

**LEO PLASTICS LIMITED**

**BUSINESS PLAN**

**FOR THE**

**BISCUITS MANUFACTURING PLANT**

**IN TANZANIA**

**PREPARED BY:**

**LEO PLASTICS LIMITED**  
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## 1.0 EXECUTIVE SUMMARY

### 1.1 BACKGROUND

This study covers the initiation/establishment of a Biscuit processing plant in Arusha promoted by **Leo Plastics Limited** which is a veteran in trading and distribution of various products and now have decided to venture into their own manufacturing activities for the processing of Biscuits and other related products in order to satisfy the already established market.

Tanzania has high consumption capacity of various types of processed food which is being satisfied by imports including Biscuits from neighboring and other mass-producing countries. This needs to be countered by increasing Tanzanian production, improving production process, methods, and quality to supply to common mass at affordable prices and also have import substitution effect in the economy. After confirming the possibilities of achieving the above objectives, the investors have decided to forge ahead with the investment.

This report presents a full-fledged financial and techno-economic analysis status relevant to the proposed integrated biscuits processing plant and other processed food to be set up / operated in Arusha.

### 1.2 PROJECT SPONSORS

The project sponsors are **Leo Plastics Limited** whose shareholders are Mr. Sandesh Aggarwal and Jagjit Aggarwal who have vast experience in initiating multitude of projects / investments and the one in question being inclusive. The Chairman of the company is the driving force behind the project with his vast knowledge in confectionery business in the East African region. The

shareholders also owns a trading company and a Cargo Haulage Company. Its shareholding pattern is as follows;

<b>NAME OF SHARE HOLDER</b>	<b>NATIONALITY</b>	<b>%SHARE-HOLDING</b>
Sandesh Aggarwal	Tanzanian	67
Jagjit Aggarwal	Tanzanian	33

### **1.3 THE PROJECT**

Leo Plastics Limited has decided to establish a manufacturing facility for the manufacturing of Biscuits and other various processed food in Arusha at plot no 1945/1, Lesaria, Kisongo, Arusha. The company has decided to construct a new factory at the leased premises and install a plant which will adopt the best technology. The aim of the promoters is to attain a bench market level of accuracy and efficiency in production of biscuits and various food products in Tanzania and the neighboring countries.

The processing capacity envisaged for this project is to the tune **7,200 Tons** per annum. Starting with a capacity utilization of 65% in the first year the overall production will stabilize at 85% from the fifth year of operations. The project total cost has been estimated at **USD1,880,000** which includes **USD 550,000** as the initial working capital.

#### **1.4 Investment Costs**

The project cost is estimated at **US\$ USD1,880,000** which will be contributed by the sponsors:

<b>ITEM</b>	<b>US \$</b>
<b>Fixed Assets</b>	
Land and buildings	600,000
Machinery and Equipment	400,000
Vehicles	200,000
Furniture and Fittings	30,000
Pre-Operational expenses	100,000
<b>Sub total</b>	<b>1,330,000</b>
Initial working capital	550,000
<b>GRAND TOTAL</b>	<b>1,880,000</b>

#### **1.5 FINANCING PLAN**

The promoters propose to finance the above investment costs in the following manner:

<b>SOURCE</b>	<b>US \$</b>
Equity	<b>1,880,000</b>
<b>Sub total</b>	<b>1,880,000</b>

#### **1.6 LOCATION**

The company will be located at Arusha at ***Arusha at plot no 1945/1, Lesaria, Kisongo, Arusha*** municipality and is well served by all the necessary infrastructure and environment requirements and well suited to the nature of the envisaged project.

## **1.7 The Market**

Analysis of the demand of confectionaries especially biscuits and its supply has revealed that there is an excess demand on confectionery products and establishing a company to manufacture biscuits locally is a commendable idea. The market survey carried out reveals that there is a huge demand for various biscuits and is raising rapidly. The survey concludes that the proposed manufacturing company will not face any marketing problems. **Leo Plastics Limited** intends to sell most of its products within the country. Initially almost all the production i.e., **625 Ton per month** will be sold within the Tanzanian market.

The company is planning to export about 30% of its production capacity to neighboring countries once the management and productions are well settled and are able to satisfy the local needs. The company has performed an analysis of the local demand and supply and in the process, management has understood the competition, strengths and weaknesses of the market and they are well informed to tackle and penetrate the market.

## **1.8 Financial Profitability:**

Based on a set of assumptions given here-in, the projects demonstrate a profitable trend in its future operations. The project's Income Statement and Cash flow indicate the M/S Leo Plastics Limited would be able to recoup the planned investment funds within the first six years. This indicates that the project is financially and economically viable.

## **1.9 Economic Advantages**

On the basis of the above account the analysis has overwhelmingly proved that the project is financially sound and techno-economically viable. Furthermore, the project has immense potential towards the earning of the badly needed forex earnings and substantial potential for job creation.

### **1.10 The Implementation Plan:**

It is planned that the project will take 5 years from the time M/S Leo Plastics Limited commences implementation of the project to the time it completes the purchasing of all the required machinery and equipment's. M/S Leo Plastics Limited shall appoint a team comprising of a competent employee in all the departments in order to achieve the set implementation time.

### **1.11 Developmental Linkages:**

Upon completion of the Implementation programme and operational ,the Biscuit manufacturing company will be capable of creating the following:

- ◆ Promote increased availability of confectionaries products locally hence have an impot substitution effect in the economy
- ◆ Generating foreign exchange through exports which will account to be 30% of its annual production
- ◆ Create employment for the local indigenous people;
- ◆ Promote inter-regional trade through exports to neighbouring Democratic Republic of Congo, and East African region just to mention a few.

## **1.10 CONCLUSION AND RECOMMENDATIONS**

The executive summary highlights indicate that the proposed project will be financially and economic viable. It is recommended that the project be accorded the required institutional and financial support to pave the way for its expeditious establishment and development .

## **2.0 THE PROJECT**

### **2.1 INTRODUCTION**

Tanzania is a growing economy with high potential. The economy is relatively diversified and there are still exists opportunities especially in the Manufacturing sector in the area of confectionaries. At present sources of snack food in Tanzania are two types. The local based processing plants and imports from East African Countries, India, Turkey, Malaysia, Dubai and other countries. These supplies are so easily marketed that there is hardly any form of outstanding efforts of advertisements being carried out for these products as compared with other categories of products like beverages.

