BLUE LINE INDUSTRIES LIMITED

FEASIBILITY STUDY

FOR THE ESTABLISHMENT

OF
MANUFACTURING FACILITIES

FOR

HOLLOW SECTIONS, BLACK PIPES & MILD STEEL (MS) PLATES OF VARIOUS SIZES

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1.0. Executive Summary

1.1. Introduction

The overall industrial performance of Hollow Sections, Black Pipes & Mild Steel (Ms) Plates of various sizes of recent has not been very satisfactory. Majority of it is imported. The main impediments for rapid development of this sector are lack of financing as it requires huge investments, advanced technology and existence of COVID 19. As per the trend of steel industry, the supplying capacity of the Steel Pipes, Tubes and Plates of various Sizes industry is not the same as the demand side of the industry's products is high. Hollow Sections, Black Pipes & Mild Steel (Ms) Plates of various sizes products is used by various sectors, especially service, construction, water, gas, agriculture and, telephone) and have very high (both new and replacement) demand. The Hollow Sections, Black Pipes & Mild Steel (Ms) Plates of various sizes has acquired the status of a Basic items. Hollow Sections, Black Pipes & Mild Steel (Ms) Plates of various sizes provides board-based support to the development of an economy, by supporting products and intermediate goods on which other industries base their products and services.

1.2 The Company

Blue Line Industries Limited is a private limited liability company with Certificate of Incorporation no **144826550** registered on 16th November 2020 in Dar es Salaam. Blue Line Industries Ltd is a sister company of Gerezani Plastics and Steel Ltd a company which is well established as a wholesaler of hardware items in Tanzania. Blue Line

Industries Limited intends to be one of the leading manufacturers of Hollow Sections, Black Pipes & Mild Steel (Ms) Plates in Central and East Africa. The company under the leadership of one of the shareholders namely Mr Odedra Hamir will benefit from his years of experience in trading with these items to become one of the major manufacturers of steel items in Tanzania.

1.3 Value of the Investment

The value of the current investment is estimated as follows: -

CAPITAL ITEMS	TOTAL
Land & Buildings	**1,150,000**
Plant &machinery	**1,215,000**
Motor Vehicles	**100,000**
Furniture & Fittings	**25,000**
others	**70,000**
Pre-Operational Expenses	
Total Initial Fixed Investment	**2,560,000**
Initial Working Capital	**3,000,000**
TOTAL INVESTMENT	**5,560,000**

1.4 Proposed Sources of Finance

Funds for the execution of the project will be from own source i.e., Injection of funds from the sponsors and the term loan from various banks. The company will also look for overdraft facility to finance part of its working capital. The financing pattern will be as below;

SOURCE	US$
Fixed Assets	
Equity	**810,000**
Long term loan (-)	**1,750,000**
Short term loan	**3,000,000**
GRAND TOTAL	**5,560,000**

1.5 The Project

The board of directors of Gerezani Plastics and Steel Ltd under the name of Blue Line Industries Ltd have decided to venture into the production of steel hardware items like hollow sections, black pipes & MS plates. After being in the business for 15years in the wholesale trade of this items and been able to have market almost in every region of Tanzania and opening branches in regions one of them being Dodoma, the shareholders have decided to venture in the manufacturing of these products locally.

1.6 The Market

After being in the wholesale business over 15 years, the company has been able to establish that there is unsatisfied market of Hollow Sections, Black Pipes & Mild Steel (Ms) Plates of various sizes products. On those grounds, the company has decided to fulfil their medium and long-term objective of manufacturing the products here in Tanzania locally for local distribution and also sale outside the country as they already have established market for these products and hence will not face any marketing problems. The company intends to sell most of the Hollow Sections, Black Pipes & Mild Steel (Ms) Plates produced locally and also in the neighbouring countries such as Uganda, Kenya, Ethiopia, Burundi, Rwanda and Central Africa, which include Zambia and Malawi.

1.7 Sponsors and Management

The project is being sponsored by Messrs. Blue Line Industries Limited. whose directors and share holdings are as follows: -

Name of Share Holder	Nationality	% Holding
Mr. Odedra Hamir Jiva	Tanzanian	80%
Mrs. Lila Odedra	British	20%

1.8 Projections

Projected Profit and Loss

On the basis of the operating assumptions and costs, the diversification of the trading operations the project will be profitable throughout the projected review period of 10 years.

Liquidity Projections

These projections take into account the assumed sources and applications of funds over the planned period and show the ability of the company to meet financial commitments and capital expenditure requirements.

