

# PREFEASIBILITY STUDY SETTING UP AN ANIMAL FEED PLANT IN NIGERIA

**DEVELOPED BY**  
**STARTUP BUSINESS FOUNDATION**

**FREE DOWNLOAD**

Register & Download

@

**Website:** [www.startupbizfoundation.org](http://www.startupbizfoundation.org)

**Email:** [info@startupbizfoundation.org](mailto:info@startupbizfoundation.org)

**Tel:** +234832686671,



## **DISCLAIMER**

The information contained herein has been obtained from sources reliable to Startup Business Foundation. Startup Business Foundation does not warrant to the accuracy, completeness or adequacy of such information. Startup Business Foundation shall have no liability of errors or inadequacies in the information contained herein or for interpretations thereof. Every effort has been made to trace owners of the copyright material included in the book. The publishers would be grateful for any omissions brought to their notice for acknowledgements in future editions of the study. No entity of Startup Business Foundation shall be responsible for any loss whatsoever, sustained by any person who relies on this material. The material in this publication is copyrighted. No parts of this publication shall be reproduced, stored or distributed in any form or by any means either on paper or electronic without express written notice and approval of Startup Business Foundation.

## **ACKNOWLEDGMENT**

Startup Business Foundation is thankful to all organizations and individuals who have helped in several ways in preparation of this prefeasibility study.

We also wish to extend our gratitude to all those who reviewed the content and provided valuable inputs for improving the quality, coherence, and content presentation of this prefeasibility study.

## ABOUT THIS REPORT

This prefeasibility study is designed to provide potential and startups entrepreneurs' valuable information on setting up animal feed manufacturing plant in the food processing industry of Nigeria's market; aimed at encouraging and facilitating industrial activities across the country. It is our realization that industrialization is at the heart of economic development and that every effort has to be made to bring about industrial growth and encourage our people to be part of it.

The animal feed production business shows over 80% local content in terms of availability of raw material, equipment and machinery, manpower and other requirements.

The key areas covered in this report include:

- i) Technical and economic analysis of the production, marketing and profitability of the project.
- ii) Recommendations in respect of procurement of equipments and associated problems.
- iii) Recommendation on suitable agronomic management practices to ensure efficient running of the projects.
- iv) Detailed financial analysis including project cash flows for the projects.

This prefeasibility report provides a comprehensive and detailed coverage of the above terms of reference and is designed to facilitate investment decisions.

The implementation of this project will also impact positively on the economy of the immediate community where the project is located. This is in terms of employment-direct and indirect, skilled and unskilled. Government also stands to benefit from internal revenue from taxation.

In view of the result of the analysis using some economic indicators as stated in the proposed project, it is hereby recommended that the project is viable.

## TABLE OF CONTENT

DISCLAIMER	I
ACKNOWLEDGMENT	II
ABOUT THE STUDY	III
TABLE OF CONTENT	IV-V
<b>PART I</b>	
<b>EXECUTIVE SUMMARY</b>	6
1.1 SUMMARY OF TOTAL PROJECT COST	6
1.2 FINANCIAL ACCOUNTING RATIOS ANALYSIS	6
<b>PART II</b>	
<b>MARKET ANALYSIS</b>	7
2.1 INTRODUCTION	7
2.2 MARKET AREA ANALYSIS	7
2.3 DEMAND AND SUPPLY GAP ANALYSIS	7-8
2.4 INDUSTRY ANALYSIS	8
2.5 PRODUCTION AND CONSUMPTION ANALYSIS	8
<b>PART III</b>	
<b>TECHINICAL ANALYSIS</b>	9
3.1 PRODUCT DESCRIPTION	9
3.2 SUITABLE LOCATION	9
3.3 RAW MATERIAL	9
3.4 PRODUCTION CAPACITY	9
3.5 PRODUCTION PROCESS	9-10
3.6 SOURCES OF FUNDS	10
<b>PART IV</b>	
<b>FINANCIAL ANALYSIS</b>	11
4.1 ASSUMPTIONS	11
4.2 ACCOUNTING /FINANCIAL ANALYSIS	11
4.2.1 NET PROFIT	12
4.2.2 NET PRESENT VALUE (NPV)	11
4.2.3 INTERNAL RATE OF RETURN (IRR)	11-12
4.2.4 ACCOUNTING RATE OF RETURN (ARR)	12
4.2.5 PROFITABILITY INDEX (PI)	12
4.2.6 PAYBACK PERIOD	12

