

M D SOAPS & DETERGENTS LIMITED (MD)

Business Plan

Partnering with Investors in Soap & Detergent Manufacture



Soap	Detergent
<ul style="list-style-type: none">• Soap is sodium or potassium of a carboxylic acid that is attached to a long aliphatic chain.	<ul style="list-style-type: none">• Detergent is usually a sodium or potassium salts of a long alkyl chain that terminates with a sulfonate group.
<ul style="list-style-type: none">• Soaps are produced using natural ingredients.	<ul style="list-style-type: none">• Detergents are produced using synthetic resources.
<ul style="list-style-type: none">• Soaps are easily biodegradable.	<ul style="list-style-type: none">• Some detergents are biodegradable.
<ul style="list-style-type: none">• Soaps take time to get dissolved in water.	<ul style="list-style-type: none">• Detergents take less time and dissolve faster in water.

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Glossary of Acronyms

AI	Artificial Insemination
AUWASA	Arusha Urban Water and Sanitation Authority
BRELA	Business Registration and Licensing Authority
CAPEX	Capital Expenditure
CEO	Chief Executive Officer
CFO	Chief Financial Officer
DANIDA	The Danish International Development Agency
DCF	Discounted Cash MDow
EAC	East Africa Community
EBITA	Earnings Before Interest Tax Depreciation and Amortisation
FTK	Freight Tonnage Kilometres
GOT	Government of United Republic of Tanzania
GOT	Government of Tanzania
IRR	Internal Rate of Return
TANWATT	Tanzania Wattle Company
MCC	Milk Collection Centres
MOU	Memorandum of Understanding
MPE	Milk Procurement & Extension Specialist
NAFCO	National Farms Corporation
NGO	Non-Governmental Organisation
MD	New Northern Creameries Limited
NPV	Net Present Value
OSHA	Occupational Safety and Health Agency
OTR	Office of The Treasury Registrar
PSRC	Public Sector Reform Commission
SACCOS	Savings and Credit Cooperative Society
SATF	Social Action Trust Fund
SWOT	Strength, Weakness, Opportunities, and Threats
TADB	Tanzania Agricultural Development Bank
TBS	Tanzania Bureau of Standards
TDL	Tanzania Diaries Limited
TNA	Training Needs Assessment
USD\$.	Tanzania Shillings
TV	Terminal Value
UAE	United Arab Emirates
UHT	Ultra High Temperature
UNCDF	United Nations Community Development Fund
US\$	United States Dollar

Glossary of Acronyms

USAID	United State Agency for International Development
VAT	Value added Tax
WACC	Weighted Average Cost of Capital

EXECUTIVE SUMMARY

BACKGROUND & CONTEXT

This Business Plan is prepared for **M D SOAPS & DETERGENTS LIMITED**, to help it raise the required capital to expand its Soap and Detergent manufacturing activities in Tanzania.

M D SOAPS & DETERGENTS LIMITED currently own a factory in Mbagala Kijichi, Dar es Salaam and have started manufacturing in a small way to establish their formulations and registration of their brand names.

They now wish to expand their operations by importing machinery and trucks to distribute their products all over Tanzania and eventually regionally.

The project timelines, as projected by the consultant, are driven by whether the project achieves its goals of securing finance for expansion as outlined in this Business Plan.

PROJECTED INVESTMENT COSTS

MD in collaboration with consultants have identified the development costs that will be required as follows: a total of **USD\$987k**, of investment is needed to undertake the project. The amount will be raised as a package through a combination of financial instruments (Investors, Loans, Grants and Equity).

CAPEX Item	(USD\$)	Per cent
Building & Civil Works		
Building & Civil Works	100,000	
Total Building & Civil Works	100,000	10.13%
Soap & Detergent Factory		
1 x Soap Mixing Machine	50,000	
1 x Mill machine	60,000	
1 x Packaging machine (Soaps & detergents)	80,000	
1 x Detergent machine	50,000	
Smalls (containers, utensils etc)	20,000	
Above includes all shipping costs		
Total Factory	260,000	26.34%
Transport		
5 x Semi Trucks & trailers @USD\$80k each	400,000	
1 x Forklift	80,000	
1 x Motorcycle	2,000	
2 x 4 x 4 Pickups @USD\$60k each	120,000	
Total Transport	602,000	60.99%
Pre-operational Expenses	25,000	
Total Pre-operational Expenses	25,000	2.54%
TOTAL PROJECT COST	987,000	100.0%

CORPORATE GOVERNANCE

To ensure MD is run in accordance to shareholders expectation, the Board of Directors is dully constituted and conducts its oversight business as per directives contained in the Companies Law, Cap 212. The current board consist of three (1) Non-Executive Director and two (2) Executive Directors. The major role of the Board has been mainly an oversight one in ensuring that the strategic objectives of the COMPANY are achieved through annual plans and specific project business plans.

The Board meets at least once in every quarter to deliberate on strategic maters for MD.

PROJECT FINANCING PLAN & STRATEGY

A combination of financing structure will be deployed. MD has approached its bankers, Exim Bank to support its Capex requirements, however, borrowing in Tanzania is exceptionally high. It is therefore proposed to approach a financial institution supporting the manufacturing sector for a medium to long-term loan plus the Working Capital.

The required investment in MD Project is USD\$987k. For modelling purpose the entire funding requirement have been treated as investors and bank loan to be accessed under favourable terms that are reflective of the long term strategy and industry dynamics.

Once funded the financial structure of MD will be as per Table below:

Source	Amount (USD\$)	%age	Remarks
Investors	300,000	30.39%	Shareholders
Financier's	687,000	69.60%	Difference in funding from Shareholders
Total	987,000	100%	

KEY FINANCIAL RATIOS

The project demonstrates a strong operating performance with most of the financial ratios indicating a profitable business ahead for MD with earnings projected to be continuously in the positive.

Both Interest Cover ratio and Debt Services Cover are positive showing that MD will be able to cover and meet its loan financed obligations throughout the projected period.

Key Ratios	Y1	Y2	Y3	Y4	Y5
EBITA % Income	53%	53%	53%	53%	53%
EBIT % Income	17.7%	17.5%	21.4%	24.5%	27.2%
EBT % Income	15.0%	15.0%	20.0%	24.0%	27.0%
Debt Service Cover (times)	8.71	1.94	2.52	3.26	4.21

FINANCIAL AND VIABILITY ANALYSIS

Using the DCF valuation model results, IRR, and NPV (Excluding Terminal Values) presented in the Table below the study can confirm the project viability.

	Results USD\$
NPV (USD\$. – Excluding Terminal Value)	1,110,213
IRR	26.539%

The IRR for the project at the base case scenario is **26.539%**, well above the project cost of capital (WACC) estimated at 15.6%, suggesting that the project is financially viable. Assuming a discount rate of 30% (WACC), the project Net Present Value (NPV) is **USD\$1,110,213** excluding the Terminal Value (TV) indicating that the project is feasible and worth an undertaking.

CONCLUSION

Based on the assumptions made throughout the Business Plan and specifically on the financial modelling the MD Soap and Detergent Project is viable and financially sound. With positive NPV and IRR above the cost of capital (opportunity cost) and strong cash flow, MD should pursue the strategy as envisaged in this Business Plan.

