer of technology associated with installation, operation of the equipment and maintenance and savings on foreign exchange, hence this alternative was chosen

4.0 PRODUCTS AND SERVICES

4.1 DESCRIPTION

M/S NGUVU ZETU INVESTMENT LIMITED will manufacture corrugated steel roofing sheets and steel products of different kinds to satisfy the demand of booming real estate sector in Kigoma, Katavi and Rukwa as well as Burudi as the export market. M/S NGUVU ZETU INVESTMENT LIMITED will be importing certified quality rollers steel iron sheets as semi-finished raw materials, and they will be pressed by corrugated modern machines according to square meters required by the clients

If need be, M/S NGUVU ZETU INVESTMENT LIMITED will work with the customer through the design process. Secondly, the Company make test corrugated steel roofing sheets. The Company then inspect and test the corrugated steel roofing sheets for quality assurance. Finally, The Company manufacture corrugated steel roofing sheets and steel products based on specific design specifications, using precision machinery to form they desired.

4.2 FEATURES & BENEFITS

M/S NGUVU ZETU INVESTMENT LIMITED from the beginning - invest in quality, highly sophisticated machinery as the Company as implement innovative operations policies. These steps will ensure our ability to deliver beyond normal industry standard and surpass our customers' expectations saving them time and money.

4.3 COMPETITION

M/S NGUVU ZETU INVESTMENT LIMITED competitors' are companies that provide similar types of products and services, most of them are located in Dar es Salam and Coast region and established customer base in various regions in Tanzania. Further, many roofing sheets-making companies also have injection-moulding/Corrugated pressing machinery, which enables them to manufacture actual products. However, the vast majority of our competitors (SMEs) are not taking full advantage of current technology, nor are they implementing modern operational systems. Their waste is ultimately passed along to the customer via longer turnaround times and higher overhead costs.

4.4 COMPETITIVE ADVANTAGE/BARRIERS TO ENTRY

Given the location of the project, the company will be able to maintain competitive prices and sustain high profitability. Our technology and systematic efficiencies will allow us to have advantages in cost, speed and design capability. Ultimately, these advantages will quickly come to define M/S NGUVU ZETU INVESTMENT LIMITED as an industry leader in western regions.

4.5 FUTURE DEVELOPMENT

As our Company grows, The Company plans to expand our facility and create an injection-mould/modern corrugated manufacturing plant. At that point, The Company will be able to control all operations in-house from initial design to mould creation and even mass production of the finished products. In addition, The Company will stay a top technology trends and upgrade equipment and processes as needed and can be afforded.

5.0 MARKET ANALYSIS

5.1 MARKET SIZE

The Tanzania manufacturing sector includes many companies with combined high annual sales. To capture a portion of those sales, M/S NGUVU ZETU INVESTMENT LIMITED will utilize a targeted industry approach to pursue specific, definable, market segments.

5.2 TARGET CUSTOMER

After extensive research, M/S NGUVU ZETU INVESTMENT LIMITED decided to initially pursue market segments in peripheral western regions (Kigoma, Rukwa, Katavi, Geita& Tabora and countries like Congo, Rwanda and Burundi). This is a distinct market with very different needs. Traditionally the purchasing decisions are driven primarily by price; the industry focuses on a fast turnaround time and quality to make purchasing decisions.

5.3 MANUFACTURING SECTOR TRENDS

The manufacturing sector holds the key to Tanzania's economic growth given the desire to diversify from agriculture and tourism to other sectors. The sector is characterized by a narrow industrial base dominated by agro-industries, limited diversification, reliance on imported inputs of raw materials and intermediates, relatively underdeveloped industry linkages, prevalent use of obsolete technologies and production that is mainly focused on the domestic market.

Government recognizes that significant transformation of the sector is vital. In order to achieve this, it is necessary to promote and stimulate a change process which will make the sector exhibit a diversified structure of production; undertake processing of more of the natural resources with which Tanzania is endowed; and become export-oriented.

Taking into account the above factors, Government's goals for the industrial sector in the medium term are to optimize the exploitation of domestic natural resources; to strengthen backward and forward linkages within the manufacturing sector and between the sector and rest of the economy; to ensure that industries are competitive in the domestic and international markets; to raise levels of technological capabilities; to create new employment opportunities; to absorb the rapidly growing labour force; to strengthen the SME sector and put emphasis on sub regional collaboration and south-south cooperation.

5.3.1 IMPORTANCE OF THE SECTOR AND PERFORMANCE

In terms of importance, the manufacturing sector, though not strong as it should be, continues to play a critical role in the economy, contributing to 18.9% of export earnings and 8.6% to GDP - but this is still short of the planned target of 15% by 2020.

In the country's Development Vision-2025, it is projected that the contribution of the industrial sector to the economy will reach 25% like the semi-industrialized countries of South East Asia.

Tanzania's most important industries include agro food processing, beverages, oil refining, and cement. Other industries include the production of textiles, apparel, tobacco products, glass, paints, plastics, chemicals and pharmaceuticals, and the processing of metals and wood products.

The sector provides employment for an estimated workforce of over 100,000 people. Growth rate of the sector decelerated from 9.9 percent in 2008 to 8.0 percent in 2009. This trend was due to the effects of the global economic meltdown.

5.3.2 EXPORT DEVELOPMENT

The export market for manufactured goods comprises cotton yarn, manufactured coffee, manufactured tobacco, sisal products, plastics, textiles and apparel and iron steel. During 2009, the export value of manufactured goods decline from US\$ 662.3 million recorded in 2008 to US\$ 497.6 million. The decline is partly attributable to the drop in demand for the manufactured products in the neighbouring countries following the global financial crisis.

5.3.3 POLICIES AND REGULATORY FRAMEWORK

The future discourse for industrial development in Tanzania is elaborated in the "Sustainable Industrial Development Policy - SIDP". The main purpose of SIDP is to set out a path for industrializing Tanzania so that by the turn of the first quarter of the 21st Century it becomes a semi industrialized country.

In its approach SIDP embraces the principles of a market-led economy and competitiveness. It points out plainly that industry would only prosper in the hands of increased private sector participation both in decision making and implementation. The government in this aspect has vowed to increasingly provide an environment which is welcoming, attractive, and stable and that can encourage private sector investment.

The private sector in its part should take all necessary initiatives to respond and manage challenges of globalization. Firms are challenged to pursue firm strategies which are geared towards building the necessary capabilities to enable them compete in the world market.

5.3.4 INDUSTRIAL SUPPORT ORGANIZATIONS

The government has established several institutions to render support services to the industrial sector. Among them are: The National Development Corporation (NDC), the Small Industries Development Organization (SIDO), the Centre for Agricultural Mechanization and Rural Technology (CARMATEC), the Export Processing Zones Authority (EPZA), the Tanzania Industrial Research Development Organization

(TIRDO), the Tanzania Engineering and Manufacturing Design Organization (TEMDO) and Tanzania Bureau of Standards (TBS).

5.3.5 CHALLENGES FACING THE MANUFACTURING SECTOR

The Manufacturing sector is faced by a number of challenges including;

- ✚ Poor technology;
- ✚ Insufficient industries/ factories;
- ✚ Unreliable market for the final processed goods;
- ✚ High cost of power, unreliability of power and underdeveloped infrastructure;
- ✚ Unreliable availability of raw materials;
- ✚ Small number of trained manpower.