2.0 THE PROJECT

The main objective of the company is to establish a profitable, sustainable and environmentally accepted unit of state-of-the-art manufacturing plant for the production of Hollow Sections, Black Pipes & Mild Steel (Ms) Plates of various sizes to be used in a wide variety of structural applications. The main items will be various Steel Items such as Round steel pipe, Square hollow pipe, Rectangle hollow pipe, MS Steel Plate, SS Steel Plate, MS CHQ Plate and Galvanized Plate.

2.1 THE PRODUCTS

i)*Black steel pipes* are made of steel that has not been coated with a substrate such as zinc or paint and is used for various purpose such as making general structural, flanging & forming, atmospheric corrosion resistance products, boilers & pressure vessels, Penstock, Ship Building, Oil & Gas equipment & Pipeline manufacturing, Industrial Flooring, galvanizing pots, various engineering application, fabrication of various types .As black steel pipes are strong can also be used in various activities such as underground for transporting water and gas throughout cities and towns and the lightweight can used in bicycle frame manufacture.

ii)Hollow section is usually used for a specific purpose and are Commonly used in a wide range of structural, mechanical and construction areas. HSS can be circular, square, or rectangular sections, although other shapes such as elliptical are also available. HSS rectangular sections, are commonly used in welded steel frames. Square and circular HSS have very efficient shapes and thus uniform strength characteristics. This makes them good choices for columns. They also have excellent resistance

to torsion. Other places they can be used is in automobiles, refrigeration units, heating and plumbing systems, flagpoles, street lamps. Other places they find utility is in automobiles, refrigeration units, heating and plumbing systems, flagpoles, street lamps, and medicine to name a few.

iii) MS Steel Plate are the most popular hot rolled, low carbon steel plates used in manufacturing, fabrication, and repair projects. MS Steel plate adds strength and rigidity to any project. It is easy to weld, cut, form and machine. Mild Steel Plates serves a various purpose such as making general structural, flanging & forming, atmospheric corrosion resistance products, boilers & pressure vessels, Penstock, Ship Building, Oil & Gas equipment & Pipeline manufacturing, Industrial Flooring, galvanizing pots, various engineering application, fabrication of various types. A36 Steel Plate is one of the most popular hot rolled, low carbon steel plates used

2.2 PRODUCTION FACILITIES

Various facilities are required in order to establish a processing plant. This will include main building with floor-roof clearance of above 4 meters for equipment installation, warehousing for raw materials and yard for finished goods storage, electrical power supply (3 phases), water supply, compressed air supply. Other facilities include a generator, 300 to 600 KVA will also be included including the following fleet of cars; delivery and distribution trucks, and pick-ups. The management has already acquired the land for the proposed project and project plans have been completed and processes of clearing and fencing the land have begun.

2.3 RAW MATERIALS

The primary raw material in pipes, hallow sections and MS plates production is steel. Steel is made up of primarily iron. Black steel pipes are made of steel that has not been coated with a substrate such as zinc or paint. Since it has a dark color surface that is formed by iron oxide during the manufacturing process, it is called black. Other metals that may be present in the alloy include aluminium, manganese, titanium, tungsten, vanadium, and zirconium. Some finishing materials are sometimes used during production Carbon Steel, Hot Rolled/Galvanized steel

2.4 MANUFACTURING PROCESS

The manufacturing process is also relatively simple as it involves forming the steel into required shape and size using machinery which is mainly automated. ***Steel pipes*** are made by two different processes. The overall production method for both processes involves three steps. First, raw steel is converted into a more workable form. Next, the pipe is formed on a continuous or semi continuous production line. Finally, the pipe is cut and modified to meet the customer's needs. ***Square Hollow section*** is made the same way as pipe. During the manufacturing process flat steel plate is gradually changed in shape to become round where the edges are presented ready to weld. The edges are then welded together to form the mother tube. During the manufacturing process the mother tube goes through a series of shaping stands which form the round HSS (mother tube) into the final square or rectangular shape with hollow bar. There are two main ways to create hollow bar, with the process depending on

material type and dimensional tolerance requirements. One method for creating hollow bar is called drilling. This process involves sending a drill through a solid bar stock of material. This process can produce highly accurate part dimensions for critical applications. The second method is centrifugal casting. This is when a round mold is rotated at high speeds as molten metal is poured into the mold. The force created by the spinning mold forces the molten material to the inside mold wall where it cools and hardens. Centrifugal casted hallow bar tends to be dense and uniform.