1 INTRODUCTION

1.1 BACKGROUND

This Business Plan has been prepared by a financial Consultant in collaboration with Soap and Detergent manufacturers and other experts on behalf of M D SOAPS & DETERGENTS LIMITED (MD), a private limited liability Company registered in Tanzania (Company Number 142143437) on the 15th July 2020 under the Companies Ordinance Cap. 212, to carry on the business of; “to be general processors of all kinds of soap and detergent products”.

MD is a company that has already invested into the business and is looking to expand its brand locally and regionally.

Therefore MD is well placed to venture into Soap and Detergent Production, having started in the business, albeit in a small capacity and has some logistics already in place, including owned business premises suitable for the manufacturing of Soaps and Detergents.

The project timelines, as projected by the consultant, are driven by the current capacity of the factory and the expansion it wishes to undertake.

PROJECT IMPLEMENTATION PHASES

1.1.1 Phase 1 Identifying Location

Location is at the company’s own premises located at Mbagala Kijichi, Dar es Salaam.

Phase II - after two years it is proposed MD venturing into more products under some of its well known existing brands. It is expected that at this time MD will have accumulated enough cash reserves that will be utilised to fund this venture.

1.2 OBJECTIVES AND SCOPE OF WORK

The main objective of this business plan is to determine financial and economic viability of setting up a modern Soap and Detergent Production Plant, through a combination of strategies that minimise environment pollution on waste and packaging.

In line with the TOR, the scope of work is summarised as follows:

- Review and analyse various relevant documents in relation to the MD operational and financial performance;
- Evaluate the feasibility of the project financing based on the proposed two-phases approach;
- Review, update and recast the financial model and financial projections, over the first 5 years of the Plants operating period, and possible financing structure, estimated at 5-year taking into consideration of additional funding requirements to be accessed through finance partner still to be sought.

- Review and update detailed financial projections including various financial ratios, project IRR and NPV, financial scenarios and sensitivity analysis for key soap and detergent revenue drivers, recommend an appropriate/optimal capital structure, debt and equity/grant mix, for financing the project;
- Review and identify potential project operational and financing risks that the MD project may face and recommend remedial strategies;
- Prepare a comprehensive bankable business plan for the project. This Business Plan will not only service to introduce the project to local investors but also confirm its viability and potential impact to the GOT and international financiers alike.

1.3 APPROACH & METHODOLOGY

1.3.1 Consultative meetings and desk research

In the course of preparing this Business Plan, the consultant conducted interviews and discussion with key individuals in the sector and senior management of MD.

1.3.2 Data gathering and analysis

We collected and analysed various data from MD operations, OTR and GOT through the Ministry of Manufacture. We also analysed the performance of the commercial Soap and Detergent sub-sector and market prospects in the country as the basis for deriving assumptions used in financial projections of future cash flows and overall performance of the envisaged Soap and Detergent Plant.

1.4 CONTENTS OF THIS REPORT

While Section 1 sets the scene of the MD Business Plan, the remainder of this report is organised as follows:

Section 2: Description of Project Location and commercial operations:

In this section we discuss, albeit briefly, the location of the project, the Soap and Detergent Plant plan, proposed soap and detergent manufacturing activities. A list of Plant and equipment, key factors, influencing Soap and Detergent production, structural development and mechanisation is presented and discussed.

Section 3: Description of project governance and management:

This section provides a summary of human resources requirements for the MD Project. We review the corporate structure and governance in terms of

shareholding as registered by BRELA. The Section presents a description of governance structure that is paramount for business stability and continuity. Organogram for the MD under **Phase I** and a brief profile for key technical and senior management staff are provided under this section.

Section 4 Description of industry & market analysis:

This section provides for detailed analysis of the existing market and those to open in the near future. In this section we review the existing Soap and Detergent Producers and services that are currently available in the market. It also provided a simple description of the customer of MD (customer mapping) and competitors' analysis in term of marketing method and pricing.

Section 5 Description of project costs and financing plan

Project capital costs and financing plan are both discussed in this section. The Section provides an estimate of costs based on the experience from other commercial Soap and Detergent Plants that have been financed and are of relatively same size in the EAC region.

Section 6: Financial projections

This section provides detailed analysis and projections over the project period. Using Microsoft Excel, the financial model is developed to establish the financial viability of the project. Detailed financial projections have been prepared in line with the Project Phases.

Section 7: Description of project risks, mitigations, SWOT& impact

This section recaps on the possible risk exposure that MD may face as it embarks on implementing the growth strategy. The strategies to mitigate the same have been outlined. Strength, Weaknesses, Opportunities and Threats (SWOT) analysis is carried out in this section.

The overall impact of the project and the envisaged outcomes are highlighted in this section to bring into perspective the economic and social benefits of the MD Commercial Soap and Detergent Model.

Section 8: Conclusion – This provides the concluding remarks on the viability of the envisaged project.

The following Appendices form part of this Business Plan Report:

- Appendix 1: Projected Profit & Loss for Year 1-5
- Appendix 2: Projected Cash flows for Year 1-5
- Appendix 3: Ratio Analysis
- Appendix 4: Breakeven Analysis
- Appendix 5: Payback Period

2 DESCRIPTION OF PROJECT LOCATIONS AND SOAP AND DETERGENT

2.1 INTRODUCTION

This is an important section of the business plan. In this section we discuss albeit briefly on the location of the project, the Soap and Detergent plans, proposed expansion and commercial Soap and Detergent activities. A list of all equipment required, key factors influencing Soap and Detergent production, structural development and mechanisation are well discussed.

2.2 PROJECT LOCATION

MD Head Office is located in Mbagala Kijichi, Dar es Salaam with access to a major main road and resides in a light industrial area of Dar es Salaam.

2.3 THE SOAP AND DETERGENT PLANT PLAN

From the study that has been conducted internally, MD has developed the Soap and Detergent Plant plan. This envisages having extra imported equipment to scale up production and meet the company's expansion plans.

The company is manufacturing on a very small scale and formulating its ingredients and brand registrations, in preparation for a more mechanised approach and increased production.

In year one, we have used for projections that manufacture will be as follows:

** 450 Tonnes of Soaps

** 600 Tonnes of Detergents

2.4 PROPOSED INGREDIENTS

The Company intends to commercially import fragrances and use ingredients locally sourced to reduce costs of inputs.

Soaps

Soaps are the product of the reaction between a fat and sodium hydroxide:

fat + 3NaOH → glycerine + 3 soap

The most common fats and oils used are tallow (beef or mutton/beef blend), coconut oil, and palm kernel oil. Different oils produce soaps of varying hardness, odour and lathering, so the ratios of the oils used are closely monitored to produce a blend with the most

desirable characteristics for the most reasonable cost.

However, pure soap is hard and easily oxidised, so various additives are added to correct this and to make a more aesthetically pleasing product. The first such "additive" is glycerine, which is produced in the saponification reaction. Glycerine makes the soap smoother and softer than pure soap. However, it is also much more valuable than soap itself, so only a minimum of glycerine is left in the soap and the remainder is extracted, purified and sold.