5.4 SWOT ANALYSIS

5.4.1 Strengths

- Manufacturing & production expertise
- Corrugated steel roofing sheets frame development expertise
- Understanding of emerging technologies
- Understanding of target markets
- Competitive product pricing
- Exceptional quality and customer service
- Implementation of cost saving processes

5.4.2 The Company weaknesses

Of all the worst shortcomings that might hold the company back from progress, the following rank highest:

- Limited resources for marketing program which is quite expensive and demanding.

5.4.3 Opportunities

- New products & processes
- Bringing new technology into the industry
- Developing a new reputation
- Hiring new talent
- New innovations and applications of our technology

5.4.4 Threats

- Impact of new legislation
- Technologies developed by competitors
- Challenges in building a talented staff
- Retaining key staff members
- Market demand fluctuations

5.5 STRATEGY & IMPLEMENTATION

5.5.1 MARKETING STRATEGY

M/S NGUVU ZETU INVESTMENT LIMITED recognizes the critical importance of marketing. The Company will require a properly designed and executed marketing plan to ensure market penetration and business success. The Company will hire in-house sales and marketing team which will implement marketing plan.

The other main component of our marketing plan will be to attend trade shows (Nane nane in Kigoma, Katavi and Rukwa) which will require both construction and maintenance, marketing materials such as brochures, and promotional items such as pens with our logo.

To increase local awareness of our Company and to foster a positive public perception, The Company will participate in and sponsor local charity events such as Walk for the Cure and youth sports teams. The Company will also reach out to local high schools and colleges to offer internships and promote careers in manufacturing.

5.5.2 SALES STRATEGY

M/S NGUVU ZETU INVESTMENT LIMITED will build a sales team focused on securing new business in the short and long term. The sales team will be motivated by commissions and performance-based bonuses.

Under the direction of executive management, The Company will employ an outside sales staff as well as an inside sales staff, which will be cross-trained to handle general customer service calls. The outside sales staff will focus primarily on trade show attendance, comprehensive follow up, relationship building, closing deals, and securing referrals.

5.5.3 STRATEGIC ALLIANCES

The Company plan to develop strategic alliances with local corrugated steel roofing sheets-moulding manufacturing facilities that do not have mould-making capabilities within their facilities.

5.6 TECHNICAL OPERATIONS

Our facility's space will be divided in proportion to our needs and will include product development and engineering, quality control and testing area, inventory storage and administrative offices. Each area will be staffed with trained employees and wherever possible factory-floor technicians will be cross-trained. Our administrative offices will include space for executive, marketing and sales, accounting, information technology, security, maintenance, and human resource departments. To become a fully operational mold-manufacturing facility, The Company will require the following machinery and corrugated steel roofing sheets frame Machines

- Sheet rolling profile machine

- Roll forming machine
- Corrugated Iron sheet machine
- Corrugated steel roofing sheets frame

By utilizing the latest precision machinery and software and superior operational and quality control processes such as LEAN Manufacturing, Rapid Prototyping and Manufacturing, and Sigma Six, M/S NGUVU ZETU INVESTMENT LIMITED will control costs while ensuring quality. M/S NGUVU ZETU INVESTMENT LIMITED will also follow FDA requirements and comply with standards to further ensure quality control.

5.6.1 Sources of supply of inputs

Current in Tanzania there is neither mother factories which process iron ores into first grade iron bar rolls for nails making, nor mother factories which produce iron sheets rolls for production of roofing sheets. In this regard M/S NGUVU ZETU INVESTMENT LIMITED will be importing all inputs from either China or India. All input shall comply to standards established by the Tanzania Bureau of Standards

5.7 GOALS

The following is a list of business goals and milestones The Company wish to accomplish within the next three years.

- Secure necessary funds.
- Locate and lease suitable manufacturing facility.
- Purchase machinery, equipment and supplies.
- Hire skilled employees to complete our team.
- Set up shop and open for business.
- Successfully penetrate targeted markets.
- Secure contracts to achieve projected sales goals.
- Become a profitable Company.
- Establish a solid reputation as an industry leader.

Our first major milestones will be securing funds and setting up our business. This is our primary focus right now. In three years, The Company hope to have established our Company in the community and within our industry.

5.8 EXIT STRATEGY

Should management or our investors seek a business exit, there are several options the Company would be willing to pursue. Our Company could most likely be sold to a manufacturing Company that does not already have roofing sheets manufacturing capabilities. A management buyout could also be pursued once our business credit is firmly established.

6.0 MANAGEMENT & ORGANAZATION STRUCTURE

6.1 ORGANIZATIONAL STRUCTURE

M/s NGUVU ZETU INVESTMENT LIMITED understands the importance of a loyal and enthusiastic team to reduce turnover and increase productivity. Our Company's management philosophy will encourage responsibility and mutual respect. While The Company will present a strong decisive management team, The Company will also foster an atmosphere of genuine employee appreciation and open communication. M/s NGUVU ZETU INVESTMENT LIMITED has planned to have the following organization structures.

6.1.1 Board of Directors/Senior Management Team

M/S NGUVU ZETU INVESTMENT LIMITED shall be managed by the board of Directors which is the apex body for strategic decision making of the project. Directors of the Company are the ones who having shares in M/S NGUVU ZETU INVESTMENT LIMITED Structures Ltd.

6.1.2 General /Operational Manager

Immediate after Board of Director the shall be a General Manager who will be responsible to take care of mater pertaining operation and managing daily activities of the project as well as other staffs welfares and report them to the board of directors.

6.1.3 Production Manager

Production Manager will be employed who expected to have an extensive background in related metal manufacturing. He/she will be directly responsible for all production functions maintenance of quality standards of the products; training of employees in methods of producing quality products.

6.1.4 Accountant/cashier

An accountant will be employed who expected to have good experience in accounting system as well as he will be responsible in managing cash of M/S NGUVU ZETU INVESTMENT LIMITED but also keeping books of accounts properly.

6.2 MANAGEMENT AGREEMENTS

Management Agreements will be executed between M/S NGUVU ZETU INVESTMENT LIMITED and other team managers. The purpose of these agreements is to define the expectations of both parties, establish an incentive structure, and define the grounds under which the agreement may be terminated.

6.3 CONFIDENTIALITY AGREEMENTS

M/S NGUVU ZETU INVESTMENT LIMITED will enforce that all employees sign a confidentiality agreement. Confidentiality agreements with our employees and partners will protect our products, operating systems, policies and procedures. Having a

confidentiality agreement in place is essential to protect the company's trade secrets, and show our employees that we take our business seriously.

7.0 FINANCIAL PLAN

7.1 FINANCIAL PLAN

The Company has raised \$415,000 as star up investment capital. The Company have raised this amount via Shareholders' equity and reinvestment of profits from sole proprietor business.

7.1.1 FINANCING STRUCTURE

FINANCING PLAN					
Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Shareholders equity	USD	USD	USD	USD	USD
Equity contribution (or withdrawal)	100,000	100,000	100,000	50,000	65,000
Share capital	100,000	200,000	300,000	350,000	415,000
Long-term loans from bank					
Loans drawn at the beginning of the year		0	0	0	0
Repayments made at the end of the year					
Basis for interest calculation - end of year	0	0	0	0	0
Interest rate	0%	0%	0%	0%	0%
Interest expenses	0	0	0	0	0
Loan balance: year end (goes to balance sheet)	0	0	0	0	0

7.2 USE OF FUNDS

The provision of 415,000\$ will be used to procurements and importation of machines and equipment's , shall also cover, Pre –operating expenses, operating costs including payroll, taxes, and utilities. Start-up funds will also be used to purchase capital expenditures such as leasehold improvements, inputs for manufacturing of corrugated steel roofing sheets and steels products.