MS plates are made by rolling a slab of steel through a series of rollers until the desired thickness and material properties are achieved. Each stage in the rolling and finishing process produces a salable sheet or plate with distinct finish and properties. Specialized coatings can be applied to the surface of the steel via dipping or electroplating. Most commonly zinc is applied to the surface to produce what is known as galvanized steel. A36 Steel Plate is one of the most popular hot rolled, low carbon steel plates used in manufacturing, fabrication, and repair projects. A36 Steel plate adds strength and rigidity to any project compared to other grades of steel plate.

2.4 Quality Control

A variety of measures are taken to ensure that the finished products meet specifications. For example, x-ray gauges are used to regulate the thickness of the steel. The gauges work by utilizing two x rays. One ray is directed at a steel of known thickness. The other is directed at the passing

steel on the production line. If there is any variance between the two rays, the gauge will automatically trigger a resizing of the rollers to compensate.

The products are also inspected for defects at the end of the process. One method of testing is by using a special machine. Defective pipes are returned for scrap.

The company will follow laid down policies as dictated by the regulations of Factory Inspectorate for workplace, health and safety policies. The factory will also be installed according to safety policies. It will also be necessary for all employees to follow laid down procedures in machinery handling, protective gear use and safety measures.

3.0 SITE LOCATION AND OWNERSHIP

The site and the location of the project will be in **plot - (1 TO 8), Block No – J, Pwani Kibaha Misugusugu**. The current site is accessible by a good tarmac road. A 3-phase power supply form TANESCO and water supply form a main pipe also services it. The site has stand-by facilities for water and diesel fuel storage.

4.0 MANPOWER

The total manpower for the project is expected to initially be ***40*** people; also, the company is expected to employ ***5*** expatriates. The breakdown is as shown below.

PEOPLE	NUMBER
Managing Director	1
Directors	1
General Managers	1
Financial controller	1
Managers	4
Customer's service	1
Machinery operators	9
Factory supervisors	2
Engineers	3
Personal officer	1
Accountant	1
Treasurer	1
Clerks	4
Cookers	2
Cleaners	4
Security	3
Cooker	1
TOTAL	**40**

5.0 IMPLEMENTATION PROGRAMME

The implementation schedule shows that the development of the project will take about 36 months. The full commissioning of the plant will be in the year 2024.

6.0 PRODUCTION FORECAST

At its peak the plant will be able to produce about ***1103 tons*** per month as per following breakdown

ITEM	***Capacity per month in TONS***	***Capacity per year in TONS***
Square pipes (hallow sections	615	7380
Round pipes (6M)	185	2223
SS Plates	34	405
MM MSP plates	216	2587
MS CHQ Plates	24	285
Galvanised Plates	29	345
Total	**1103**	**13,225**

7.0 THE MARKET

7.1 Demand & Supply

Steel is an important resource in many industries such as construction and manufacturing, which are the key sectors for steel consumption. Africa structure of steel demand has changed dramatically since 2000 as of now steel is used more than any other metal in the world. Each of the grades of steel features distinct physical, chemical and environmental properties designed for specific applications.

The new estimates of the World Steel Association, shows the global steel demand growth in 2021 will amount to 4.1% (from 1725 million tons of finished products in 2020, to 1795 million tons in 2021). (From internet). Tanzania steel industry recorded positive growth rate making construction the second higher contributor to GDP behind agriculture. The major catalyst being increased economic activities especially construction of residential and business projects and the general infrastructure development.

Tanzania is characterized by small no of producers of steel products and it has been established that imports of steel is increasing. Major importers are local steel producers, traders, builders (contractors) and Government entities. The major sourcing countries are China, Turkey, South Africa and Ukraine. The main reasons for the increased importation are because of a high demand of high tensile strength steel. Therefore, as of now the existing scenario is that Tanzania has low exports than imports. local producers supply to Rwanda, Burundi, Uganda and Kenya markets.

Based on the above analysis, with the intended installed capacity of 1103 metric tonnes per month, the company will not face any marketing problems. Furthermore, the company will also benefit with the existing market share as wholesalers, and hence will anticipate strong sales and a positive cash flow.

7.2 Market Environment

Given trade liberalisation, deconfinement and prices decontrol, the national market environmental is generally expected to be competitive. For the Steel industry, analysis indicates that continued shortage of these products limits competition in the industry. The market demand for Hollow Sections, Black Pipes & Mild Steel (Ms) Plates is high and increasing. The Hollow Sections, Black Pipes & Mild Steel (Ms) Plate's are versatile and from different markets and market segments. Products from these processing industries are substantially more stable and attractive, and serve basic infrastructure industries, like water supply, sewerage disposal, telecommunication, electricity distribution, gas distribution, plant and equipment installations and irrigation.

the project to meet capital expenditure. Net cash generation is a modest of US $**1.43 ml** the first year of operation

8.4 Financial Review

- The Financial review of the project demonstrates that: -
- The project is profitable
- The liquidity position of the project is sound and that is should be able to meet its loan commitment easily;
- The operations are financially and technically viable.