In fact, the level of per capita consumption of confectionaries are treated as one of the important indices of the level of socio-economic development and living standard of the people in any country. It is on this strength that the company wishes to embark on the production of biscuits for local and export market.

### **2.2 THE PROJECT CONCEPT**

The project entails to establish a manufacturing facility for the manufacturing of Biscuits and other various processed food in ***Arusha at plot no 1945/1, Lesaria, Kisongo, Arusha***. The company has decided to construct a new factory at the leased premises and install a plant which will adopt the best technology. Other facilities will include procurement of furniture, motor vehicles, generators and computers. The management has already embarked on this journey and initial processes of leasing the land for the proposed project plans has begun. The processing capacity envisaged for

this project is to the tune **7,200 Tons** per annum. Starting with a capacity utilization of **65%** in the first year the overall production will stabilize at **85%** from the fifth year of operations. The project total cost has been estimated at **USD1,880,000** which includes **USD 550,000** as the initial working capital. The Business Plan is to be presented to relevant Government authorities to obtain Land, necessary permits and investment incentives.

### 2.3 THE COMPANY

**Leo Plastics Limited** has been incorporated on 11<sup>th</sup> April 2011 with certificate of incorporation no **46932**. The project is being promoted by two shareholders. After being in various business for more than 20 years and been able to secure and establish market for various products almost in every Region of Tanzania, the shareholders have decided to start a manufacturing facility to process Biscuits locally instead of importing them. This project will be able to meet the local demand and that of the neighboring countries. The shareholders are Tanzanians namely:

NAME OF SHARE HOLDER	NATIONALITY	%SHARE- HOLDING
Sandesh Aggarwal	Tanzanian	67
Jagjit Aggarwal	Tanzanian	33

### 2.4 Company Vision

The project promoters wish to see **Leo Plastics Limited** as the leading producer of quality confectionaries in the food industry in Tanzania. The customers should associate the company's name with high quality products manufactured to international standards in a modern environment. This

includes positioning **Leo Plastics Limited** clearly in relation to the competitors and placing the company as a leading confectioner manufacturer in areas of production technology, quality control, safety, and working environment.

## **2.5 PROJECT DESCRIPTION**

Integrated confectionary project intends to be actively involved in the manufacturing of Biscuits and other various processed food. The machineries will be sourced from India and Europe. The factory processing capacity envisaged for this project is to the tune **7,200 Tons** per annum. 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 project will also purchase a production line which will include mixers, molding machine, baking oven, and cooling conveyors and wrapping machines. Also, they will import furniture, fittings and office equipment to facilitate good office environment, efficient and effective management information systems and faster communication facilities.

## 2.6 PRODUCTION PROCESS

The manufacturing process is also relatively simple as it will be using machinery which are mainly automated. It will start with a capacity utilization of **65%** in the first year the overall production will stabilize at **85%** from the fifth year of operations. The production will ensure quality in the entire production process.

### 2.6.1 The production line includes:

- i) Dough Mixer Machine with electric display panel
- ii) Flour handling system to feed the Mixers
- iii) Sugar handling system with tilter and cyclones
- iv) Sugar Pulveriser
- v) Syrup preparation system including tank and Filters
- vi) Rotary Molder with panner web, PLC control, and hopper
- vii) Feed rollers and Mould Rollers
- viii) Oven- with burner, insulating wool, heat blowers, fire chambers, and chimneys
- ix) Oven electrical and electronic panels
- x) Cooling conveyor- including biscuit stacker
- xi) Creamer Machine
- xii) Packing machines

### 2.6.2 A DETAILED BREAKDOWN OF THE KEY MACHINERY / EQUIPMENT.

**The machineries** are of high standard that will facilitate the processing of high-quality products. A brief mention of each is as here after presented

#### **a) Sugar Handling System With Tilter And Cyclones) Sugar Pulveriser**

This is used for grinding the sugar to obtain sugar powder. It is available in various types and capacities in the market.

**b) Dough Mixer Machine with Electric Display Panel (Mixing Machine)**

This machine is required for mixing all the raw materials homogeneously in a stipulated time. In other words, it is used for making dough. The machine is basically double shafted both revolving in opposite direction fixed on a shaft inside a bowl.

**c) Rotary Molder with panner web, PLC control, and hopper (Rotary Moulding Machine)**

This machine is intended to mould the thoroughly mixed dough into uniform shape and feeding them to the baking oven. The speed of the rollers is adjustable as per requirement. The thickness of the biscuit can be altered

**D) Baking Oven**

The baking oven is the most vital machine, which bakes uncooked moulded biscuits into baked biscuits.

**E) Cooling Conveyor**

The baked biscuit is received on the metal conveyor is very hot and has to be cooled.

**F) Creaming Machine**

For preparing all types of creams like Cardamom, Mango Cream, Pineapple cream, orange cream, Chocolate cream needs one creaming machine in which all the ingredients required for making cream can be placed and readily obtain the required cream.

**g) Cream Sandwiching Machine** This machine is used for depositing cream on the biscuit. It controls the amount of cream to be deposited on the biscuit and it is adjustable. It has variable speed with a heating arrangement for the cream container.

**h) Packing Machine**

This machine is used in packing the biscuits in a wrapper of choice.

**2.6.3 MANUFACTURING PROCESS**

The following are the steps involved in manufacturing biscuits starting from its ingredients (raw material procurement) to the final dispatch of finished products

**STEP I - *Ingredients (Raw Material Procurement)***

Before getting onto the manufacturing process, initially raw materials like wheat flour, fats, sugar, milk powder, flavors etc., are imported/locally purchased depending on the availability of the required specs of the item. This will then be tested on random sampling basis for each batch of importation to certify internally whether the materials have the required specs as required for production or not. This will determine whether the raw material is to be accepted or rejected. Once the raw materials are accepted and stored, it will then be ready for production.

**STEP II - *Mixing:***

This is the first step in any biscuit manufacturing plant. In this step initially, required proportion of sugar, fat, milk powder and baking agent (as per the formula for each type of biscuit depending on the tastes of each place) are mixed in a mixer for about seven minutes. The mixture becomes creamy to

which water and essences are added and blend for about three minutes. To this mixture, flour is added and mixed for about five minutes. After completing the dough will be ready for making biscuits.