7.2.1 INVESTMENT COST STRUCTURE

INVESTMENT PLAN/INVESTMENT BREAK DOWN						
Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
	USD	USD	USD	USD	USD	
Investment Break down						
Land	0	0	0	0	0	0
Building	30,000	10,000	10,000	10,000	10,000	70,000
Plant & Machinery	30,000	30,000	30,000	20,000	20,000	130,000
Motor Vehicle	15,000	10,000	0	0	0	25,000
Furniture & Fixtures	20,000	10,000	5,000	5,000	0	40,000
Working Capital	30,000	30,000	30,000	30,000	30,000	150,000
Total investment	125,000	90,000	75,000	65,000	60,000	415,000

7.3 INCOME STATEMENT PROJECTIONS

The accompanying income statement demonstrates our Company's profitability. Our income shows a gross profit margin of 10% per annual. Our monthly operating

expenses average \$ 178,317. Projected net income will average \$ 7,571 per month in our third year.

7.4 CASH FLOW PROJECTIONS

The nature of our business requires that our Company collect payment after the product is complete. So the Company have included the accompanying cash flow statement which shows positive cash flow from third year of operation.

7.5 BALANCE SHEET

The projected balance sheet show positive. The current assets and current capabilities is the projected balance sheet proves that the company financial status is strong. As the result we expect the company to meet all its financial and Administrative transaction without difficulties

7.6 ASSUMPTIONS

- M/S NGUVU ZETU INVESTMENT LIMITED will invest more than 415,000\$
- Rate of depreciation were assumed as follows:

Building	5%
Plant & Equipment	20%
Furniture and fixtures	20%
Plant	20%
Motor Vehicles	30%
- Demand of corrugated steel roofing sheets and steels products in the Real estate sector will continue to follow present trends.

8.0 ENVIRONMENT IMPACT ASSESSMENT

8.1 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Sustainable development could only be achieved when articulated and an efficient way of eco-friendly implementation strategy is identified. This, primarily, includes the wellbeing of the environment. As the plan of action starts to be set on place, a crucial backup from legal background is needed to check basic principles are not violated. In Tanzania, the environmental soundness of any project will be checked and evaluated by National Environment Management Council (NEMC). NEMC uses different international, national and regional binding legal guidelines for most development activities. The following section will describe these legal instruments in relation to the upcoming project. Implementation as well as relevance of each sub section will also be highlighted accordingly.

8.1.1 Environmental policies of Tanzania

Intergenerational justice and equity have to be addressed by endorsing sustainable development through appropriate environmental management. The environmental policy of Tanzania clearly indicates the relationship between environment and sustainable development. It asserts deterioration in environmental equity should be kept at minimal level while also be minimal. The policy will also give emphasis on minimizing environmental hazards as well as creating a compromise between economic growths of the present generation without affecting the need for the development of future generation. In relation to this, the project has built up a detail management plan based on the predictable impacts using the appropriate guidelines (EPA guideline and other international guidelines). All referenced guidelines give emphasis for the community as well as the natural environment, compromise between short term economic growth and long term environmental impacts, and appropriate liquid and solid waste management along with proper treatment plant recommendation.

8.1.2 National Legal Instruments

Proclamation of the constitution of the United Republic of Tanzania reflects the right to development where people right to:

- Improved living standards and to sustainable development
- Consultation and participation regarding matters that may affect their wellbeing
- Sustainable development, and
- Be supplemented by development projects to enhance their capacity to meet their basic needs

Section 81 of the Environmental Management Act Cap 191 requires all Developers of projects identified in the 3rd Schedule of the Act and detailed in the 1st Schedule of the EIA and Audit Regulations of 2005, to undertake Environmental Impact Assessment (EIA).

Section 82 of EMA Cap 181 requires that the EIA be carried out prior to the commencement or financing of the project.

Relevance of the project

- Communities will benefit from the project by getting employed to diversify their income. This will not only improve their living standard but also helps to shape future sustainable developmental activities with the proponent.
- Implementing this law, will increase awareness about the project while at the same time gives sense of ownership to the surrounding community

Implementation strategies

- Priority will be given to local community for available vacancy
- Public discussion session will be prepared regularly

Environmental Management Act 2004

- All persons have the right to live in a clean and healthy environment
- All persons whose live hoods have been adversely affected, as a result of state programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance

Relevance for the project

- Security and sustainability of the project will be insured upon implementation of this law.
- Any kind of problems regarding land lease or land ownership will be dealt ahead of time this law give protection for the proponent

Implementation strategies

- Clean and healthy environment is unconditional right of customers, workers, and as well as the community. To ensure this the firm will prepare procedural guideline how to handle and manage wastes.
- All damages caused by the project activities at any stage of the project will be compensated properly in collaboration with the local administration.
- Meeting will be prepared with Kigoma Municipality, NEMC, and the community in order to tackle any pollution problems caused by the project

8.2 Applicable environmental management act 2004

Environmental Impact assessment act 2004 proclaim that Projects to be commenced would normally have to inflict minimal environmental damage. Future generation have to able to fulfill their needs without much problem. This will only be assured if projects of present time are doing environmentally being activities. In relation to this, most projects are expected to submit environmental impact assessment before engaging into detail activity of the project. The report has to follow appropriate guideline outlined by

appointed authority. Then, the report has to be approved by the authority for any activities to be taken on the ground.

Relevance for the project

This report could be used as legal document for future activities

- The project will have strong legal standing
- The proponent will have an insight for the pros and cons of the project as well as the impacts on the environment by the upcoming project

Implementing strategies

- All compensation fees were dealt by the government
- A neutral consulting firm was appointed
- This report was written according to the national and international guidelines.
- Discussion with the community was insured from the beginning of the project
- Comments and suggestion of experts were included
- Submission of the EIA report to the NEM will be done
- The environmental pollution prevention and control proclamation (EMA Section 106) this proclamation demands for appropriate sound actions to be taken for human safety as well as environmental pollution.

Relevance for the project

- The project will have enough time and money to implement technologies for better waste treatment and management
- Compensation and rehabilitation costs will be available
- Healthy of customers and workers will be insured

Implementation strategies

- Well- structured waste handling procedure will be prepared
- Supervision of hazardous waste and chemicals will be done
- Reducing environmental pollution
- Protecting wear will be given for workers involved in handling wastes

Employment and Labour Relations Act of 2007.

The Act insures whether or not the health and safety of employees are properly safeguarded by the employer. All human rights of workers including job security have to be respected by the employer. Also included in the proclamation are: Freedom of association and collective bargaining: the right of all workers to form and join trade unions and bargain collectively shall be recognized. Workers representatives shall not be subject to any discrimination and shall have access to all work places necessary to enable them to carry out their representation. Equality of treatment: workers shall have access to jobs and trainings on equal terms.

Irrespective of gender, age, ethnic origin color, marital status, sexual orientation, political opinion, religion and social origin. Physical harassment or psychological oppression, particularly of women workers must not be tolerated. Living wages: wages and benefits paid for a standard working week shall meet at least legality or industry minimum standards and always be sufficient to meet basic needs of workers and their families and to provide some discretionary income. Pay should be in cash, direct to the workers, promptly and in full. Information to wages shall be available to the workers in an understandable and detailed form.