Detergents

Detergents use a synthetic surfactant in place of the metal fatty acid salts used in soaps. They are made both in powder and liquid form, and sold as laundry powders, hard surface cleansers, dish washing liquids, fabric conditioners etc. Most detergents have soap in their mixture of ingredients, but it usually functions more as a foam depressant than as a surfactant.

The ingredients of detergent base powder:

Solids	
Ingredient	Function
Sodium tripolyphosphate (STP)	Water softener, pH buffer (to reduce alkalinity).
Sodium sulphate	Bulking and free-flowing agent.
Soap noodles	Causes rapid foam collapse during rinsing.
Zeolite	Water softener (absorbs Ca ²⁺ and Mg ²⁺) in countries where STP is not used; granulating agent for concentrated

	detergents.
Sodium carboxymethyl cellulose	Increases the negative charge on cellulosic Fibres such as cotton and rayon, causing them to repel dirt particles (which are positively charged).
Liquids	
Ingredient	Function
Linear alkylbenzene sulphonic acid (LAS)	Surfactant - the main active ingredient
Caustic soda solution	Neutralises the LAS.
Coconut diethanolamide or a fatty alcohol ethoxylate	Nonionic detergent and foam former.
Fluorescer	Absorbs UV light and emits blue light, causing ageing cotton to appear white rather than yellow.
Water	Dissolves the various ingredients, causing them t

2.5 KEY SOAP AND DETERGENT ACTIVITIES

The activities will all run concurrently:

- Putting the infrastructure in place, i.e.in order of priority- 6 months,

- Infrastructure of Plant to make way for new equipment and machinery – 2 months,
- Ordering and delivery of ALL equipment – 3 months,
- Importing and Preparation of some ingredients not available locally – 2 months,
- Quality Control and Research and Development of products – 2 months

2.6 STRUCTURAL DEVELOPMENT OF PLANT

- Suitable storage area of all materials
- 2* Plant offices
- 1* Canteen and toilets area
- 1* Parking area
- 1* Store
- 1* Machinery shed
- 1* Garage

2.7 MECHANISATION – SOAP AND DETERGENT PLANT

Machinery

- 1 * Soap mixing machine
- 1 * Mill machine
- 1 * Packaging machine
- 1 * Detergent machine
- 1 * Smalls (containers and utensils etc)

Transport

- 2 * 4 x 4 Pick Ups
- 5 * Trucks & Trailers suitable for distribution
- 1 * Motorbike
- 1* Forklift

3 DESCRIPTION OF PROJECT GOVERNANCE AND MANAGEMENT

3.1 INTRODUCTION

This section provides a summary of human resources requirements for the Project. We review the corporate structure in terms of shareholding as registered by BRELA. The Section presents a description of governance structure that is paramount for business stability and continuity. Organogram for the MD under **Phase I** and a brief profile for key technical and senior management staff are provided.

3.2 COMPANY SHAREHOLDING STRUCTURE

The MD shareholdings are as presented in [Table 3-1](#):

Table 3 1: MD Shareholding names

Name	No. of Shares	Shareholding (%)
Hudheifa Zulfikar AHMED	125,000,000	50%
Ayaz Mohamamed Rafique Daud ABDALLA	125,000,000	50%
Total	250,000,000	100

Source: MD Memorandum and Articles of Association

3.3 DESCRIPTION GOVERNANCE STRUCTURES AND KEY PERSONNEL

The Board of Directors is duly constituted and conducts its business as per directives contained in the Companies Law, Cap 212. The board consist of three (1) Non-Executive Director and two (2) Executive Directors. The major role of the Board has been an oversight one and ensuring that the strategic objectives of the Company are achieved through annual plans and specific project business plans.

Under MD the business will be managed as per organisational structure proposed below. Most of the positions are still vacant waiting for some Lease Agreements to be signed between landholders and MD, and finalisation of financing arrangements being sought through this Business Plan.

Figure 3 1: Organisational Chart for the MD Project

3.3.1 Key Management Position

The Senior management under the stewardship of the Managing Director will be reporting to the Board of Directors, which is chaired by the Managing Director (Tanzanian) and joint Shareholder of MD, **Mr. Hudheifa Zulfikar AHMED**. After completing his formal and secondary education in ????????

Other key technical personnel who will be hired on full time basis to run the Harvesting and Transport include the following key staff:¹

- **Transport Manager** – this position will also oversee the distribution of the company’s products and the jobholder reports directly to the Managing Director of MD. Preferably the Transport Manager will have hands on experience of running a successful distribution network in Tanzania.
- **Plant Manager** – Ideally the candidate will be an Engineer and conversant with the operations of a Soap and Detergent Plant.
- **Head of Finance (CFO)** – this will be acting as Chief Financial Officer (CFO) and will be in charge of all financial matters. This is a senior position at MD and the jobholder reports directly to the Managing Director. Preferably the CFO will have hands on experience in financial and strategic matters such as planning, budgeting and financial control and experience in a manufacturing environment.
- **Technical Expert** – This will be a critical member of the Plant operations and must be able to quality control all production and ensure formulations are correct. Preferably a degree in chemistry would be ideal. Developing of new products would also be part of his remit. Preferably the jobholder will be Tanzanian with qualifications and it is envisaged that he/she must have a chemical degree or equivalent.

MD is an equal opportunity employer and it’s the policy of MD to employ women in key positions as well as men. As for Technical and Senior Management position, MD has in place a Succession Plan that will ensure there is a continuity of business even after the incumbents have retired or transferred to other divisions within MD. The MD Training Policy demands that each year staff have a roster of undertaking training within (through hired trainers/coaches) and in some cases by sending technical staff to other Plants within Africa for updating their skills.

3.3.2 Other Support Staff

All supporting staff identified in the Organisational Chart of the MD project will be Tanzanian and a Training Need Assessment (TNA) shall be carried out to identify the training needs so that to ensure the team is well capacitated. During busy periods seasonal labourers

¹The HR department, on a need basis, will establish the total staffing levels. Some of the activity is purely seasonal and the staff will have to reflect this reality.

will be employed from near the MD factory operations.

These staff includes:

- Office and administration assistant,
- Security officer,
- Security guards,
- Truck & Forklift Drivers,
- Storekeeper,
- Casual Labourers

4 DESCRIPTION OF INDUSTRY & MARKET ANALYSIS

4.1 INTRODUCTION

This section provides for detailed analysis of the existing market and those to open-up in the near future. We review the commercial Soap and Detergent sector and products and services that are currently available in the market. In what follows in this section, we have provided a simple description of the customer of MD (customer mapping) and competitors' analysis in term of marketing method and pricing.

4.2 THE COMMERCIAL SOAP AND DETERGENT INDUSTRY IN TANZANIA

4.2.1 Soap and Detergent Production Tanzania

The Soap and Detergent industry is an expanding area, as the population of Tanzania is growing steadily at approximately 2% per year and Tanzania reached an important milestone in July 2020, when it formally graduated from low-income country to **lower-middle-income country status**.