### ***STEP III - Feeding, Molding, Shaping and Re-cycle:***

The dough from step II will be fed into a feeder. The feeder will form dough sheet ready to go into moulder. In the moulder, the dough sheet will be adjusted to the required thickness and pass through the mould to get the right design intended for production with the right depth (Thickness). This will then move on a conveyor allowing for inspecting the shape and size. At this stage as it is not yet baked, all rejects will be sent back for feeding machine to re-form into layers. The good ones will move onto the Oven.

### ***STEP IV - Baking, Cooling, Sorting, Wrapping, Packing and Stores***

The raw biscuits move on the conveyor for about 5 to 6 minutes in the pre-heated band oven and the biscuits will be baked in this time. The baking time reduces with the length of the oven. The longer band oven will be faster as compared to the short ovens as the distribution of heat is much more gradual and more effective. Highest temperature will be between 250 Celsius to 300 Celsius. The temperature and period are fixed depending on the color that would be liked by the local consumers. The baked biscuit comes out of the oven will then be moved slowly on the continuing conveyor to cool it for about 15 minutes (Generally three times the baking time). This is when the cooled biscuits come to the end of its journey and are ready for packing. Sometimes these biscuits will be coated with chocolate creme or cream will be sandwiched to get more varieties. In such cases the biscuits will move on

for cream putting or for chocolate coating. After completion of sandwiching or coating the biscuits will go for packing.

### ***STEP V-Wrapping, Packing and Storing***

The ready biscuits before wrapping will be sorted and broken biscuits will be separated. Good biscuits will be crated and moved to wrapping either manually or mechanically depending on the method/machines available. The wrapping is again could be done manually or by machines. These wrapped biscuits will then be packed with the outer packing depending on the quantity packed. This will then move on to the finished goods store ready for dispatch.

#### **2.6.4 Raw Materials**

The primary raw material, Generally, in any biscuit manufacturing are Wheat flour, Sugar, Fat covering nearly 85% of the raw material requirement both by weight and value. The other raw materials like corn syrup, milk powder, baking soda, salt, flavors', dedicated coconut, paste and others constitute 15% of the raw material. Other material costs are packaging costs, which also constitute a major portion (16%) of the total material cost. Packaging is important, as they have to be attractive and cost effective. Packaging itself is a product promoter hence proper design, bright colors etc. are necessities.

## **3.0 THE MARKET**

### **3.1 World Biscuit market**

The market for biscuits is very promising. Biscuits Market is one of the fastest growing of the all sectors in the fast-moving consumer goods (FMCG) category. The global packaged bakery products market grew at Compound annual growth rate (CAGR) of 4.6% during the period 2017-2021. Within the packaged bakery segment, the global biscuits market is expected to reach USD 135 billion by 2023, at a CAGR of 5%. This rapidly growing market, which reached \$76 billion 385 million by the end of 2017, attracted all small and large players in the industry. Owing to the changing consumer interest and dynamics, the global biscuits market is expected to reach to reach USD 164 billion by 2024 at a CAGR of 5.08%. Global biscuit market is expected to achieve a strong annual compound growth rate of 4.7 percent on average, between 2017 and 2025.

### **3.2 Tanzania Biscuit Market**

The company has performed an analysis of the local demand and supply and established that There is a very good scope for establishing the local production. In the process, management has understood the competition, strengths and weaknesses of the market and they are well informed to tackle and penetrate the market. Given the improvement in infrastructure situation in Tanzania, it would be ideal to increase the production capacities. Tanzania produced nearly 23,000 metric tons of biscuits and pasta in 2020. The production volume increased from 18,100 metric tons in the previous year. It also reached the highest amount since 2014. Majority of the demand is

fulfilled by imports. The export value of Tanzania was USD 840.52K, and the export volume was 634.41K metric ton in 2021 and that of the import value was USD 5.73M, and the import volume was 8.09M metric ton in 2021.. (***From Internet***).

The expanding demand for healthy snacks and increase in per capita food consumption in developing countries especially in Tanzania are the primary drivers leading the global biscuits market demand. The market is also expected to continue being augmented by rising demand for convenience food, innovation in packaging, and expanding young population. Biscuits, are food supplements that are usually consumed by individuals of all ages. Consumption can take place in the homes, restaurants, hotels, social centers and trip vehicles throughout the country. Hence the project will cater for the entire market from the working-class population, small businessmen and farmers, to the affluent community

### **3.2.1Supply**

At present biscuits are supplied into Tanzania through local production and imports from other countries. The present sources of biscuits in Tanzania are two types. The local based processing plants and imports from East African Countries, India, Turkey, Malaysia, Holland and other countries. In spite of having these sources, there appears to be a substantial demand - supply gap for biscuits in this country. These supplies are so easily marketed that there is hardly any form of outstanding efforts of advertisements being carried out for these products as compared with other categories of products like beverages. The market of Tanzania is dominated largely by imported

biscuits. In the context of the above, therefore, with only few competitors in the country, the potential for successfully marketing the output/product is very high.

### **3.2 .2 Distribution network**

Biscuits Distribution Channel are basically Supermarkets/Hypermarkets, Convenience Stores, Specialty Retailers, Online Retailers, and Other Distribution Channels. In order to strengthen its distribution network, the management is planning to purchase fleet of distribution vehicles to cover as much area as possible. Initially, the plan is to purchase 3 one-ton pickups, 2 four-ton capacity mini-Lorries. With this fleet, many areas and wholesalers could be covered and it will be easy to penetrate the market. The company will also appoint distributors in such areas where direct distribution is difficult. Furthermore, distribution companies are much more effective due to their fully developed infrastructure.

### **3.2.3 ADVERTISEMENTS**

On the basis of the market survey, it has been found that none of existing suppliers carries our promotional efforts. This is an indication of the existence of un-satisfied demand. Nevertheless, in order to penetrate the market quickly and accrue position, the project will carry out proper advertisement efforts promote. Promoters will supplement the distribution network with advertisements and promotions to launch biscuits products.