Relevance for the project

- Workers equality will be assured
- Workers can have practical job security
- Recruitment of strong and disciplined labor force will be easy
- Consistent labor force availability will be assured

Implementation strategies

- Minimum wage has been made to fit local standard of living
- The management team has put up a rule of zero tolerance for sexual harassment
- The management team will give all the support for the upcoming workers association The workers will be treated equally. In the event of any fault the management has introduce accountability and transparency to look at case and give fair trial

8.3 FACTORY WASTE MANAGEMENT SYSTEM

The factories of this nature do not generate large amounts of waste. It did however generate a considerable amount of granular/waste material. In addition it is difficult to estimate the amount of waste generated per day for production type, however it is mandatory to assess and put some mitigation strategies for the wastes that are going to be follow from the factories.

The following waste management techniques shall be used in the different stages of the Project.

- i) During construction:** - Wastes at this stage shall be managed as follows:
 - Express condition shall be put in the contract that before the contractor is issued with a completion certificate; he will clear the site of all debris and restore it to a state acceptable by the supervising architect and environmental consultant.
 - Materials from excavation of the ground and foundation works shall be reused for earthworks and landscaping.
 - Remnants from the construction materials will also be re-used in the construction and also for landscaping.
- ii) During operation:** The following methods shall be used to manage wastes:

- Different pieces of metal and nails:- Pieces of metal and nails will be collected and re sold to some other factories
- Used Paper: - Used paper shall be thrown in designated dustbins labeled within the property area. The paper waste shall then be collected and kept in a central place pending disposal.
- Empty Cans and Plastic Containers: -These should be collected and stored in a designated area pending disposal to designated areas or awaiting interested parties for recycling.

iii) Decommissioning: -During this stage, the following shall be observed:

- i) Wastes generated as a result of facility decommissioning activities shall be characterized in compliance with standard waste management procedures.
- ii) Disposal locations shall be selected by the Company and the local council based on the properties of the particular waste generated.

8.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

8.4.1 Description of the existing and anticipated impacts

- i) **Existing impacts:** - At the time of the study, the following impacts existed within the project area; Noise from stone crushing machines and vehicle that transport stone for house construction, and noise from block and pole producing cooperatives.
- ii) **Anticipated impacts:** - The impacts of the proposed project on the environmental elements are both positive and negative. The magnitude of each impact is described in terms of being significant, minor or permanent, short-term or long term, specific (localized) or widespread, reversible or irreversible. Most of the impacts have been addressed in the proactive design of the project and other mitigations can only be guaranteed through active and responsible management committed to the propositions of the environmental management plan.

8.4.1.1 Positive impacts

i) Construction phase

- Employment Creation:-With the implementation of the project, there will be employment opportunities for not only those who will be providing manual work, but also those providing professional works and consultancy.
- Increased value of land:-The proposed development is bound to increase the value of the land as a result of the industrial development and the demand for the proposed facilities. The area where the factory is going to established will be more demanded by dwellers and the community group of the town.

- Aesthetic value:-The proposed development will enhance the site aesthetic value. The designs of the proposed facilities will ensure visual attractiveness which will thus add beauty to the site. The proponent has put in place, elaborate mechanism to improve the vegetative landscape of the area after construction.
- Creation of business opportunities: - As a result of the proposed project a large number of people (skilled and unskilled) will be required during the construction stage and operation of the factory. The construction will provide a ready market for various goods and services, leading to several business opportunities for small-scale traders such as food vendors around the construction site. Even when the factory starts its material production many customers will gather and create market opportunity for food and beverage sellers.
- Improved land utilization: - The development of proposed site is expected to lead to better (maximized) utilization of land, per square meter of built up area.
- Market for Building Materials: - The project will supply of large quantities of materials (Metal sheet and Nails) most of which will be sold to private and government organization customers with appropriate/affordable price. This will enhance the construction sector, and more specifically will have great impact in benefiting the surrounding community/farmers/..

ii) Operational phase

- Revenue to local and national Government:- The development will provide revenue both to the local and the National Governments through payment of relevant taxes, rates and other levies after revaluation.
- Employment Creation:- Employment will be generated with a number of people being employed at the project site including security personnel, ordinary labourers' cleaners and gardeners. Some of the amenities with prospects for employment during the operational phase is; social hall, business centre and pools.

iii) Decommissioning phase

- Rehabilitation: - After the decommissioning of the project, rehabilitation of the project site will be carried out to restore the site to its original status. This will include replacement of the soil and re-vegetation that will lead to improved visual quality of the area.

- Employment Creation:- Employment opportunities will be created for the demolition staff as well as those involved in loading, transportation and unloading of the demolished materials.

8.4.1.2 Negative Impacts and Mitigation

i) Construction phase

- a) Soil erosion: -In this project, soil erosion will be a major environmental issue or concern since there will be excavation, there are likely to be cases of soil disturbances, exposure, and loosening to the agents of erosion.

Potential mitigation measures

- There should be no unnecessary movement of soil materials from the site
- The site shall be horded to prevent excavated soil from filing the river
- Soil conservation structures should be provided on the areas prone to soil erosion mostly to reduce impact by the run-off.
- There should be controlled construction activities especially during rainy conditions.
- Resurface (pave) open areas on completion of the project.
- A suitable storm water drainage channels should be to effectively discharge water safely. Such channels need to be regularly maintained. Point discharges which have pronounced effect to soil erosion shall be avoided.
- Standard landscaping shall be conducted after project completion to maximally control any possible chance of soil movement.
- Avoid clearing of the vegetation along the stream to cat as soil erosion control agents.

- b) **Water Use and Management protocol** : - The construction activities will require large quantities of water that will be supplied by the Kigoma water supply authority. Water will be used mainly for concrete mixing, curing, sanitary, and washing purposes

Potential mitigation measures

- Provide notices and information signs within the project to notify on the needs to conserve water resource.
- Encourage of water re-use/recycling during construction.
- Avoid using the water from the stream for the construction purposes unless there is adequate permit from concerned bodies(if possible)

c) Solid and liquid waste Generation

Solid waste will be generated during excavation of the site for foundation works and landscaping. Additionally, the used materials used as package of construction material will form solid waste. Liquid wastes will be generated from the cleaned surfaces, paints, and lavatory

Potential mitigation measures

- The contractor and proponent shall work hand in hand with private refuse handlers and local authorities to facilitate sound waste management.
- The wastes shall be properly segregated and separated to encourage recycling of some useful waste materials.
- Employ integrated solid waste management system through a hierarchy options: source reduction, composting and refuse. This will facilitate handling during occupation.
- Any waste water arising from construction should be channeled to the sewer system, except oil and paints, which should be disposed of as provided under the user instruction manual.

d) Pollution

➤ Dust pollution

During construction, the project will generate substantial amount of dust at the construction site and its surrounding area. The sources of dust will include excavation and leveling works, and transport vehicles delivering building materials.

Potential mitigation measures

- Provide full protective gear for workers. Workers shall also be sensitized on hazards encountered in such work environment and shall undergo regular health check-ups.
- Control areas generating dust particles through regular cleaning or sprinkling of water to suppress dust.
- The number of construction equipment operating simultaneously shall be minimized through efficient management practices.
- Vehicle idling time shall be minimized.
- The contractor shall carry out routine maintenance of vehicles and other machinery as per the manufacture's specifications to ensure minimum emission of NO₂ and SO₂.
- Maximize the use of manual labor and hand tools.
- Avoid spillage of loose soil to the road where it will be disturbed and blown away by traffic.
- Sensitize drivers to avoid off road driving.
- Stockpiles of sand and soil should be covered or surrounded with wind breaks
- Trucks hauling dirt and debris should be covered to reduce spillage on to paved roads surface.
- Expedite construction so that it can take the shortest time possible.
- Install dust protective nets around the site to cushion the nearby residents from dust pollution.
- Preserve the trees around the site to act as dust obstructers.
- Provide adequate signage on the site for users and workers to take precautionary measures against dust infection.