Main Manufacturers in Tanzania

Royal Soap and Detergents (part of the METL Group) is the largest manufacturer of Soaps producing 10 tonnes per hour from its manufacturing plant in Dar es Salaam.

Kenya Soap and Detergent Manufacturers

Bidco in Kenya is one of the largest manufacturers of soaps and detergents (30% of market share in soaps and 15% detergents in Kenya) and exports its products to sixteen African countries. So the potential for MD to export its products regionally should definitely be explored further, once local demand has been reached.

The need for medicinal soaps in the market due to the Covid 19 pandemic should also be explored further, as for the foreseeable future this could be a niche market for those willing to formulate soaps to meet this market.

Preparation for the Manufacturing Plant

Recommendations to the factory layout can be implemented immediately funding in place. Building and Civil Works can start immediately funding received.

Once all the machinery has arrived and the products to be manufactured are established the ingredients can be sourced and production started.

It is important that a good stock of ingredients is held, so that manufacturing is never delayed and increases in demand can be accommodated.

4.2.2 Marketing and Sales

Any new product to market requires careful marketing. Competition is stiff and well known brands dominate the market.

It is recommended the company undertake a marketing review of brand leaders in the Tanzanian market. Some of the leading brands are:

** MO

** POA

** JAMAA

** TAIFA

The above brands should all be evaluated and their company's marketing strategy analysed and prices and market penetration calculated.

When the company is ready it should roll out a planned marketing strategy that encompasses all media and has an element of Experimental Marketing, working with Brand Ambassadors in top Retail outlets to get the brand known and sampled.

The main market for the first couple of years will be wholesale distributors and the major supermarket chains operating in Tanzania, like Shoppers Plaza and Village Supermarkets.

4.2.3 The policy direction at a Glance

The Government of Tanzania has recognized manufacturing production as a means to increase local goods and reduce dependency on imported goods.

These demand-side developments provide opportunities for the supply side and therefore for commercial Soap and Detergent Producers in Tanzania.

Tanzania is also keen to increase its trade within Africa and encourages exports.

4.3 DESCRIPTION OF PROPOSED PRODUCTS AND SERVICES FOR MD

MD is currently formulating ingredients and registering its brands for market. It is recommended that the company start with hard soaps (including laundry soap) and powder detergents. There is a ready market for a good product in Tanzania.

Brands registered and patented by the company with Brela are:

- Vita Bath Soap
- Lulu Beauty Fragrance soap
- Tura Medicated Soap
- Takasa Soap
- Lily Soap

DESCRIPTION OF CUSTOMERS FOR MD

Wholesale distributors and major supermarkets will be the main customer of MD.

4.4 COMPETITORS AND COMPETITION ANALYSIS

There are many competitors in the market the main ones being:-

- UNILEVER
- METL
- MURZAH
- ROYAL SOAP
- SOAP & ALLIED INDUSTRIES

Only the largest companies maintain a website and proper marketing strategy to build their brands. The cheaper brands are price sensitive and fight for market.

MD must introduce a sustained marketing strategy to penetrate the market that will be price sensitive and considered value for money, without compromising on quality.

The bigger brands maintain heavy TV & Radio media coverage, so for MD to make any headway it will have to concentrate on Brand Ambassadors to introduce the brand to the market. It is advised a sampling of their products be conducted in the major urban areas of Tanzania. This will be cheaper than TV & Radio campaigns.

It is also a good idea to start a competition with the prize being soap or detergent for a period of time FREE! The competition can be promoted via the website and social media.

5 DESCRIPTION OF PROJECT COSTS AND FINANCING PLAN

5.1 INTRODUCTION

Project costs and financing plan are both discussed in this section. The Section provides, an estimate based on the experience of other commercial Soap and Detergent Plants based in Tanzania and Africa.

5.2 PROJECT DEVELOPMENT COSTS

In Table 5-1MD in collaboration with consultants, have identified the development costs that will be required under Phase I. According to the breakdown below (detailed): a total of the **USD\$987k** of investment is needed to undertake the project. The main investment items are; Transport (60.99%); Factory Equipment & Machinery (26.34%); Building & Civil Works (10.13%) and Pre-operational Expenses (2.54%).

Table 5 1:Project Investment (USD\$)

Item	USD\$.	Per cent
Building & Civil Works		
Building and Civil Works	100.0	
Sub -Total Building & Civil Works	100.0	10.13
Soap & Detergent Factory		
1 x Soap Mixing Machine	50,000	
1 x Mill machine	60,000	
1 x Packaging machine (Soaps & detergents)	80,000	
1 x Detergent machine	50,000	
Smalls (containers, utensils etc)	20,000	
Above includes all shipping costs		
Sub -Total Factory	260.0	26.34
Transport		
5 x Semi Trucks & trailers @USD\$80k each	400,000	
1 x Forklift	80,000	
1 x Motorcycle	2,000	
2 x 4 x 4 Pickups @USD\$60k each	120,000	

Sub - Total Transport	602.0	60.99
Pre-operational Expenses		
Pre-operational expenses	25,000	
	25.0	2.54
TOTAL PROJECT COST	987.0	100.00

Source: MD Consultant from Zimbabwe

5.3 PROPOSED FINANCING STRUCTURE

The required investment to capitalise the MD Project is USD\$987k. A financial partner will be sought to help finance this project.

Table 5 2: Proposed Financial structure

Source	Amount (USD\$. '000)	%age	Remarks
Shareholders	300	30.40%	
Financier	687	69.60%	Difference in funding
Total	987	100%	

Source: MD, Study by Financial Consultant analysis

5.4 COLLATERAL AND SECURITY

Securities that are offered by MD to secure its loans depending on the Financial Institution that will be financing the capital expenditure of the project may include the following:

- Title Deed of factory
- Debenture on all the floating and fixed assets of MD including the equipment, plant and vehicles to be financed under Loan and debenture on its assets;
- Debenture instrument to be executed by shareholders; and

- Personal guarantee issued by shareholders

5.5 IMPLEMENTATION PLAN

Firstly, once products and brands registered with BRELA are complete the company then works out its production requirements for at least six months.

It will take six months before everything is in place to start manufacturing. This is Building and Civil Works to be completed and equipment and machinery ordered and delivered. Ingredients that need to be imported and local raw materials required to start production.

Market and Strategic Plan should be in place and commence ideally before the factory goes into full production. It's better to have secured orders prior to the start of production hence marketing must start immediately. Samples need to be produced and the quality in manufacture maintained.

Quality Control is critical, so regular testing of the products must occur and therefore a testing lab area should be created to facilitate this and new product development.

Health, Safety & Environmental issues

The factory will need to be inspected and all products sent to Tanzania Bureau of Standards and Drugs Control department for approval

Environmental concerns will need an environment impact study provided by NEMC and this will ensure the factory is eco friendly and all waste products are disposed of correctly.

OSHA will inspect the factory for workers Health & Safety issues and issue a certificate.

Workmen's compensation and NSSF will need to be joined.

6 FINANCIAL PROJECTIONS

6.1 INTRODUCTION

In this section the Business Plan provides detailed analysis and projections over the project period. Using Microsoft Excel, the financial model is developed to establish the financial viability of the project.