### **3.2.4 Price**

The current prices of a 1 kilogram of biscuits range from **(USD 3.26)Tshs. 7500 – Tshs 10,000(USD 4.35)**. In order to penetrate the market it is proposed that the company should charge within the range of **US\$ 4.0 per kg**

## **4.0 ORGANIZATION AND MANPOWER REQUIREMENTS**

### **4.1 MANPOWER REQUIREMENTS**

The success of a venture of this kind depends on the competence of the personnel recruited to manage. It is assumed that relevant personnel with requisite skills shall be available within the country. There will be a need of recruiting expatriates in some key positions. The overall in charge, responsible for the day-to-day operations will be the Project Manager who will in turn be answerable to the Board of Directors.

### **4.2 ORGANIZATION SET UP**

Initially the operations will broadly be divided into the following: -

- Finance / Administration department
- Production department
- Marketing and sales department

### **4.3 MANPOWER REQUIREMENTS**

#### ***4.3.1 Total Manpower Requirements***

Based on the proposed organization structure the project will initially employ a total of 32 persons. The breakdown of the initial work force in terms of its categories is as after presented in table

**TABLE 7.1 PERSONNEL REQUIREMENTS**

<b>S/N</b>	<b>CATEGORY</b>	<b>STRENGTH</b>
1.	Chairman	1
2	Managing Director	1
3	Project Manager	1
4	Personal Secretary	1
5	Personnel Officer	1

6	Chief Accountant	1
7	Cashier	1
8	Marketing Officer	1
9	Sales Clerks	2
10	Production officer	1
11	Production Supervisor	1
12	Mechanic / Electrician	1
13	Plant operators	15
14	Security officer	1
15	Receptionist	1
16	Drivers	2
total		

## **4.4 RECRUITMENT AND TRAINING**

### ***4.4.1 Recruitment***

All new staff would be recruited at least one month before the plant operations are commenced.

### ***4.4.2 Training***

The Management of the plant would strive to employ competent and qualified personnel in the Biscuit business. To reduce cost few senior staff will be trained at the selected locally available institutions. All other supporting staff will be trained on the job. However, it is expected that most of them will have some basic knowledge and experience in biscuit, business.

## **5.0 PROJECT IMPLEMENTATION**

The envisaged period for total project implementation is **5 years**

### **5.1.1 IMPLEMENTATION SCHEDULE**

#### **5.1.2 GENERAL**

Both local and external factors have been taken into account when implementing this project. Factors such as finalization of, acquisition of the rentable premises, machinery and equipment, recruitment of qualified personnel and other factors have been looked into.

#### **5.1.3 PRELIMINARY FORMALITIES**

On the finalization of the study duration of about 2 weeks was needed for execution of the preliminary formalities of the project. These include submission of the application on incentives to investor's certificate from TIC.

#### **5.1.4 PROJECT STAGE**

Finalization of Rentable premises Acquisition in Arusha by .M/S **Leo Plastics Limited** has been finalized.

#### **5.1.5 Premises Renovation**

The building in question was examined to ascertain improvement measures. Several of these were identified / quantified and subsequently the renovation / improvement measures will be undertaken.

#### **5.1.6 Ordering of Machinery / Equipment / Vehicles / Furniture**

Timely ordering of the various machinery / equipment will be executed to match the rate of implementing the plant.

### **5.1.7 Installation of Machinery / Equipment / Furniture**

Once the building had been properly renovated then will follow the installation of machinery / equipment / furniture and fittings upon their arrival at the project site.

### **5.1.8 Trial Runs**

Upon completion of the installation of machinery and equipment then followed trial runs.

### **5.1.9 Commercial Production**

On completion of the trial runs then will follow commercial production.

## 6.0 INVESTMENT AND FINANCING

### 6.1 ASSUMPTIONS

- The economic life of the project is 10 years.
- The currency exchange rate of Tshs. 2,300/= to one US\$ has been adopted.
- Re-investment in vehicles shall be done after every four years.

### 6.2 INVESTMENT STRUCTURE

The total initial investment in fixed assets is estimated at US\$. **1,880,000** whose breakdown of which is as follows;

<b>ITEM</b>	<b>US \$</b>
<b>Fixed Assets</b>	
Land and buildings	600,000
Machinery and Equipment	400,000
Vehicles	200,000
Furniture and Fittings	30,000
Pre-Operational expenses	100,000
<b>Sub total</b>	<b>1,330,000</b>
Initial working capital	550,000
<b>GRAND TOTAL</b>	<b>1,880,000</b>

### 6.3 FINANCING PATTERN

The initial total investment of US\$ **1,880,000** shall be financed as here after presented in Table

<b>SOURCE</b>	<b>US\$</b>
<b>Fixed Assets</b>	
Equity (100%)	<b>1,880,000 -</b>
<b>GRAND TOTAL</b>	<b>1,880,000 -</b>

Promoters are willing to invest 100% of the total investment and in case there will be short of funds the investor will seek loan from the locally banks in Tanzania .

#### **6.4 WORKING CAPITAL FINANCING**

Banks will be approached for the working capital facility to finance the current assets of the company partially. Further, Banks will be requested for a Letter of Credit facility of US\$ 550,000 to cover all imports of raw materials and consumable.

As indicated above the financing of the fixed assets have been called out through equity contributions at 100%, whereas the working capital will be financed through equity and bank overdraft when the need arises.

#### **6.5 PLANT CAPACITY**

The proposed plant will have a capacity to process **645 tons** of different categories of biscuits per month. It is envisaged that the attainable processing capacities will range of 60%, 70% and 80% for years 1,2,3 – respectively

#### **6.6 CIVIL WORKS**

The proposed civil works are estimated at a cost of **US\$ 600,000**

##### **6.6.1 Civil Works and Buildings**

The facility is be located at plot no 1945/1, Lesaria, Kisongo, Arusha Municipality.

##### **6.6.2 Accessibility Of The Site**

The project site is accessible, it can easily be reached. It has full provision of all the basic necessities: Electricity and water.

### **6.6.3 Design Concept**

The factory building is built of concrete blocks and properly designed with ample to cover all the functional spaces such as: Processing Hall. Offices raw materials storage and other social amenities space requirement.

## **6.7 AUXILIARY SERVICE REQUIREMENT**

### **1) Power Supply System**

- **Main Power Supply**

It has power supply from the national grid prevailing in the Municipal. This power has proved highly unreliable because of the frequent cuts and fluctuating voltages.

- **Emergency Power Supply**

A standby generator is to be provided to supply all the essential loads in and event of TANESCO power failure.

For this resign M/S **Leo Plastics Limited** will be forced to use its standby generator during times of Tanesco power break down.