10. 0 Conclusion and Recommendation

The above study of the project reveals that the project is technically, commercially and economically feasible, viable and is desirable for country's economy. Since it still results into many social benefits like employment generation, related development in society, inflow of foreign exchange, inflow of foreign technology, strengthening of manufacturing base within the country, inflow of technical and managerial expertise, creation of many other ancillary industries and businesses etc the project is desirable socially also.

In light of anticipated financial, social and development benefits the project qualifies for positive recommendation for immediate implementation. Since the promoters are confident of arranging the required funds and of establishing the project within the committed time frame the conclusion is to recommend to all concerned authorities to accord utmost support to this project so as to enable the country to realize the benefits as perceived in this report.

8.0 FINANCIAL ANALYSIS

8.1 Fundamental Assumptions

The preparations of the financial projections took into account the following main assumptions;

i) The operating period under which the project will be reviewed is 10 years

ii) The operation costs have been taken to be 70% of the total revenue

iii) The Capital Cost Summary of the establishment is as below and is reproduced below for ease of reference.

VALUE IS US $

CAPITAL ITEMS	TOTAL
Land & Buildings	1,150,000
Plant &machinery	1,250,000
Motor Vehicles	100,000
Furniture & Fittings	25,000
Others	70,000
Pre-Operational Expenses	
Total Initial Fixed Investment	**2,560,000**
Initial Working Capital	3,000,000
TOTAL INVESTMENT	**5,560,000**

The above cost estimates consider the cost of installing new machinery and equipment in the new building on site.

8.2 Proposed Sources of Finance

The sponsors of the company will finance the whole enterprise of Blue Line Industries Limited operations and the proposed processing programmes. The sponsors will also look for the term loan from various banks both internal and abroad. The financing pattern is as shown below.

SOURCE	US$
Fixed Assets	
Equity	**810,000**
Long term loan (-)	**1,750,000**
Short term loan	**3,000,000**
GRAND TOTAL	**5,560,000**

8.3 Financial Analysis

8.3.1 Operating Costs

The operating costs have been estimated to be 70% of the total revenue. Costs include salaries and wages and administrative overheads.

8.3.2 Projected Profitability

On the basis of the assumptions the operations of the project are profitable throughout the projected period of 10 years. Net profit rises from **US$.1.21m** the first year and rises to **US $ 2.24 m** in the tenth year.

8.3.3 Liquidity Projections

The projections take into account the assumed sources and applications for funds over the planned period and show the ability of

BLUE LINE INDUSTRIES LIMITED

Investment Cost

US $

CAPITAL ITEMS	TOTAL
Land & Buildings	1,150,000
Plant &machinery	1,250,000
Motor Vehicles	100,000
Furniture & Fittings	25,000
Others	70,000
Pre-Operational Expenses	-
Total Initial Fixed Investment	**2,560,000**
Initial Working Capital	3,000,000
TOTAL INVESTMENT	**5,560,000**

BLUE LINE INDUSTRIES LIMITED

Financing Pattern

SOURCE	US$
Fixed Assets	
Equity	**810,000**
Long term loan (-)	**1,750,000**
Short term loan	**3,000,000**
GRAND TOTAL	**5,560,000**

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Depreciation Schedule

US $

Investment	Total Costs	Rate	1	2	3	4	5	6	7	8	9	10
Land Buildings	1,150.000	4.0%	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000
Plant & Machinery & Equipment	1,215,000	12.5%	151,875	151,875	151,875	151,875	151,875	151,875	151,875	151,875	-	-
Motor Vehicles	100,000	25.0%	25,000	25,000	25,000	25,000	-	-	-	-	-	
Furniture &Fixtures	25,000	12.5%	3,125	3,125	3,125	3,125	3,125	3,125	3,125	3,125	-	
Total Costs	**2,490,000**		**226,000**	**226,000**	**226,000**	**226,000**	**201,000**	**201,000**	**201,000**	**201,000**	**46,000**	**46,000**