## APPENDICES

APPENDIX I	TOTAL PROJECT COST	13
APPENDIX II	ESTIMATION OF WORKING CAPITAL REQUIREMENT	14
APPENDIX III	FINANCING PLAN	14
APPENDIX IV	TERM LOAN REPAYMENT SCHEDULE	14
APPENDIX V	FORECAST STAFFING SCHEDULE (1 <sup>ST</sup> OPERATIONAL YEAR)	15
APPENDIX VI	ESTIMATE OF ANNUAL DEPRECIATION ALLOWANCE	15
APPENDIX VII	ESTIMATION OF ADMINISTRATIVE / OVERHEAD EXPENSES	16
APPENDIX VIII	ESTIMATION OF PRODUCTION AND OPERATION COSTS	16
APPENDIX IX	ESTIMATION OF RAW MATERIAL/PRODUCTION COST AND SALES	16
APPENDIX X	FORECAST INCOME STATEMENT (PROFIT & LOSS ACCOUNT)	17
APPENDIX XI	FORECAST HIGH RATE AND LOW RATE COMPUTATION	18
APPENDIX XII	FORECAST IRR AND ARR COMPUTATION	19
APPENDIX XIII	CASH FLOW PROJECTION	20
APPENDIX XIV	BALANCE SHEET PROJECTION	21

## PART I

### 1.0 EXECUTIVE SUMMARY

The prefeasibility study embodied in this report is on setting up animal feed manufacturing plant in the most viable part of Nigeria by utilizing local raw materials.

Animal feed plant is a place where their feeds are made. The need for balanced animal feeds forms an essential part of the intensive dairy development programme.

The basic raw materials like maize, wheat, limestone are readily available within the country. Apart from this the unit requires electricity, water and manpower which are also available in different parts of Nigeria.

A mechanized plant using state of the art technology has been proposed for this purpose. The plant has the capacity to process not only poultry feed but cattle as well.

Considering the factors of production and its effect of production cost, the proposed project should be sited within the proximity of the raw material source(s) as well as availability of basic infrastructures such as electricity and accessibility to market.

The projected production capacity is 93,600 kgs of animal feeds per year at 60% capacity utilization.

### 1.2 SUMMARY OF TOTAL PROJECT COST

S/N	DESCRIPTION	COST INCURRED	COST TO BE INCURRED	TOTAL
1	Land and building	-	600,000	600,000
2	Machinery & equipment	-	2,860,000	2,860,000
3	Utility equipment	-	1,800,000	1,800,000
4	Office equipment	-	250,000	250,000
5	Vehicle	-	2,600,000	2,600,000
	<b>Total Capital Cost</b>	-	<b>8,110,000</b>	<b>8,110,000</b>
6	Working capital	-	1,800,000	1,800,000
7	10% contingencies & preliminary expenses	-	991,000	991,000
	<b>Total Project Cost</b>	-	<b>10,901,000</b>	<b>10,901,000</b>

### 1.3 FINANCIAL ACCOUNTING RATIOS ANALYSIS

#### PERFORMANCE RATIOS AVERAGES

- (a) Return on Profit = 10%
- (b) Return on Equity = 145%
- (c) Return on Investment = 39%
- (d) Positive NPV = ₦44,338,421
- (e) IRR = 22.1%
- (f) ARR = 38.7%
- (g) Payback Period = 2 years and 6 months

## **PART II MARKET ANALYSIS**

### **2.1 INTRODUCTION**

With agricultural modernization and diversification, there is a good future and solid potential for growth. Thus, market for animal feeds is guaranteed except the need for sensitization of the local population on the benefits of using animal feed vis a vis natural grass and plants. The market cuts across farmers with different sizes of herds of animals. There is a tremendous potential for marketing collaborations at the customer end of the supply chain. The entrepreneur should think of appointing independent sales agents or exclusive tie ups with certain stores or outlets.

### **2.2 MARKET AREA ANALYSIS**

According to review by Department of Fisheries and Wildlife, School of Agriculture and Agricultural Technology, Federal University of Technology, Akure (FUTA), Ondo State, the livestock resources are cattle, goats, sheep, donkeys, horses, pigs, giant rats, cane rats, guinea pigs and rabbits, while the poultry resources include indigenous and imported chickens, guinea fowls, turkeys, ducks and geese. Though their research showed that over 90 per cent of the country's pig and rabbit production is managed under traditional husbandry systems, commercial production techniques are used extensively in the intensive poultry and aquaculture sectors, where they account for 27 per cent and 19 per cent of production, respectively.

They found that the poor quality of the feeds currently available to the industry, with the exception of a few emerging industrially produced feed brands, generates high mortalities, low productivity and eventually, very poor returns on investments of the poultry, pig and fish farmers.

This therefore, presents investment opportunities for potential entrepreneurs to take advantage of by adopting the best practices, standards and quality that guarantees optimum result for the farmers.

### **2.3 DEMAND AND SUPPLY ANALYSIS**

About 90 percent of the rural households own livestock, which forms an integral part of the Nigeria farming system. Yet there is a drastic shortage of fodder during winter months and there is a demand for cattle feed.

Currently there is only one large animal feed manufacturing unit in Nigeria and it is difficult for a single manufacturer to meet the total demand of cattle feed. So, there is a scope for new entrants. Although the production of animal feed may cause air and water pollution but this may be reduced up to a great extent by following the recommended measures.

## **PART III**

### **TECHNICAL ANALYSIS**

#### **3.1 PRODUCT DESCRIPTION**

With the increased demand for livestock products primarily for domestic consumption, in general, customers would prefer: 1. High Quality Graded Feed. 2. They would prefer an affordable price: some may prefer to have a credit period. 3. Some would look forward to promotional offer. 4. Timely delivery in good condition.