- **Power Distribution**

Power distribution in the Yard is via underground cables installed with TANESCO requirements.

- **Fire Protection**

- It is proposed to provide fire detection and firefighting systems. Fire detection system with consist of automatic and manual detection devises, alarm and communication systems whereas firefighting system will feature portable extinguishers, hose reels, wet and dry rises and automatic sprinkler system.

- **Access entrance**
- Wide inlet /entrance is provided so as to facilitate smooth passage of the workers and vehicles.

- **A Parking Space for the plant**

The complex has ample parking space adequate to accommodate several vehicles at any given time.

## **2. Water Supply**

- **Source of Water**

The source of potable water for the plant will be the self-made bore hole and from the Arusha water supply .Storm water – run – off will be collected from the buildings by means of spouts and full boras through down pipes and will be discharge into the open channel and deposited into the road side drains.

- **Sewerage System**

Waste and foul water is collected from building by means of UPVCP pipes of different sizes e.g., 75 mm and 150 mm to the municipal sewer lines.

## **6.8 OPERATING COSTS**

### **6.8.1 ASSUMPTIONS**

The prices of inputs are assumed to remain constant over the ten years period because under rising inflation the prices and services will rise including those of outputs hence having, the profit margin unchanged.

The main items which will constitute the operating costs are as hereafter outlined. Salaries and wages, Vehicles running expenses,Electricity ,Basic

raw material Other raw materials, Packaging material ,Fuel oil, Maintenance Machinery / equipment (2.5%),Maintenance Buildings (3%),Repairs of furniture and fittings (2.5%),Godown rent, Marketing / advertisement ,Administrative overheads

### **Working Capital Requirements**

- i) ***Current Assets:*** Main constituents of current assets are Debtors and Stocks. One-month requirements of raw materials will always be ready at any given time. A 15 days sales requirement of finished stocks, the biscuits will always be stored. Over a period of time, finished stocks are managed well and expected to be lowered to probably to a week with efficient distribution system as well as covering the market well.
- ii) ***Current Liabilities:*** All the raw materials excepting sugar are expected to be purchased on one-month credit terms including corn syrup (Glucose Syrup). One-month credit on utilities like water, power, etc.
- iii) **Depreciation**  
Depreciation is based on the life of the machinery and straight-line method depreciation is considered and is charged to the profit and loss account every year.
- iv) **Cost of Sales**  
Cost of sales will include all other costs other than those directly related to production. Generally, cost of sales includes the 'Office and General administration Costs', 'Selling and Distribution Costs', 'Finance Charges - Mainly interest and Bank Charges'.

## 7.0 FINANCIAL AND ECONOMIC ANALYSIS

### 7.1 ASSUMPTIONS

- The prices of inputs and outputs are assumed to remain constant over the life of the project i.e. 10 years.
- However, in case of changes in the costs of inputs, to maintain the desired profit margin, the prices of the outputs will be accordingly adjusted.

### 7.2 Profitability

The table below shows the gross margins, profit before tax and return on capital employed.

PROFITABILITY					
	Year 1 US\$	Year 2 US\$	Year 3 US\$	Year 4 US\$	Year 5 US\$
Turnover	3,241,875	3,740,625	3,990,000	6,679,688	7,214,063
Gross margin	650,840	803,060	861,360	1,434,593	1,590,239
	20%	21%	22%	21%	22%
Net interest expense/income	(102,000)	(105,620)	(71,539)	(297,180)	(239,209)
Profit before tax	284,339	421,469	528,064	827,241	1,067,310
Tax	(65,800)	(268,500)	(230,059)	-	-
Profit after tax	218,540	152,969	298,004	827,241	1,067,310
ROCE	42%	26%	36%	60%	46%

#### 8.1 Gross Margins

As the turnover grows from US\$ 3.24 million in the first year to US\$ 7.21 million in the fifth year, the gross margin improves from 20% to 22% as some of the fixed costs remain. In real terms the gross profit margin grows from US\$ 650,840 to US\$ 1,590,239 a 130% higher than the first year of operation.

#### 8.2 Profit Before Tax

Out of the gross margins, the administrative costs, the interest costs and the depreciation are deducted to arrive at the profit before tax. In the very first year of operation itself, the

company is expected to realise more than US\$ 218,500. By the fifth year, the profit is expected to be more than US\$ 1,670,000. Almost eight times the first year profit. Following factors contributes to such growth in profits (as increased sales means - higher margins in real terms):

- \* Most of the administrative costs are constant.
- \* Depreciation is considered on straight-line method, hence remains same throughout the life of the asset as defined in the projections.
- \* Interest burden constantly reduces as loans are repaid, which are clear from the above table.

### **8.3 Return on Capital Employed**

Return on capital employed (ROCE) at constant capital, is bound to increase if the project is a profitable venture. It is interesting to note that ROCE is fluctuating in the first two years and after that it is slowly reducing. The Capital employed is continuously increasing as the cash profits generated is ploughed back into the company to earn more profits.

The fluctuation in the first two years is due to the fact that, the company will be eligible for 100% depreciation in the first year of investment as the project is under TIC certification. Hence first year shows 42% ROCE. Second year drastically comes down to 26%, as there is a heavy charge of the income tax. Third year it goes up as profits increase and only limited amount of cash profits after tax is ploughed back into the system.

In the fourth year, due to investment benefit, the income generated will be fully tax-exempt. Hence the return on capital employed stands at 60%. There onwards the ROCE continuously reduces due to the system of investing all the cash profits after tax for the company activity.

### **8.4 Cash Flow**

Return on Capital employed, the healthy features of the project is better understood with an analysis of interest cover and gearing ratios as you study the cash flow. From the cash flow one could notice that the liability continuously reduce and cash position improves.

The table below shows the gearing and interest cover of the project for a period of 5 years as five years is a long enough period to judge the project worthiness and analysis of all movements and key factors.

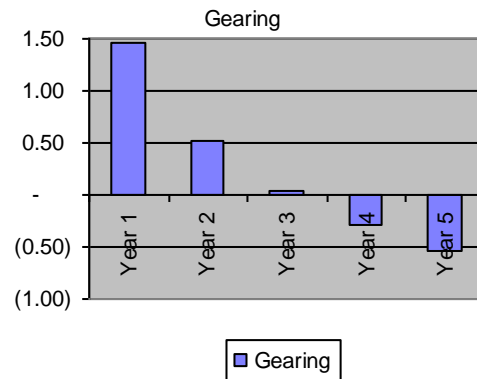
Individually gearing and interest cover are explained below.