Detailed financial projections have been prepared in accordance with the Project being for a period of 5 years. The Financial Projections have been prepared on a yearly basis for five years. (See Appendix 1-5).

6.2 KEY FINANCIAL ASSUMPTIONS

The following key assumptions underlie the financial projections:

6.2.1 General

- (i) Financial projections are in nominal USD\$. terms for 5 years.
- (ii) Tsh./US\$ exchange rate is Tsh.2,300/US\$1
- (iii) Depreciation and amortisation for project development costs are based on a straight-line method at the normal rates already being used by MD when preparing its accounts.
- (iv) Economic growth assumed to stable at 7.5% per annum.
- (v) Inflation rates remains constant and assumed to have no significant impact on the company.

6.2.2 Project financing

- (i) The loan will be repaid over 6 years including 1-year moratorium period on principal.
- (ii) Interest rate is assumed 5% per annum (currently offer rate on USD\$ Loans) payable monthly and is payable right from month one.
- (iii) Interest rate is on reducing balance and payable monthly, quarterly or per annum.

6.2.3 Revenue/Sales Forecast

Key assumptions going into the revenue projections include sales forecast for the next 5 years as follows:

Year 1

- Production will only start after 6 months.
- Production targets are: **Soaps** 37,500kgs per month; **Detergent** 50,000kgs per month
- Selling price for the first year based on the average wholesale price of soap USD\$2.17 per kg and detergent USD\$1.30 per kg
- The Plant will be operating 10 hours per day 6 days a week
- The company will distribute its products with its own transport
- Cost of Sales industry average of **Raw materials** (ingredients) 40% of turnover; **Transport & Distribution Costs** 5% of turnover; **Packaging** 2% of turnover
- **Marketing** Costs 5% of turnover
- Administration Costs are: **Communication** 3% of turnover; **Insurance & Licenses** 2% of turnover; **Contingency** 2.5% of turnover

Year 2

- Cost reductions as company can venture into bulk buying of raw materials
- 15% growth of production

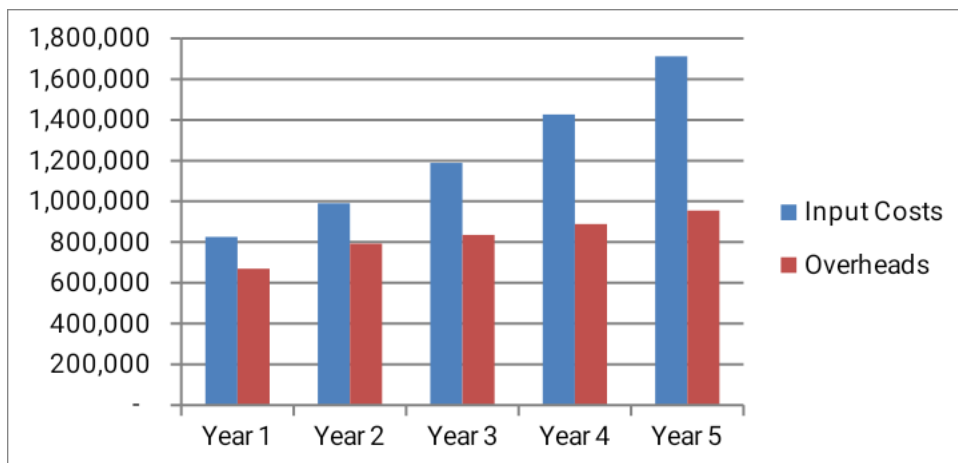
Year 3 onwards

- 15% growth per year until year 5
- Increase in products and range

6.2.4 Plant Inputs & Overheads

The Factory inputs and overheads are projected to, both increase. While inputs are increasing from: USD\$826k to 1.7 million and total operating costs increase from: USD\$686k to 977k. [Figure6-1](#) below provides a summary of the projected farm inputs and overheads for the two-phased project.

Figure 6 1: Projected Factory Inputs and Overheads USD\$



Source: MD, Study by Consultant analysis

6.2.5 PAYROLL Cost

The human capital cost (Payroll and related costs as estimated by MD) are assumed to be in the following range similar to the industry packages as summarised in Table 6-1:

Table 6 1: Payroll Costing

JOB TITLE	Percentage %	USD\$./Month
Factory		

JOB TITLE	Percentage %	USD\$./Month
Managing Director		3,000
Finance Director		2,500
Plant Operator		1,500
Transport Manager		1,500
Technical Expert		1,000
Security Guards x 3@150		450
Casual Labourers x 10 @200		2,000
Administrative Assistant		300
Total Factory	72.35%	12,250
Transport		
5 x Truck Drivers @300		1,500
5 x Drivers Assistants @USD\$150 each		750
1 x Forklift driver @USD\$300		300
Total Transport	15.06%	2,550
Contingency 10% of Payroll	8.74%	1,480
SDL Levy 4%	3.85%	651
Total Payroll Cost per month	100.00%	16,931

Source: MD, Study by Consultant analysis

6.2.6 Pre-operational Expenses

These are summarised in [Table 6-2](#) and includes Project Management, Installation Costs, and Training on new equipment from suppliers.

Table 6 2:Pre-Operational expenses

Pre-Operational Expenses	USD\$.
Project Manager 3 months @USD\$3,000	9,000
Installation and Training on equipment	15,000
Contingency	1,000
TOTAL	25,000

Source: JFL, Study by Consultant analysis

6.2.7 Depreciation and amortisation

Depreciation and amortisation of assets are based on straight-line method. Table 6-3, in line with MD’s accounting and financial policies and depreciation charges are based on accepted accounting and financial reporting standards, provides these charges both in form of percentage and years of depreciation.

Table 6 3: Depreciation & Amortisation

Fixed Assets Particulars	Depreciation/Amortization (Years)	Depreciation Charges (%age)
Land	N/A	0%
Buildings & Civil Works	25	4%
Plant & Machinery	5	12.5%
Equipment	5	12.5%
Furniture, Fixtures & Fittings	5	12.5%

Source: MD and Consultant analysis

6.3 PROJECTED FINANCIAL RESULTS

6.3.1 Key Financial Ratios

The project demonstrates a strong operating performance with most of

the financial ratios indicating a profitable business ahead for MD with earnings projected to be significantly in the positives from the first year of operation.

Both Interest Cover ratio and Debt Services Cover are positive showing that the MD will be able to cover and meet its loan financed obligations throughout the projected period.

6.3.2 Return on Equity (ROE)

The project demonstrates a strong operating performance with significant return on equity rising from 15.0% to 27.0% in year 5. The main contributing factor to this return is profits posted by MD. These profits are attributable to a number of reasons that include prudent financial management meeting revenue targets within controlled cost, supported by adherence to covenants on the financial instruments raised for financing the project. (see Table 6-4).