❖ **Noise Pollution**

The construction works, delivery of building materials by heavy trucks and the use of machines/equipment such as bulldozers (if necessary), generators, metal grinders and concrete mixers will contribute to high levels of noise within the construction site and the surrounding area. Elevated noise levels will affect project workers, the nearby residents, passers-by and other persons within the vicinity of the project site.

Potential mitigation measures

- truck drivers should switch off vehicle engines while offloading materials
- avoid gunning of vehicle engines or hooting especially when passing through sensitive areas such as churches, schools and hospitals
- construction machinery shall be kept in good condition to reduce noise generation
- all generators and heavy-duty equipment should be insulated or placed in enclosures to minimize ambient noise levels
- Provide the workers with sound protective gears to cushion them from noise pollution.
- Provide sign on the site for purposes of informing the site users, and workers in case of previous health problem with relation to hearing.

e) Fuel Consumption, Oil leaks and spills:

The project activities will lead to an increase in consumption of fossil fuels mainly diesel to run transport vehicles, construction machinery and cars for construction management staff and consultants. These are non-renewable resources and should be used economically and efficiently

Potential mitigation measures

- Strict avoidance of oil grease spills and leakages and
- Construction of oil interceptors if need be.
- Oil product and materials shall be stored appropriately

f) Visual Intrusion:

- Visual impacts will occur during earthworks for the foundation of the project.

Potential mitigation measures

- ✓ All solid wastes and debris shall be cleared on the completion of the work of all works, the worked area shall be restored through backfilling, leveling and planting of vegetation.
- Fence the site using construction nets and iron sheets to prevent visual intrusion.

8.5 OCCUPATIONAL HEALTH AND SAFETY (OHS)

During the proposed works, there may be increased hazards to health and safety such as dust, air, and noise pollution. The workforce and general public involved would be more subjected to these environmental hazards and disturbances. Foods for the construction workforce are usually provided by itinerant individuals most of who operate without license. This can compromise health of the workers especially if such foodstuffs are prepared unhygienic ally.

Potential mitigation measures

- Sanitary facilities shall be provided and cleanliness shall be ensured as per set standards.
- A fully equipped first aid kit shall be provided and shall be managed by qualified persons.
- Adherence to environmental health and safety regulations.
- Individual food vendors preparing food for the workers at the site shall be controlled and monitored to ensure that food is hygienically prepared.
- Ensure consistently good water quality through regular water analysis to ascertain compliance to public health standards.

8.5.1 Construction and Safety

As provided for in the factories and other places of work Act; the safety of those in the workplace should be given the weight it deserves. The following shall be given priority.

- Proper personal protective equipment i.e. safety boots, helmet, goggles, respiratory equipment and gloves shall be used at all times on the site during construction or as condition warrant and workers trained on the proper use of tools.
- Prior to the start of the construction, all areas shall be inspected for the presence of potentially hazardous substances.
- Contractors and managers shall use barriers and guards as necessary to protect employees and visitors from physical hazards. Danger warning or CAUTION will be put at strategic places.
- The contractor and management shall adhere to the provisions of environmental health and safety plan (EHS)

8.6 Operational Phase

- i) **Sewage and Effluent:** -Effluent/sewage resulting from sanitary facilities and wastewater from washrooms, from byproducts of the factory, and chemicals are significant concerns with respect to the environment if it is untreated. It shall be handled by draining effectively into the existing sewer system. Sound sanitation will be ensured to influence prevention of outbreak of diseases detrimental for the general health of the workers, visitors and the general public.

Potential mitigation measures

The proponent shall ensure that there are adequate means for handling the large quantities of sewage generated by the units being directed to the Municipal sewer line

ii) Surface drainage

The drainage of the general site is necessary to enhance effective flow of the much-anticipated surface run-off from impermeable areas within the site.

Potential mitigation measures

- Drainage channels shall be installed in all areas that generate or receive surface water and be connected to the existing storm water drainage channel. The channels shall be covered with gratings or other suitably approved materials to prevent occurrence of accidents and dirt entry that may compromise flow of run-off.
- Paving of the sidewalks, parking and other open areas shall be done using pervious materials i.e. concrete blocks to encourage water percolation thus reducing run-off volume.
- Storm water generated from roof catchments shall be harvested, stored and made use of in various activities e.g. general cleaning and vegetation watering thus reducing run-off and pressure on water supply.

iii) Solid Waste

The proposed activities will generate related solid wastes. If solid waste is not removed promptly away from the generation points it accumulates in to large heaps harboring rats, flies etc. which transmits disease not to mention bad odors on decomposition.

- Provision of bins, one for organic matters and the other mineral matter. These will be of approved type, size and color to effect waste separation and disposal. The bins shall be kept in a good condition and sanitarily cleaned by frequent washing and disinfecting

iv) **Security:-** Security of the site and those working and living within is of utmost significance. The house-for gourds within the facility must be assured of their security at all times

Potential mitigation measures

- Strategic installation of lighting as well as security alarms and backup systems
- Hiring security guards within the property to provide security in a 24-hour basis.
- The site shall be fenced. if possible

v) Water Use

During the operational phase, the various activities will require large quantities of water, i.e. for cleaning, sanitary purposes etc.

Potential mitigation measures

- Installation of water conserving taps that turn-off automatically when water is not in use.
- any water leaks through damaged pipes and faulty taps shall be fixed promptly by qualified staff

vi) Fire hazards: -

The operations that lead to fire outbreaks include poor handling of electricity systems, faulty electrical equipment, carelessness etc. It is important to consider the issue of fire by bringing in the element of preparedness. In this regard, the design of the project has provided and recommended implementation of firefighting measures and control facilities. These include the following:

- All fire control and fighting facilities shall be installed following county government fire masters requirements and approval.
- The dwellers shall be encouraged to be aware of requisite actions basic first aid to take in case of fire outbreaks.
- The proponent shall ensure that all firefighting equipment are strategically positioned, regularly maintained and serviced
- There shall be provided fire hazard signs such as no smoking signs, directions to exit in case of any fire incidence; and emergency contact numbers shall be provided.

vii) Energy demand and conservation: -

- Energy conservation involves optimum use of fossil fuels, electrical appliances (equipment) lighting systems and other electric machinery and equipment as used for different purposes. It also includes the use of renewable energy sources.

Potential mitigation measures a)

a) Electrical appliances: -All the appliances shall be switched off when not in use. Operations of electrical equipment shall be optimized so that energy is not wasted

b) Lighting:-

- Energy conserving electrical lamps use shall be encouraged.
- All lights will be put off when not in use
- An alternatives energy source, a generator can be installed.

viii) Accident prevention: -The following rules will be observed to avoid accidents both during construction and occupation of the factory work.

- Ensure that the operational manuals are available and accessible for every equipment /machinery

- Properly maintain all machinery and equipment to prevent premature failure or possible accidents.
- All electrical equipment and machinery shall be properly grounded
- Only properly trained employees to operate equipment or machinery and proper instructions in their safe operation shall be provided.

8.7 ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Plan (EMP) involves the protection, conservation and sustainable use of the various elements or components of the environment. The EMP for the proposed project provides all the details of project activities, impacts, mitigation measures, time schedules, responsibilities and commitments proposed to minimize environmental impacts of activities, including, monitoring and evaluation and environmental audits during implementation and decommissioning phases of the project.