## GEARING

Interest bearing financing sources	755,700	353,675	2,444,701	1,545,422	273,778
Equity	518,540	671,508	969,513	1,796,753	2,864,063
Gearing	1.46	0.53	2.52	0.86	0.10
Interest cover	3.79	4.99	8.38	3.78	5.46

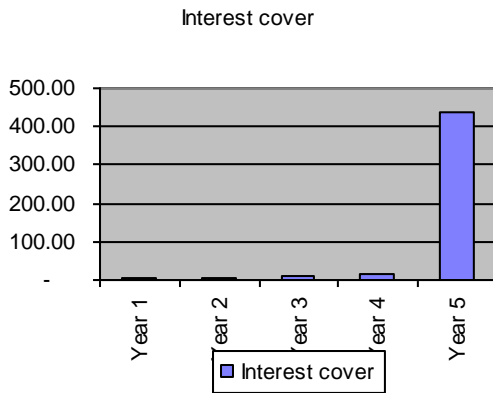
**Gearing**

Gearing stands at 1.54 immediately after implementation of the project and in the first year of operation it comes down to 1.46 and thereafter continuously reduces as the indebtedness of the company reduces every year. Second year to 0.53. In the third year, due to borrowing it goes up to 2.52. Fourth year and onwards the gearing again starts declining. From sixth year onwards the gearing will be negative as the company will be cash rich and all the debts will be cleared or the capital employed will be much more than indebtedness.

**Interest Cover**

The projected profitability of the project shows that the interest cover for the first year stands at 3.79, second year is 4.99, the third year is 8.38 and the fourth year comes down to 3.78 as the interest burden will be higher due to borrowings. The fifth year onwards, the interest cover goes on increasing as the debt is cleared and the interest charges reduce.

With an initial interest cover of 3.79 clearly indicates the ability of the project to clear not only interest but also capital element of the indebtedness.



## Project Appraisal

The project earnings show that the internal rate of return is 32%. This is a very attractive rate of return given the general cost of capital is 25% for any project of this nature. At a 25% discounting factor the Net Present Value of the project is US\$ 2,468,912.

Following component constitutes the cost of capital

$$C = R(f) + R(p) + A(fl) + R(c)$$

Where

C is the estimated cost of capital of the project

R(f) is the risk free rate for United States Dollar financing which presently stands at 5%.

R(p) is the risk premium that could be considered depending on the risk profile of the project. This is estimated at 13% including the worldwide equity risk.

A(fl) is the adjustment for financial leverage. This is generally considered at 3%.

R(c) is the country risk factor and the risk premium added, as the prospective investor has little knowledge of such country. This is estimated at 4% for Tanzania.

In terms of break-even analysis, the minimum volume required to give an internal rate of return of 25% will have to be 2,100 tons. The initial year capacity utilisation will be 50% as against the projected 65% capacity utilisation.

Similarly, minimum price that could be adopted to attain the 25% IRR will have to be T Shs. 900 per kilogram. This means a price reduction possible is only 5.56% in order to

achieve the 25% IRR level. The products are already priced competitively hence further room for reduction is actually bonus. That is the reason for 32% IRR.

### **Risk Analysis**

It is meaningful to analyse and understand the business risks. This analysis will define the business parameters within which the project is viable or beyond which the risk level goes up hampering the company from achieving its business objectives.

Hereunder we consider different risks

### **Competition**

The products that will be produced and marketed is for the common mass. The market will then be very price sensitive. The major competition is not from the local manufacturers as everyone in the same environment but it is the importers especially the unscrupulous businessmen smuggling and some traders importing goods/confectioneries paying very little taxes by under-declaration or manipulations/bribing etc.

Such competition could be countered by increasing local production and to be more competitive. Further the tax authorities are also closing-in to net such unscrupulous businessmen.

### **Raw material prices**

Wheat flour, fat and sugar are the main ingredients in biscuit manufacturing. Compared to sweet confectioneries, these raw material prices are less volatile but these prices depend on climatic conditions hence difficult to predict. Any change in the raw material cannot be passed on to the consumers immediately and longer the period higher will be the risk.

### **Currency Stability**

In Tanzania, shilling has been quite stable for nearly a year. The company is looking initially to cover the local market. Hence the earnings will all be in Shillings. As imports require foreign currency, foreign currency fluctuation affects the company, as the cost of such fluctuations cannot be passed on to the consumers soon. The best way to correct this situation is to increase exports, so that the imports are covered by exports earnings.

## **9. Sensitivity Analysis**

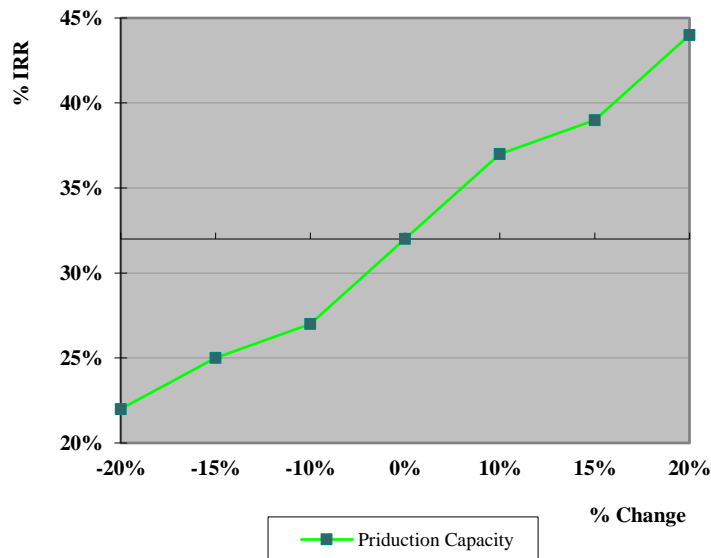
Sensitivity analysis is important to understand how, why and how much impact will there be on the profits/profitability of the project under varying conditions of different important factors that are critical and crucial to the profitability of the project.

This analysis will explain the limitations of the project graphically. The analysis is performed on those key factors that have a direct impact on profitability, cash - flows and viability of the project.