Table 6 4: Return on Equity

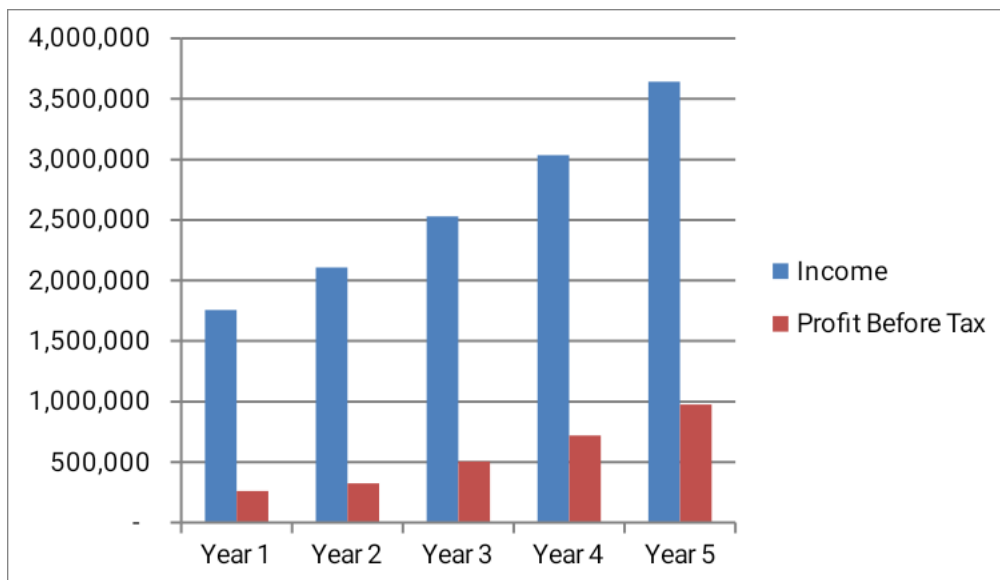
Key Ratios	Y1	Y2	Y3	Y4	Y5
------------	----	----	----	----	----

EBITA % Income	53%	53%	53%	53%	53%
EBIT % Income	17.7%	17.5%	21.4%	24.5%	27.2%
EBT % Income	15.0%	15.0%	20.0%	24.0%	27.0%
Debt Service Cover (times)	8.71	1.94	2.52	3.26	4.21

Source: MD, Study by Consultant analysis

6.3.3 Project

Figure 6 2: Five Years Income/Revenue Breakdown – USD\$



Source: MD and Consultant analysis

6.3.4 Projected Revenue/Sales Forecast

Revenue projections for Phase I of the project (Year 1-2) are presented in [Appendix 1-5](#). Steady growth in the form of revenue is recorded from year 1-5 and this is attributable to increased operations due to increase in production and products produced from MD manufacturing activities.

Projected revenue breakdown for the project looks stable and lucrative as revenue increases from USD\$261k to USD\$976k in Year 5.

6.4 CASH FLOW FORECAST

Cash flows as from operation show a very strong position and suggest a very healthy business. The project will generate adequate and sustainable operating cash flows throughout the projected period to cater for recurrent expenditure and the project financing covenants ([Appendix 2](#)).

6.5 PROJECT FINANCIAL FEASIBILITY

6.5.1 Discounted Cash flow

Assessment of the project viability is based on the DCF valuation model, using the Weighted Average Cost of Capital (WACC) of **15.6%**. Detailed description of WACC calculation is included below. WACC is calculated using the following equation:

$$WACC = k_e \times W_e + k_d(1 - T_c) \times W_d \quad \text{Where:}$$

$WACC$ = Weighted Average Cost of Capital

k_e = Cost of Equity

k_d = Cost of Debt

W_d = the proportion of debt on total financing

W_e = proportion of equity to total financing

T_c = Corporate Tax

The DCF valuation model results, IRR, and NPV (Excluding Terminal Values) is presented in [Table 6-7](#) below.

Table 6 7: Base Case DCF Valuation Model Results

	Results
NPV (USD\$. – Excluding Terminal Value)	1,110,213
IRR	26.539%

Source: Consultant Analysis

6.5.2 Net Present Value

Assuming a discount rate of 30%, calculated in the project Net Present Value (NPV) is **USD\$1,110,213** excluding the Terminal Value (TV) indicating that the project is feasible and worth an undertaking.

6.5.3 Internal Rate of Return

The Internal Rate of Return (IRR) of the project is an indicator for the project's profitability. For a project to be financially viable, the IRR should be greater than the cost of capital (WACC).

The IRR for the project at the base case scenario is **26.539%**, well above the project cost of capital (WACC) estimated at 15.6%, suggesting that the project is financially viable.

7 DESCRIPTION OF PROJECT RISKS, MITIGATIONS, SWOT & IMPACT

7.1 INTRODUCTION

This section recaps on the possible risk exposure that MD may face as it embarks on implementing this business plan. The strategies to mitigate the same have been outlined. Strength, Weaknesses, Opportunities and Threat (SWOT) analysis is carried out in this section.

The overall impact of the project and the envisaged outcomes are highlighted to bring into perspective the economic and social benefits of the MD Soap and Detergent Plant.

7.2 RISK AND MITIGATION STRATEGY

The main risks and mitigation measures are listed in [Table 7.1](#) below.

Table 7 1: Project Risks and mitigations

Type of risk	Level of risk	Mitigation measures
Not meeting standard required by TBS and Drugs authority	Low	Formulations are to international standards and fragrances (essential Oils) sourced from reputable manufacturers overseas
Competition from other Soap and Detergent producers	Low	Two Soap and Detergent producers have been identified and neither will impact on the projects objectives if the company maintains a strict quality control on All products produced
Not securing wholesale price from distributors and supermarkets	Medium	The market is very price sensitive but with good packaging and formulations the company should be competitive
Business Risk - the risk that a company such as MD will not have adequate cash flow to meet its operating expenses. A company's risk is composed of financial risk,	Medium	Working with key partners and supporting them with distribution channels that are reliable and quick should mitigate slow payments. Buyers should be vetted very

Type of risk	Level of risk	Mitigation measures
which is linked to debt, and risk, which is often linked to economic climate. If a company is entirely financed by equity, it would pose almost no financial risk, but it would be susceptible to business risk or changes in the overall economic climate.		carefully for Credit Worthiness and past performance
Market risk - Market Risk would occur, for example, when there are new entrants in the market leading to revenue to fall below expected levels; market share drops (perhaps due to shift in GOT emphasis strategy or due to a new entry by a lower-cost competitor); demand for a Project ceases.	Medium	The best mitigation strategy of Market Risk for the Project comes from long-term off-take contracts with supply chains. MD has projected its prices just below the current market rate used by its main competitors.
Foreign exchange risk For MD foreign exchange exposure can occur if the company borrows in USD\$ or machineries that will be ordered are not delivered in time.	Medium	The company has the potential to earn foreign exchange from exports so the risk against exchange rate losses is minimal.