Once operation of the business start, the project is expected to generate some volumes of solid and hazardous (unwanted materials that is believed to be deleterious to human safety or environment) wastes. By proactively managing these wastes, it can reduce operating costs, preserve local natural beauty/attraction such as the mangrove, amenities, and reduce odors and pest infestations. In this regard M/s Nguvu Kazi Investment Limited corrugated iron sheet and nail factory is expected to produces solid and liquid wastes equivalent to 40 - 80 local households combined. Effective waste management helps ensure the long-term sustainability of the fragile ecosystems and preserve the natural beauty of the city, and vegetation. In addition to these long-term benefits, the factory that practice effective waste management will achieve benefits such as:

- Improved community relations,
- Compliance with government regulations and codes,
- Reduced bad odors and improved aesthetics value and sanitation,
- Reduced man power requirements for waste handling and disposal,
- Revenue from the sale of recyclables waste
- Able to reduce its garbage hauling cost per month

Setting priority Action

After identifying opportunities for improving waste management, the property should identify the most attractive measures, prioritize them, and develop a simple implementation schedule or action plan that assigns responsibilities and set target dates. The main guidelines to remember when managing waste in order of priority are:

- Reduce the generation of waste at the source: reducing the generation of waste is the first option that should be considered. This approach promotes the efficient use of resources and reduces the volume of waste materials that must be

handled by employees and hauled away from the property. Responsibility for reducing waste generation generally lies with managements of the factory, who decides what is brought in to the property and thereby, determines what eventually leaves the property as waste.

- Reuse all possible items: whenever possible items in their original form for the same or different purpose rather than discarding them.
- Recycle all possible items: recycling consists of processing and transforming wastes in to new marketable products. This is the least favorable of the three waste management options and should be considered only if the reduction and reuse options are not applicable to specific waste stream.

Environmental Management Plan (EMP) of the factory					
Environmental and social impact	Potential changes	Enviromental impacts	Mitigation Measures	Excutive Bodies	Implementation schedule
Exacerbating the land for construction purpose	Change in land scape	Land erosion and degradatation of land	Land development and trees planting and construct bunds and drainage	NEMC	June - September 2020
				Project promoters	
				Municipal Office Enviroment	
Production of corrugated iron sheet	Accumulatio n of residual materials	Solid waste pollution	Strict solid management	Municipality Health office/ Enviroment Office Project promoters	Through out the year
The transporting of construction and production inputs and produces	Damage of the roads, change in the quality of air	Air pollution as the result of dust created by vehicles and sound pollution of the vehicles	To construct asphalted road and the slow movement of vehicles	Police	At the construction phase
				Health office Municipal	
				Project promoters	
Execration of employee	The accumulation of liquid wastes	Health hazard of employees and out siders	Careful removal of liquid wastes	Health office/Municipal Environment Office Project promoters OSHA	Anytime
Production and distribution of corrugated iron sheet	Potential hazard on employees	Employees injury	Provision of protective materials and equipment for employment insurance coverage	Project promoters	Through out the year
				Labor and social affairs	
				Workmen Compesation Office	
				OSHA	

9.0 PROJECT IMPLEMENTATION SCHEDULE

The project will need two to three years to be in full operational. It is projected that more time will be required for site building after approval of relevant papers.

2020 - 2022 ACTIVITIES	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D								
	P	A	U	U	U	E	C	O	E	N	E	A	P	A	U	U	U	E	C	O	E	N	A	E	A	P	A	U	U	U	E	C	O	E							
	R	Y	N	L	G	P	T	V	C		B	R	R	Y	N	L	G	P	T	V	C		B	R	R	Y	N	L	G	P	T	V	C								
Project documentation approval and financing	→																																								
NEM Clearance, Obtain building permit & Site building		→																																							
Plant/equipment ordering and importation									→																																
Equipment/machinery installation & Trial production											→																														
Hiring and Staffing															→																										
Obtaining TBS Certificate																					→																				
Full production																											→														

10.0 EMPLOYEES

Total number of employee expect to rage between 17 in the first year to 26 in the fifth year

Salaries - Cost of goods sold COGS																									
No.	Personnel Funtion / category	Number of employees					Expected annual salary increase %	Annual salary (1) employee USD					Social insurance as % of salary	Training expenses as % of salary	Fringe benefits as % of salary	Total cost / employee USD					Total cost / category USD				
		1	2	3	4	5		1	2	3	4	5				1	2	3	4	5	1	2	3	4	5
1	Production manager	1	1	1	1	1	3%	900	927	955	983	1,013	20.00%	5.00%	2.00%	1,143	1,177	1,213	1,249	1,286	1,143	1,177	1,213	1,249	1,286
2	Storage control	2	2	2	2	2	3%	700	721	743	765	788	20.00%	2.00%	2.00%	868	894	921	948	977	1,736	1,788	1,842	1,897	1,954
3	Technicians	2	2	2	2	2	3%	600	618	637	656	675	20.00%	5.00%	2.00%	762	785	808	833	858	1,524	1,570	1,617	1,665	1,715
4	Production line workers	9	10	11	12	12	3%	350	361	371	382	394	20.00%	1.00%	1.00%	427	440	453	467	481	3,843	4,398	4,983	5,599	5,767
5	Machine Operators	2	3	4	5	6	0%	350	350	350	350	350	0.00%	0.00%	0.00%	350	350	350	350	350	700	1,050	1,400	1,750	2,100
6	Engineers	1	2	3	3	3	0%	650	650	650	650	650	0.00%	0.00%	0.00%	650	650	650	650	650	650	1,300	1,950	1,950	1,950
7		0	0	0	0	0	0%	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0	0	0	0	0	0	0
8		0	0	0	0	0	0%	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0	0	0	0	0	0	0
9		0	0	0	0	0	0%	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0	0	0	0	0	0	0
10		0	0	0	0	0	0%	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0	0	0	0	0	0	0
11		0	0	0	0	0	0%	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0	0	0	0	0	0	0
12		0	0	0	0	0	0%	0	0	0	0	0	0.00%	0.00%	0.00%	0	0	0	0	0	0	0	0	0	0
Subtotal		17	20	23	25	26															9,596	11,283	13,004	14,110	14,773

11.0 PROJECTED FINANCIAL STATEMENTS

NGUVU ZETU INVESTMENT LIMITED					
PROJECTED INCOME STATEMENT					
Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
	USD	USD	USD	USD	USD
Total net sales	233,085	270,270	286,025	315,850	317,075
Nails	26,535	35,670	38,250	50,600	52,800
Roof ridge caps	49,005	55,660	52,275	68,750	68,750
Roofing sheets	157,545	178,940	195,500	196,500	195,525
Total revenues	233,085	270,270	286,025	315,850	317,075
Cost of goods sold COGS	148,131	169,526	179,597	196,511	197,822
Raw material	116,543	135,135	143,013	157,925	158,538
Semi finished products / components	0	0	0	0	0
Energy	4,662	5,405	5,721	6,317	6,342
Utilities	2,331	2,703	2,860	3,159	3,171
Production salaries	9,596	11,283	13,004	14,110	14,773
Production workspace	10,000	10,000	10,000	10,000	10,000
Other production costs	5,000	5,000	5,000	5,000	5,000
Gross profit	84,954	100,744	106,428	119,339	119,253
Selling, general and administrative expenses SG&A	35,712	49,232	50,195	50,441	52,018
Salaries	6,051	6,232	8,195	8,441	10,018
Workspace	15,000	15,000	15,000	15,000	15,000
Marketing & sales expenses	4,662	18,000	17,000	17,000	17,000
General office and utilities expenses	10,000	10,000	10,000	10,000	10,000
Operating profit / EBITDA	49,242	51,512	56,232	68,898	67,235
Depreciation	16,117	27,850	37,417	46,483	40,550
Interest expenses (loan from bank)	0	0	0	0	0
Interest income from investments (bank deposit)	0	350	700	1,050	1,400
Extraordinary charges (or incomes)	20,000	11,000	9,000	9,000	9,000
Currency exchange adjustments					
Fees and provisions	10,000	5,000	5,000	5,000	5,000
Other	10,000	6,000	4,000	4,000	4,000
Income tax	3,938	3,799	2,945	4,024	5,305
Net profit (or loss)	9,188	9,213	7,571	10,440	13,779