Following are the factors considered for the sensitivity analysis:

1. Volume
2. Price
3. Raw material prices

## Volume Sensitivity



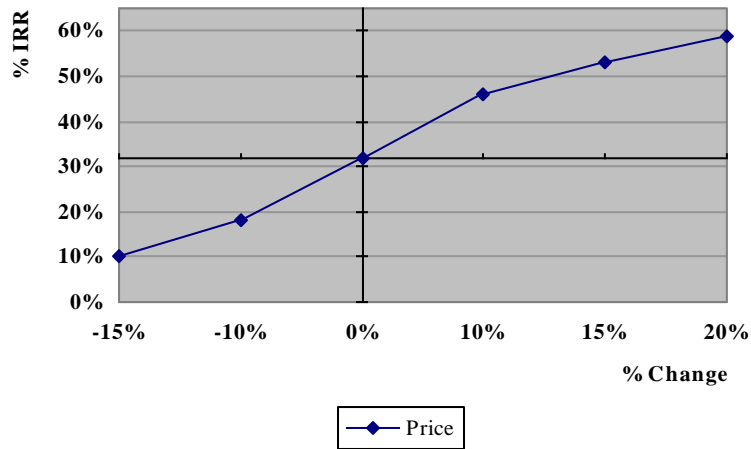
### Production Sensitivity

Production Volume change %	IRR %
■ - 20	22
■ - 15	25

■ -10	27
■ 0	32
■ 10	37
■ 15	39
■ 20	44

Changes in volume only affects the IRR marginally as the increase in production cannot go beyond 100% capacity utilisation. Hence as the volumes are increased, the 100% mark will be reached sooner hence the increase in IRR will be marginal as compared to the other two sensitivities as explained later. It could be noticed that the plant starts with a 65% capacity utilisation and increases every year up to the third year. In the fourth year, due to the increase in installed capacity, and lesser utilisation of older machines, the capacity utilisation is considered at 65%. Then it goes on to increase but a maximum of 75% is only considered, as older machines will be slowly phased out. Hence the increase in profits is limited accordingly.

### Price Sensitivity



Price Sensitivity	
Price change	IRR %
■ - 20	-Ve
■ -15	10
■ -10	18
■ 0	32

■ 10	46
■ 15	53
■ 20	59

From the above table and graph, the project is highly price sensitive. In fact with a reduction of 10% in the price, the IRR goes down by 14% to 18%. Similarly if the price goes up by 10%, the IRR goes up by 14% to 46%. Every percentage of gain in price is a big bonus and similarly a big blow if prices go down. Just by reducing 3-4% in price, the project IRR will come down to the break-even cost of capital of 25%.

For a healthy situation, price monitoring is crucial.

Price Sensitivity

Raw Material	
Raw material Price change	IRR %
■ - 20	54
■ -15	48
■ -10	43
■ 0	32
■ 10	22
■ 15	16
■ 20	11

The raw material prices inversely affect the IRR of the project. Every increase will reduce profits. Every reduction will increase profits. Project is fairly sensitive to the changes in raw material prices. With an increased cost of raw material by 20%, the IRR comes down to just 11%, which is far below the break-even capital cost. A reduction of raw material price by 20% will yield an IRR of 54%. With a 40% raw material price change the IRR changes by 43%.

## 7.2 INCOME

The project’s income at full capacity utilization is estimated to average at US\$ .....

## 7.3 EXPENDITURE

The expenditure items are as indicated in the operating costs They include all costs items plus depreciation and financial charges.

#### **7.4 PROJECTED CASH FLOWS**

The project has a positive net cash flow from year 1 of operation to the tenth year when the long-term loan will have been paid in full.

#### **8.0 ECONOMIC BENEFITS**

The successful operation of this Integrated Biscuit processing plant will contribute significant economic benefits to Arusha region people and Tanzania as whole. In summary the benefits which will be realized are as follows: -

- The execution of this project will bring about employment opportunities for 32 people.
- Significant contribution to self-sufficiency in snack food supply for the people in Arusha Region and the rest of country. This facility will bring about possibility of increasing the protein intake by the people because the same plant can be used to protean rich biscuits.

- Provision of income to other services providers, thus contributing to the reduction of poverty. The income to be earned will help in improving standard of living of the workers and other people residing in the region.
- Create employment for the local indigenous peopleThe direct income for the workers, combined with other social benefits that the Management of M/S **Leo Plastics Limited** will provide, will help in overall efforts of alleviation of poverty in the Region.
- Provision of a market for goods and services demanded by Expanded tax base to the Treasury and local Government authorities and generation of substantial income to the Government. The Government earns considerable revenue from the fish industry in terms tax collections.
- This project will facilitate opportunities to increase foreign exchange earnings through export of some of its value products.
- Promote increased availability of confectionaries products locally hence have an impot substitution effect in the economy
- Promote inter-regional trade through exports to neighbouring Democratic Republic of Congo, and East African region just to mention a few.

## **9. 0 CONCLUSION**

The investment and development of this Integrated Biscuit Processing , s undertaking is in line with the Government objective of encouraging proper development of agro-based industries in the country. In addition, it will have a positive impact on the development of the region, as it would generate a number of benefits and more positive impact on the economy of the region. As noted above this undertaking will bring about a number of benefits and reliable incomes for the employees of the project and providers of the services and goods demanded by the project's workforce / their families. This document has provided a full analysis on the financial, Techno – economic viability on the establishment / operation of the Integrated Biscuit Processing Undertaking along with the financing requirements / parameters

have been considered and have established that the proposed project is technically sound, financially viable, and economically / socially beneficial.

In order to ensure prompt implementation of the project and achieving the production targets a number of factors have to be taken into account this will include the level of the proposed investment in this project, anticipated significant roles in poverty eradication / alleviation, the overall status of the national economy, and the proposed project area.

In the context of the immense useful potential of this project, the management of M/S **Leo Plastics Limited** anticipates that all interested parties in the region / and the Government of Tanzania will give their full support so as to ensure timely implementation of the project and apprehension of successful operation.