7.3 SWOT ANALYSIS

MD SWOT ANALYSIS	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
------------------	-----------	------------	---------------	---------

MD SWOT ANALYSIS	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
OVERALL ORGANISATION	<ul style="list-style-type: none"> • Good geographical location in Tanzania for Soap and Detergent Plant • Commercial Soap and Detergent Production experts engaged • Technology more advanced and zero emissions to the environment 	<ul style="list-style-type: none"> • Weak or No regulation of or standards for the industry • No Government subsidies unless exporting • Skilled manpower hard in Tanzania to find 	<ul style="list-style-type: none"> • Government willingness to revive all manufacturing industries under the new vision on industrialisation • Government keen to increase manufacturing and reduce imports of soaps and detergents • Plenty of GOT land available to lease or buy 	<ul style="list-style-type: none"> • Decision making involving government officials may take a long time • Finding skilled expatriates to fill the skills gap in advanced manufacturing practices
PRODUCTION	<ul style="list-style-type: none"> • Reliable supply of key ingredients • Virtually no production wastage • Good/New machinery to be acquired • Attention to machine maintenance – well trained staff • International accreditation will be sought 	<ul style="list-style-type: none"> • High costs of production • Electricity outages • Benchmarks in soap and detergent manufacture hard to establish in Tanzania 	<ul style="list-style-type: none"> • Develop the first Soap and Detergent Factory using the latest technology • Expansion of production • Model Plant for others to follow 	<ul style="list-style-type: none"> • GOT may change manufacturing environment with short notice • Climate change

MD SWOT ANALYSIS	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
MARKETING	<ul style="list-style-type: none"> • Ready market due to increase in per capita growth • Everybody uses soap and detergents not considered a luxury item • Protected market if production and quality maintained • No pollution • GOT accredited products 	<ul style="list-style-type: none"> • Market awareness almost NIL • Poor power distribution in parts of the country • No government marketing strategy for producers • International requirements of the industry not understood 	<ul style="list-style-type: none"> • Develop further regional markets for products • Increase market awareness • Conduct market survey • Consider selective advertising • Experiential Marketing 	<ul style="list-style-type: none"> • Unregulated producers using sub standard ingredients • Co2 emissions being ignored by some players in the industry going forward
FINANCE	<ul style="list-style-type: none"> • No import duty/VAT on project if put through TIC including motor vehicles, equipment and Plant. • Possible to borrow with partner to make financing cheaper than local banks 	<ul style="list-style-type: none"> • Financial status of the company • High taxes (Local Govt.) • No benchmarking • TRA understanding of Soap and Detergent Production financing 	<ul style="list-style-type: none"> • Undertaken independent financial review and produced this Business Plan • Available financing and term loans available through local banks (not recommended) 	<ul style="list-style-type: none"> • TRA understanding of Soap and Detergent input costs and capex tenor needed of 6 years

7.4 DEVELOPMENT IMPACT

The project will help the country become independent in the manufacturing of soaps and detergents.

A healthy nation is a productive one, MD will contribute to the personal hygiene of the nation.

The modern Soap and Detergent Plant will become a model for the GOT to increase manufacturing capabilities in the country.

7.5 EXPECTED OUTCOMES

Various outcomes are expected from all these interventions and strategy deployment. Amongst many outcomes, the following are the most likely:

- Increase in countries manufacturing capacity in line with GOT policy statements;
- No co2 emissions therefore no contribution to pollution of the planet or climate change fears;
- Increasing women's employment and income in the regions MD operate;
- Demonstration Soap and Detergent Plant that can be used to promote the MD model and industry; and
- Saving in foreign currency to the country, as once the country can meet its own domestic health and hygiene products reduces imports from regional and international countries.

8 CONCLUSION

From this Business Plan, it will be seen that Soap and Detergent Plant setup with the proper knowledge and technical support can be a very profitable enterprise.

Paramount to this business model is employment of key, highly skilled manufacturing experts, to work with employed staff and impart their knowledge of international manufacturing activities.

As indicated from the model, the Internal Rate of Return (IRR) of the project is an indicator for the project's profitability. For a project to be financially viable, the IRR should be greater than the cost of capital (WACC).

The IRR for the project at the base case scenario is **34.659%**, well above the project cost of capital (WACC) estimated at 15.6%, suggesting that the project is financially viable.

Assuming a discount rate of 30%, the project Net Present Value (NPV) is **USD\$1,110,213** excluding the Terminal Value (TV) indicating that the project is feasible and worth an undertaking.

APPENDICES

APPENDIX 1: PROJECTED PROFIT & LOSS FOR YEAR 1-5

M D SOAPS & DETERGENTS LIMITED
PROJECTED PROFIT & LOSS

	USD\$				
YEAR	1	2	3	4	5
INCOME					
Soaps	976,500	1,171,800	1,406,160	1,687,392	2,024,128
Detergents	780,000	936,000	1,123,200	1,347,840	1,617,440
TOTAL INCOME	1,756,500	2,107,800	2,529,360	3,035,232	3,642,568
COST OF SALE					
Soaps	390,600	468,720	562,464	674,957	809,948
Detergents	312,000	374,400	449,280	539,136	646,560
Transport & Distribution Costs	87,825	105,390	126,468	151,762	182,115
Packaging	35,130	42,156	50,587	60,705	72,846
TOTAL COST OF SALES	825,555	990,666	1,188,799	1,426,559	1,711,469
GROSS PROFIT	930,945	1,117,134	1,340,561	1,608,673	1,930,109
Less Operating Costs:					
Salaries & Wages	203,174	286,915	286,915	286,915	286,915
Administration Costs	131,739	158,087	189,705	227,646	273,175
Marketing & Brand building	87,825	105,390	126,468	151,762	182,115
Finance Charge	49,350	44,826	34,956	25,086	15,237
Depreciation	197,400	197,400	197,400	197,400	197,400
TOTAL OPERATING COSTS	669,488	792,618	835,444	888,809	954,842
PROFIT BEFORE TAX	261,457	324,516	505,116	719,864	975,267

TAXATION AT 30%	78,437	97,355	151,535	215,959	292,1
PROFIT AFTER TAX	183,020	227,161	353,581	503,904	682,1
PROFIT BROUGHT FORWARD	-	183,020	410,181	763,762	1,267,1
PROFIT APPROPRIATION	183,020	410,181	763,762	1,267,667	1,950,1
APPROPRIATION ACCOUNT					
ACCUMULATED RETAINED PROFITS	183,020	410,181	763,762	1,267,667	1,950,1
APPROPRIATION ACCOUNT	183,020	410,181	763,762	1,267,667	1,950,1
Percentage of Sales - Gross Profit	53	53	53	53	53
Percentage of Sales - PreTax Profit	15	15	20	24	27
Percentage of Sales -After Tax Profit	10	11	14	17	19

Source: Consultant Analysis

APPENDIX 2: PROJECTED CASHFLOW YEAR 1-5

M D SOAPS & DETERGENTS LIMITED

PROJECTED CASHFLOW STATEMENTS

YEAR	USD\$					
	0	1	2	3	4	5
INFLOW						
CAPITAL INFLOW						
Shareholders Equity Contribution						
Term Loan	987,000					
OPERATIONAL INFLOW						
Profit Before Tax		261,457	324,516	505,116	719,864	975,586
Depreciation	-	197,400	197,400	197,400	197,400	197,400
TOTAL CAPITAL AND OPERATIONAL INFLOW	987,000	458,857	521,916	702,516	917,264	1,172,986
OUTFLOW						
CAPITAL OUTFLOW						
INVESTMENT & REINVESTMENT	(987,000)					
LOAN REPAYMENTS	-	-	197,400	197,400	197,400	197,400
OPERATIONAL OUTFLOWS						
TAXATION PAYABLE	-	78,437	97,355	151,535	215,959	292,676
TOTAL CAPITAL AND OPERATIONAL OUTFLOWS		78,437	294,755	348,935	413,359	490,076
NET CASH INFLOW		380,420	227,161	353,581	503,904	682,910
OPENING BALANCE	-		380,420	607,581	961,162	1,465,067
CLOSING BALANCE		380,420	607,581	961,162	1,465,067	2,147,977