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Production capacities

ITEM	***Capacity per month in TONS***	***Capacity per year in TONS***	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
Percentages %			***60%***	***70%***	***80%***	***90%***	***100%***	***100%***	***100%***	***100%***	***100%***	***100%***
Square pipes (hallow sections	615	7380	4,428	5,166	5,904	6,642	7380	7380	7380	7380	7380	7380
Round pipes (6M)	185	2223	1,334	1,556	1,778	2,001	2223	2223	2223	2223	2223	2223
SS Plates	34	405	243	284	324	365	405	405	405	405	405	405
MM MSP plates	216	2587	1,552	1,811	2,070	2328	2587	2587	2587	2587	2587	2587
MS CHQ Plates	24	285	171	196	228	257	285	285	285	285	285	285
Galvanised Plates	29	345	207	242	276	311	345	345	345	345	345	345
Total	**1103**	**13,225**	**7,935**	**9255**	**10,580**	**11,904**	**13,225**	**13,225**	**13,225**	**13,225**	**13,225**	**13,225**

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Revenue Schedules

PRODUCTS	Sales per annum@ (100%)		Sales per annum @60%		Sales per annum @ 70%		sales per annum @ 80%		Sales per annum 90%	
	Tshs 000)	*US$000*	Tshs 000	US$000	*Tshs,000*	*Usd,000*	*Tshs000*	*USD 000*	*Tsh000*	*Usd 000*
Square pipes (hallow sections	27,306,000	11,620	16,383,600	6,972	19,114,200	8,134	21,844,800	9,296	24,575,400	10,458
Round pipes (6M)	7,992,000	3,401	4,795,200	2,041	5,594,400	2,381	6,393,600	2,721	7,192,800	3,061
SS Plates	1,428,000	608	856,800	365	999,600	425	1,142,400	486	1,285,200	547
MM MSP plates	8,812,800	3,750	5,287,680	2,250	6,168,960	2,625	7,050,240	3,000	7,931,520	3,375
MS CHQ Plates	907,200	386	544,320	232	635,040	270	725,760	309	816,480	347
Galvanised Plates	1,252,800	533	751,680	320	876,960	373	1,002,240	426	1,127,520	480
Total Revenue	**47,698,800**	**20,297**	**28,619,280**	**12,178**	**33,389,160**	**14,208**	**38,159,040**	**16,238**	**42,928,920**	**18,268**

BLUE LINE INDUSTRIES LIMITED
Profit & Loss Profit

US $000

	1	2	3	4	5	6	7	8	9	10
	60%	70%	80%	90%	100%					
Revenue										
Total revenue	**12,178**	**14,208**	**16,238**	**18,268**	**20,297**	**20,297**	**20,297**	**20,297**	**20,297**	**20,297**
Cost of sales	10,230	11,935	13,340	15,345	17,050	17,050	17,050	17,050	17,050	17,050
Gross Profit	1948	2,273	2,898	2,923	3,247	3,247	3,247	3,247	3,247	3,247
Other costs Depreciation	226	226	226	226	201	201	201	201	46	46
Profit Before Tax	1,722	2047	2,672	2,697	3,046	3,046	3,046	3,046	3,201	3,201
Taxation 30%	517	614	802	809	914	914	914	914	960	960
Net Profit	**1,205**	**1,433**	**1,870**	**1,888**	**2,132**	**2,132**	**2,132**	**2,132**	**2,241**	**2,241**
Cumulative Profit	**1,205**	**2638**	**4,508**	**6,396**	**8,528**	**10,660**	**12,790**	**14,922**	**17,163**	**19,404**

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Projected Cash Flow

US $ '000'

	0	1	2	3	4	5	6	7	8	9	10
INFLOWS											
Equity	5,560										
Operating Inflow											
Profit Before Tax	-	1,722	2047	2,672	2,697	3,046	3,046	3,046	3,046	3,201	3,201
Depreciation	-	226	226	226	226	201	201	201	201	46	46
Total Inflows	**5,560**	**1948**	**2273**	**2898**	**2923**	**3247**	**3247**	**3247**	**3247**	**3,247**	**3,247**
OUTFLOWS Investment	5,560										
Taxation		517	614	802	809	914	914	914	914	960	960
Total Outflow	**5,560**	**517**	**614**	**802**	**809**	**914**	**914**	**914**	**914**	**960**	**960**
Net Cash Flow	**0**	**1431**	**1,659**	**2096**	**2114**	**2333**	**2333**	**2333**	**2333**	**2287**	**2287**
Cumulative net cash flow	**0**	**1431**	**3090**	**5,186**	**7,300**	**9,633**	**11,966**	**14,299**	**16,632**	**18,919**	**21,206**