## LEO PLASTICS LIMITED

### Investment Cost

ITEM	US \$
<b>Fixed Assets</b>	
Land and buildings	600,000
Machinery and Equipment	400,000
Vehicles	200,000
Furniture and Fittings	30,000
Pre-Operational expenses	100,000
<b>Sub total</b>	<b>1,330,000</b>
Initial working capital	550,000
<b>GRAND TOTAL</b>	<b>1,880,000</b>

# LEO PLASTICS LIMITED

## Financing Pattern

		Total
Equity	1,880,000	1,880,000
Total Investment	1,880,000	1,880,000

## LEO PLASTICS LIMITED

### Depreciation Schedule

US\$

		<b>Rate</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Land & Buildings	600,000	4%	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
Machineries & Equipment's	400,000	12.5%	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	-	-
Vehicles	200,000	25%	50,000	50,000	50,000	50,000	-	-	-	-	-	-
Furniture & Fittings	30,000	12.5%	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	-	-
Pre operational Expenses	100,000	20%	20,000	20,000	20,000	20,000	20,000	-	-	-	-	-
			<b>121,750</b>	<b>121,750</b>	<b>121,750</b>	<b>121,750</b>	<b>71,750</b>	<b>51,750</b>	<b>51,750</b>	<b>51,750</b>	24,000	24,000

# LEO PLASTICS LIMITED

## Production

**KG 000**

<b>Productions</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Total Estimate Product Output Per Annum <i>kg000</i>	4,680	5,400	6,120	7,200	7,200	7,200
<b>Quantities for Sale</b>	4,680	5,400	6,120	7,200	7,200	7,200
<b>Sales revenue @usd4per kg</b>	18,720	21,600	24,480	28,800	28,800	28,800

# LEO PLASTICS LIMITED

## Projected Profit & Loss Account

US\$'000

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Total Revenue	18,720	21,600	24,480	28,800	28,800	28,800	28,800	28,800	28,800	28,800
Cost of sales 65% of total revenue	12,168	14,040	15,912	18,720	18,720	18,720	18,720	18,720	18,720	18,720
Gross Operating Profit	<b>6,552</b>	<b>7,560</b>	<b>8,568</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>
Operating Profit	<b>6,552</b>	<b>7,560</b>	<b>8,568</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>
Depreciation	<b>122</b>	<b>122</b>	<b>122</b>	<b>122</b>	<b>72</b>	<b>52</b>	<b>52</b>	<b>52</b>	<b>24</b>	<b>24</b>
Profit Before tax	6430	7,438	8,446	9,958	10,008	10,028	10,028	10,028	10,776	10,776
Corporation Tax 30%	1,929	2,231	2,534	2,987	3,002	3,024	3,024	3,024	3232	3232
Net Profit After Tax	4,501	5,207	5,912	6,971	7,006	7,004	7004	7004	7,544	7,544
Profit Brought forward	-	4,501	9708	15,620	22,591	<b>29,597</b>	<b>36,601</b>	43,605	50,609	58,153
<b>Revenue Reserves</b>	<b>4,501</b>	<b>9,708</b>	<b>15,620</b>	<b>22,591</b>	<b>29,597</b>	<b>36,601</b>	<b>43,605</b>	<b>50,609</b>	<b>58,153</b>	<b>65,697</b>

# LEO PLASTICS LIMITED

## Working Capital Requirement

US\$'000

	1	2	3	4	5	6	7	8	9	10
<b><u>Current Assets</u></b>										
Raw Materials 14 days (cost of sales)	473	546	619	728	728	728	728	728	728	728
Packing Materials 21 days (cost of sales)	709	819	928	1,092	1,092	1,092	1,092	1,092	1,092	1,092
Finished Goods 7 days (cost of sales)	364	420	476	560	560	560	560	560	560	560
	<b>1,546</b>	<b>1,785</b>	<b>2,023</b>	<b>2,380</b>	<b>2,380</b>	<b>2,380</b>	<b>2,380</b>	<b>2,380</b>	<b>2,380</b>	<b>2,380</b>
Debtors 5% of 14 days Revenue	728	840	952	1,120	1,120	1,120	1,120	1,120	1,120	1,120
<b>Total Current Assets</b>	<b>2,274</b>	<b>2,625</b>	<b>2,975</b>	<b>3,500</b>	<b>3,500</b>	<b>3,500</b>	<b>3,500</b>	<b>3,500</b>	<b>3,500</b>	<b>3,500</b>
<b><u>Current Liabilities</u></b>										
Utilities 2% revenue	374	432	490	576	576	576	576	576	576	576
Motor Vehicles Running( 3%rev)	156	180	204	240	240	240	240	240	240	240
Administration	187	216	244	288	288	288	288	288	288	288
Salaries	561	648	734	864	864	864	864	864	864	864
<b>Total Current Liabilities</b>	<b>1278</b>	<b>1,476</b>	<b>1,672</b>	<b>1,968</b>	<b>1,968</b>	<b>1,968</b>	<b>1,968</b>	<b>1,968</b>	<b>1,968</b>	<b>1,968</b>
<b>Net Working Capital</b>	<b>996</b>	<b>1,149</b>	<b>1,303</b>	<b>1,532</b>	<b>1,532</b>	<b>1,532</b>	<b>1,532</b>	<b>1,532</b>	<b>1,532</b>	<b>1,532</b>
<b>Increase in Working Capital</b>	<b>-</b>	<b>153</b>	<b>1,019</b>	<b>229</b>	<b>-</b>					

# LEO PLASTICS LIMITED

## Cash Flow

US\$'000

	0	1	2	3	4	5	6	7	8	9	10
Capital Re-investment	1,880										
Profit Before Tax		6430	7,438	8,446	9,958	10,008	10,028	10,028	10,028	10,776	10,776
Depreciation		122	122	122	122	72	52	52	52	24	24
<b>Total Inflow</b>	<b>1,880</b>	<b>6,552</b>	<b>7,560</b>	<b>8,568</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,080</b>	<b>10,800</b>	<b>10,800</b>
<u>Outflow</u>											
Capital investment	1880										
Corporation Tax		1,929	2,231	2,534	2,987	3,002	3,024	3,024	3,024	3232	3232
Increase in Working Capital			-								
<b>Total Outflow</b>	<b>1880</b>	<b>1,929</b>	<b>2,231</b>	<b>2,534</b>	<b>2,987</b>	<b>3,002</b>	<b>3,024</b>	<b>3,024</b>	<b>3,024</b>	<b>3232</b>	<b>3232</b>
Net Cash Flow	-	4,623	5,329	6,034	7,093	7,093	7,093	7,093	7,093	7,568	7,568