Source: Consultant Analysis

APPENDIX 3: RATIO ANALYSIS FOR YEAR 1-5

M D SOAPS & DETERGENTS LIMITED
RATIO ANALYSIS

YEAR	USD\$			
	1	2	3	4
1. THE DEBT SERVICE COVERAGE RATIO				
Profit After Tax	183,020	227,161	353,581	503,904
Depreciation	197,400	197,400	197,400	197,400
Interest	49,350	44,826	34,956	25,086
	A	429,770	469,387	585,938
Interest Payments	49,350	44,826	34,956	25,086
Loan Repayments		197,400	197,400	197,400
	B	49,350	242,226	232,356
THE DEBT SERVICE COVERAGE		8.71	1.94	2.52
2. RETURN ON INVESTMENT				
Profit Before Tax	261,457	324,516	505,116	719,864
Interest Payments	49,350	44,826	34,956	25,086
	A	310,807	369,342	540,073
Capital Investment	B	987,000	987,000	987,000
RETURN ON INVESTMENT		31.49	37.42	54.72
3. RETURN ON EQUITY				
Net Profit After Tax	A	183,020	227,161	353,581
Share Capital	B	109,000	109,000	109,000
RETURN ON EQUITY RATIO		167.91	208.40	324.39

4. DEBT/EQUITY RATIO					
Long/Short Term Loan	A	987,000	789,600	592,200	394,800
Net Worth	B	1,170,020	1,199,781	1,355,962	1,662,467
DEBT/EQUITY RATIO		1.35	2.86	7.91	27.45

Source: Consultant Analysis

APPENDIX 4: BREAKEVEN ANALYSIS

M D SOAPS & DETERGENTS LIMITED
BREAKEVEN ANALYSIS

YEAR	USD\$		
	1		
ITEM	FIXED COSTS	VARIABLE COSTS	TOTAL
Cost Of Sales		825,555	
Operating Costs	669,488		
Capital Costs	987,000		
Finance Costs	49,350		
TOTAL	1,705,838	825,555	
A. Sales Revenue			
B. Variable Cost			
C. Contribution Margin A-B			
D. Fixed Costs			
E. Contribution Margin Ratio C/A			
F. Breakeven Sales D/E			
G. Capacity at Breakeven Point F/A x 100			

Source: Consultant Analysis

APPENDIX 5: PAYBACK PERIOD

M D SOAPS & DETERGENTS LIMITED

PAYBACK PERIOD

	USD\$				
	TOTAL	PROFIT AFTER	DEPRECIATION	TOTAL	CUMMULATIVE
YEAR	PROJECT COST	TAX	CHARGES		
0	987,000			(987,000)	(987,000)
1		183,020	197,400	380,420	(606,580)
2		227,161	197,400	424,561	(182,019)
3		353,581	197,400	550,981	368,962
4		503,904	197,400	701,304	1,070,267
5		682,910	197,400	880,310	1,950,577

Source: Consultant Analysis

PAYBACK PERIOD 2 YEARS 4 MONTHS

CALCULATION OF THE DISCOUNT RATE

An essential part of the DCF methodology is the discounting of future cash flows to reflect the fact that present earnings are valued more highly than future earnings. The discount rate is calculated to reflect the opportunity cost of the investment funds, which is a function of both the financial structure and perceived risk of investment. The normal calculation of the discount rate is explained in details below.

The Cost of Debt

The rate applied to determine the cost of debt (k_d) should be the current market rate the company is paying on its debt. For the purpose of this business case, we have used a USD\$ Loan rate of 5% with the loan being repaid in USD\$ or favourable Tsh exchange rate.

The Cost of Equity

Unlike debt, which the MD must pay at a set rate of interest, equity does not have a concrete price that the company must pay. But that doesn't mean that there is no cost of equity. Equity shareholders expect to obtain a certain return on their equity investment in a company. From the MD's perspective, the equity holders' required rate of return is a cost, because if the company does not deliver this expected return, shareholders will simply sell their shares, causing the price to drop.

Therefore, the cost of equity (k_e) is basically what it costs MD to maintain a share price that is satisfactory (at least in theory) to investors since it is not a Public company. The most commonly accepted method for calculating cost of equity is known as **Capital Asset Pricing Model (CAPM)** calculated using the following formula:

$$\text{Cost of Equity } (k_e) = R_f + \beta(R_m - R_f)$$

Where:

R_f - **Risk-Free Rate** or the amount obtained from investing in securities considered free from credit risk, such as government bonds from developed countries.

β - **Beta, which is used to measure how**, much a company's share price moves against the market as a whole;

$(R_m - R_f)$ - **Equity Market Risk Premium** - The equity market risk premium (EMRP), which represents the returns investors expect, over and above the risk-free rate, to compensate them for taking extra risk by investing in the stock market.

This equation measures the risk premium on the equity market and multiplies this by the beta ratio, which measures the riskiness of the investment under consideration. Beta ratios are determined by the volatility of a share price relative to the whole equity market.

Since MD is in a business that have no any company of its kind that is listed in the Dar es Salaam Stock Exchange (DSE) nor in any of regional stock exchanges long enough to generate industrial beta ratio, we calculate the cost of equity using the **debt yield plus a premium** equation², as follows:

$$k_e = i + \text{premium}$$

²Risk premium for Kenya market is used here as a proxy to the Tanzania market risk premium due to lack of exact premium from reliable sources.

$$= 14\% + 4\%$$

$$= 18\%$$

Weighted Average Cost of Capital:

The discount rate is then calculated using the Weighted Average Cost of Capital (WACC) approach on a post-tax basis in order to take into account the tax shield benefit of debt. In the formulation below, the tax shield benefit of debt is reflected in the WACC by converting k_d to a post tax value with the application of the $(1 - T_c)$ factor, which is then combined with k_e (already a post tax value) to produce a weighted average of the post tax value. This is based upon an estimation of the cost of capital of the project, combining the cost of debt with the cost of equity.

According to the proposed financing structure of MD Manufacturing Plant, the senior debt to MD through borrowing at an interest rate of 5% per annum will account for 100% of the financial requirement for the project.

The **cost of capital** or WACC is then calculated using the following equation:

$$WACC = k_e \times W_e + k_d (1 - T_c) \times W_d$$

Where:

$WACC$ = Weighted Average Cost of Capital

k_e = Cost of Equity

k_d = Cost of Debt

W_d = the proportion of debt on total financing

W_e = proportion of equity to total financing

T_c = Corporate Tax

$$\begin{aligned} WACC &= 18\% \times 0.4 + 0.6 (1 - 0.3) \times 20\% \\ &= 15.6\% \end{aligned}$$