NGUVU ZETU INVESTMENT LIMITED					
PROJECTED BALANCE SHEET STATEMENT					
Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Long-term assets					
Fixed assets: property, plant and equipment	108,883	171,033	208,617	227,133	246,583
Long-term financial investments		0	0	0	0
Goodwill	0	0	0	0	0
Total long-term assets	108,883	171,033	208,617	227,133	246,583
Current assets					
Cash & cash equivalents (current account)	-78,181	-50,888	5,872	29,964	79,127
Deposit account	7,000	14,000	21,000	28,000	35,000
Accounts receivable	57,473	66,642	70,527	77,881	78,183
Inventories	48,701	55,735	59,046	64,606	65,038
Total current assets	34,992	85,488	156,445	200,451	257,348
Total assets	143,876	256,522	365,062	427,584	503,931
Long-term liabilities					
Long-term loans	0	0	0	0	0
Total long-term liabilities	0	0	0	0	0
Current liabilities					
Accounts payable	36,525	41,801	44,284	48,455	48,778
Other provisions	0	0	0	0	0
Total current liabilities	36,525	41,801	44,284	48,455	48,778
Shareholders equity					
Share capital	100,000	200,000	300,000	350,000	415,000
Reserves	459	920	1,450	2,494	3,872
Retained earnings (or - accumulated losses)	6,891	13,801	19,327	26,635	36,281
Total shareholders' equity	107,350	214,721	320,777	379,129	455,153
Total liabilities & equity	143,876	256,522	365,062	427,584	503,931

NGUVU ZETU INVESTMENT LIMITED

PROJECTED CASHFLOW STATEMENT

Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 6
	USD	USD	USD	USD	USD
Cash flow from operating activities					
Operating profit (EBITDA)	49,242	51,512	56,232	68,898	67,235
Interest expenses	0	0	0	0	0
Interest income from investments (bank deposit)	0	350	700	1,050	1,400
Extraordinary charges (or incomes)	-20,000	-11,000	-9,000	-9,000	-9,000
Income tax	-3,938	-3,799	-2,945	-4,024	-5,305
Movements in working capital					
Decrease (or - increase) in accounts receivable	-57,473	-9,169	-3,885	-7,354	-302
Decrease (or - increase) in inventories	-48,701	-7,034	-3,311	-5,561	-431
Increase (or - decrease) in accounts payable	36,525	5,276	2,483	4,170	323
Increase (or - decrease) in other provisions	0	0	0	0	0
Total cash flow from operating activities	-44,344	26,136	40,275	48,179	53,920
Cash flow from investing activities					
Sale (or - purchase) of fixed assets	-125,000	-90,000	-75,000	-65,000	-60,000
Sale (- purchase) of long-term financial investments	0	0	0	0	0
Decrease (or - increase) of goodwill	0	0	0	0	0
cash placed in the deposit account	-7,000	-7,000	-7,000	-7,000	-7,000
Total cash flow from investing activities:	-132,000	-97,000	-82,000	-72,000	-67,000
Free cash flow	-176,344	-70,864	-41,725	-23,821	-13,080
Cash flow from financing activities					
Long term loans drawn	0	0	0	0	0
Repayments of loans made	0	0	0	0	0
Equity contribution (or - withdrawal)	100,000	100,000	100,000	50,000	65,000
Dividend paid	-1,838	-1,843	-1,514	-2,088	-2,756
Total cash flow from financing activities	98,162	98,157	98,486	47,912	62,244
Total net increase (- decrease) in cash	-78,181	27,293	56,761	24,091	49,164
Cash balance: beginning of the year	0	-78,181	-50,888	5,872	29,964
Cash balance: end of the year	-78,181	-50,888	5,872	29,964	79,127

NGUVU ZETU INVESTMENT LIMITED

INVESTMENT PLAN/INVESTMENT BREAK DOWN

Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
	USD	USD	USD	USD	USD	
Investment Break down						
Land	0	0	0	0	0	0
Building	30,000	10,000	10,000	10,000	10,000	70,000
Plant & Machinery	30,000	30,000	30,000	20,000	20,000	130,000
Motor Vehicle	15,000	10,000	0	0	0	25,000
Furniture & Fixtures	20,000	10,000	5,000	5,000	0	40,000
Working Capital	30,000	30,000	30,000	30,000	30,000	150,000
Total investment	125,000	90,000	75,000	65,000	60,000	415,000
Fixed assets accumulated: at cost	125,000	215,000	290,000	355,000	415,000	
Depreciation						
Land	0	0	0	0	0	
Building	1,200	1,600	2,000	2,400	2,800	
Plant & Machinery	1,500	3,000	4,500	5,500	6,500	
Motor Vehicle	750	1,250	1,250	1,250	1,250	
Furniture & Fixtures	6,667	10,000	11,667	13,333	0	
Working Capital	6,000	12,000	18,000	24,000	30,000	
Total depreciation	16,117	27,850	37,417	46,483	40,550	
Total depreciation accumulated	16,117	43,967	81,383	127,867	168,417	
Net asset book value	108,883	171,033	208,617	227,133	246,583	
Depreciation period: linear, in years						
Land	25					
Building	25					
Plant & Machinery	20					
Motor Vehicle	20					
Furniture & Fixtures	3					
Working Capital	5					

NGUVU ZETU INVESTMENT LIMITED

FINANCING PLAN

Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Shareholders equity	USD	USD	USD	USD	USD
Equity contribution (or withdrawal)	100,000	100,000	100,000	50,000	65,000
Share capital	100,000	200,000	300,000	350,000	415,000
Long-term loans from bank					
Loans drawn at the beginning of the year		0	0	0	0
Repayments made at the end of the year					
Basis for interest calculation - end of year	0	0	0	0	0
Interest rate	0%	0%	0%	0%	0%
Interest expenses	0	0	0	0	0
Loan balance: year end (goes to balance sheet)	0	0	0	0	0
Liquidity control					
Operating costs	183,843	218,758	229,793	246,952	249,840
Minimum cash in relation to operating costs	30%	30%	30%	30%	30%
Minimum cash balance required (to be available at the end of the year)	55,153	65,627	68,938	74,086	74,952
Actual cash balance at the end of the year	-78,181	-50,888	5,872	29,964	79,127
Dept to equity relation control					
Dept to equity ratio - planned	0.3	0.2	0.1	0.1	0.1
Dept to equity ratio - acceptable by the bank	2	2	2	2	1.2
Deposit of excess liquidity to a bank account					
Amount deposited (at the end of the year)	7,000	7,000	7,000	7,000	7,000
Total amount deposited (per end of year) - basis for the interest calculation	0	7,000	14,000	21,000	28,000
Total amount deposited (per end of year) - basis for the balance sheet	7,000	14,000	21,000	28,000	35,000
Interest rate	5%	5%	5%	5%	5%

NGUVU ZETU INVESTMENT LIMITED					
RECONCILIATION OF SHAREHOLDERS' EQUITY					
planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR4	YEAR 5
	USD	USD	USD	USD	USD
Beginning shareholders equity	0	111,025	222,081	328,138	386,490
+ Net profit (or - loss)	9,188	9,213	7,571	10,440	13,779
+ Equity contribution (or - withdrawal)	100,000	100,000	100,000	50,000	65,000
- Dividends paid	-1,838	-1,843	-1,514	-2,088	-2,756
Ending shareholders equity	111,025	222,081	328,138	386,490	462,513
Additional reserves	459	461	530	1,044	1,378
Dividends paid	1,838	1,843	1,514	2,088	2,756
Retained earnings (or accumulated losses)	6,891	6,910	5,527	7,308	9,646

NGUVU ZETU INVESTMENT LIMITED					
CALCULATION OF INCOME TAX					
Planning years >>	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
	USD	USD	USD	USD	USD
Net profit after extraordinary items	13,125	12,662	9,815	13,414	17,685
Income tax rate	30%	30%	30%	30%	30%
Net loss carried forward	0	0	0	0	0
Taxable income	13,125	12,662	9,815	13,414	17,685
Income tax	3,938	3,799	2,945	4,024	5,305

NGUVU ZETU INVESTMENT LIMITED

RATIO SUMMARY SHEET

Planning years >>	1	2	3	4	5
Liquidity ratios					
Current ratio	1	2	3.5	4.1	5.3
Quick test ratio	-0.4	0.7	2.2	2.8	3.9
Efficiency ratios					
Inventory turnover -days	120	120	120	120	120
Accounts receivable turnover -days	90	90	90	90	90
Accounts payable turnover -days	90	90	90	90	90
Fixed asset turnover	2.1	1.6	1.4	1.4	1.3
Total asset turnover	1.6	1.1	0.8	0.7	0.6
Profitability ratios					
Gross profit margin	36%	37%	37%	38%	38%
Net profit margin	4%	3%	3%	3%	4%
Operating profit margin	21%	19%	20%	22%	21%
Return on assets	6%	4%	2%	2%	3%
Return on equity	9%	4%	2%	3%	3%
Dividend payout	20%	20%	20%	20%	20%
Solvency ratios					
Debt to equity ratio	0.3	0.2	0.1	0.1	0.1
Total assets to equity ratio	1.3	1.2	1.1	1.1	1.1
Total assets to total liabilities ratio	3.9	6.1	8.2	8.8	10.3
Capitalisation ratio	0	0	0	0	0
Interest coverage ratio	0	0	0	0	0

12.0 CONCLUSION & RECOMENDATION

The project as analyzed in this report is economically, financially and technically viable. The project has come at the right time to provide jobs between 24 employees to Kigoma Citizens, also will increase tax portfolio domestic revenue and increase revenue to the Government. Moreover the project will make easy supply of quality roofing sheets at affordable price to Kigoma, Katavi, Rukwa, Tabora and Congo , Rwanda and Burudi as well.

Nevertheless, the proposed project has integrated mitigation measures with a view to ensuring compliance with all the applicable laws and procedures. During project implementation and occupation, Sustainable Environmental Management (SEM) will be ensured through avoiding inadequate/inappropriate use of natural resources, conserving nature sensitively and guaranteeing a respectful and fair treatment of all people working on the project, general public at the vicinity and inhabitants of the project. In relation to the proposed mitigation measures that will be incorporated during construction phase, the development's input to the society; and cognition that the project proponent is economically and environmentally sound, establishments are considered beneficial and important. It is our considerable opinion that the proposed development is a timely venture that will help alleviate poverty through job creation.

The consultants strongly feel that the proponents shall respond to the design and location and recommendations provided to mitigate the environmental impacts. Similarly the proponents shall commit themselves to implement the waste management mechanisms during the operation phase. Through the future build up waste treatment design recommended requires the proponent's additional commitment; the benefits are believed to significantly outweigh the escalation of commitment.

NEMC needs to take a stand to facilitate and monitor the implementation of the mitigation measures. As there is a gap on both sides (the licensed authority and the proponents), the consultants advise the parties to implement the recommendations without impeding the construction activities as this will disrupt the proponents investment activity and delay the schedule. The project development requires municipal solid and liquid wastes disposal services that are currently available in Ujiji Kigoma.

Dump containers and trucks are short of supply, yet the factory needs to access the services in competition with the local population. This may adversely affect the health of the local population, so the proponent should have disposal track, Introducing of a solid waste storage and sorting facility for the safe disposal of solid wastes. The assortment would enable the company to separate the materials to be recycled, reused and the solid organic wastes to be transported to the municipality garbage disposal site.

Recommendation

Ensure that worker's occupational health and safety standards are maintained through capacity building, proper training, providing protective clothing and managing their residential camps up to the required health standards.

- Annual environmental audits should be carried out on the project in order to ensure compliance of the project with the mitigation measures outlined in the Environmental Management Plan (EMP),
- All activities concerning construction and maintenance such as, work execution, site inspection, and material testing, shall be strictly monitored by an engineer or a designated official. This is important to ensure quality of maintenance works. Engineers and/or designated official shall be trained and experienced enough to judge the appropriateness of the work executed in order to carry out the monitoring properly both during construction and production of output (metal sheet and nails)
- The proponent should therefore follow the guidelines as set by the relevant departments to safeguard and envisage environmental management principles during construction and operation/occupation phases of the proposed project.
- It is important that warning/ informative sign (bill boards) be erected at the site. These should indicate the operation hours and when works are likely to be started and completed. The signs should be positioned in a way to be easily viewed by the public and mostly motorists.
- Solid waste should be disposed appropriately to avoid creation of illegal dumpsites which will finally become a health hazards in the area.
- All solid waste materials and debris resulting from construction activities should be transported and leveled at sites approved by the local authority engineer.
- Other appropriate soil erosion control measures should be adapted. Any stockpiles of earth should be enclosed, covered or sprinkled with water during dry or windy conditions to minimize generation of dust particles into the air.
- Once earthworks have been done, restoration of the worked areas should be carried out immediately by backfilling, landscaping/ leveling and planting of suitable tree species.
- Proper and regular maintenance of construction machinery and equipment will reduce emission of hazardous fumes and noise resulting from friction of metal bodies. Maintenance should be conducted in a designated area and in a manner not to interfere with the environment.
- A fully equipped first aid kit should be provided within the site.
- Workers should get food that is hygienically prepared. The source of such food should be legalized or closely controlled.
- The contractor should have workmen's compensation cover and is required to comply with workmen's compensation Act as well as other relevant ordinances, regulations and Union Agreements.

- The contractor should provide adequate security during the construction period.
- During operation phase the proponent should employ a cleaner to maintain the sanitary facilities in a clean state all the time.
- The proponent should install rain water harvesting and storage facilities to supplement pipe water
- The management of the environment needs to be broad and public awareness is necessary to take into account ecological considerations in the decision-making process
- Different experts such as civil engineers, economists and ecologists should be operational within one organization and they should work together on the development of proper environmental management policies.
- Cooperation between environment departments should be strengthened.
- The implementation area should be according to the Master plan. This will mobilize entire local communities for sustainable development activities complying with all the rules and regulations resulting into an integrated and desired mode of development of the entire areas.