#### **3.2 SUITABLE LOCATION**

Source of raw materials is an ideal consideration for location of this project. Therefore, project can be sited in the any part of Nigeria where there is abundant availability of raw materials; other infrastructure can be installed locally.

Most importantly, potential sources of contamination should be considered when deciding where to locate animal feeds mills, as well as the effectiveness of any reasonable measures that might be taken to protect feeds. Feed mills should be located in areas that are not exposed to smoke, dust and other contaminants.

#### **3.3 RAW MATERIAL AVAILABILITY**

Maize & wheat are the major raw materials for the production of animal feed. Limestone, another raw material required for production of animal feed is readily available in different part of the country.

#### **3.4 PRODUCTION PROCESS**

The process involves blending of various ingredients by using a disintegrator to reduce to the size of the required mesh size, which is uniformly mixed with vitamins, minerals by a ribbon blender. Molasses are added and then the mix is extruded to get pellets of the finished product, which are packed in gunny bags for marketing.

#### **3.5 PLANT PRODUCTION CAPACITY**

The plant in this profile has a minimum capacity of 300 kgs of animal feed per day which translate to 93,600 kgs per annum at 60% capacity utilization.

#### **3.6 SOURCES OF FUNDS**

The project can be funded through a number of sources which include but not limited to the following; Agric-Business, Small & Medium Scale Investment Scheme (AGSMEIS), Bank of Industry, Bank of Agriculture (BOA), Nigeria Export-Import (NEXIM) Bank, International Finance Corporation (IFC), grants etc., though the conditions and criteria for accessing the loans and grants varies.



## PART IV

### 4.0 FINANCIAL ANALYSIS

Basically, the financial section of this prefeasibility study consists of three financial statements: Income statement, Balance sheet, Cash flow projection. This section determines whether or not the project is viable using some economic indicators such as Net Present Value (NPV), Internal Rate of Return (IRR), and payback period as are detailed in the appendices below.

#### 4.1 ASSUMPTIONS

1. Assuming that the project will last for the period of five years and the salvage value at the end of the project life ignored.
2. The Machineries, Equipments and Utility Equipment have uniform depreciation of 10%.
3. The installed capacity has estimated capacity of 93,600 kgs per annum at 60% capacity.
4. The proposed capacity utilization are 60% in the first year of commercial production, 70%, 80% in the 2<sup>nd</sup> and 3<sup>rd</sup> year respectively and 90% in the 4<sup>th</sup> and 5<sup>th</sup> years.
5. Raw materials will be sourced locally and Market for the product is readily available.
6. Staff and labour cost will increase by 5% yearly.
7. Prices and unit costs are assumed unchanged in the five years of projection.
8. The valuation currency used is Naira.

#### 4.2 ACCOUNTING /FINANCIAL ANALYSIS

##### 4.2.1 NET PROFIT

The projected Annual Trading Profit and Loss Account is proposed to make the following Net Profit after tax during the corresponding projected periods – all things being equal.

##### 4.2.2 NET PRESENT VALUE (NPV)

NPV is one of the four methods of discounted cash flows techniques which state that money that is immediately available for use, has a greater value than same amount receivables in future date.

Using this method however, all net cash inflows will be discounted to present value using the estimated interest rate of 60% discount factor. At 12% discount factor the project produced a positive **NPV NGN 14,604,101**

##### 4.2.3 INTERNAL RATE OF RETURN (IRR)

This is the discount rate which gives zero NPV or the rate which equates the present value of cash inflows with present value of cash outflows of the project.

The cash flow of this project was discounted systematically until the NPV of the project finally become zero. The project produces the **IRR** of **22.1%**. Thus, the project accepted as being viable. This is because **IRR** is more than the cost of capital.

#### **4.2.4 ACCOUNTING RATE OF RETURN (ARR)**

ARR uses accounting information as revealed by financial statements (Income Statement) to measure profitability of the project under consideration. The forecast **ARR** of the project is **39%**.

#### **4.2.5 PROFITABILITY INDEX (PI)**

This is the present value of future cash flows over the present value of cash outlays. The project PI further confirm the viability of the project , because as the rules of the accepting and rejecting hold, a project should be accepted if the PI is equal or greater than one (1). Consequently, the PI of this project is **1.72** and thus recommended as being viable to be accepted for financing.

#### **4.2.6 PAYBACK PERIOD**

The payback period of any project is the length of time it would take the business investors to recover the capital invested in a project in spite of asset replacement. For this particular project the capital investment is expected to be fully recovered in about 2years and 6months.

**APPENDIX I  
TOTAL PROJECT COST**

S/N	DESCRIPTION	QTY	UNIT PRICE	TOTAL
	<b>LAND AND BUILDING</b>			
1	Factory rentage	1	600,000	600,000
	<b>Sub total</b>	<b>1</b>	<b>600,000</b>	<b>600,000</b>
	<b>MACHINERY &amp; EQUIPMENT</b>			
2	Ribbon blender	1	1,260,000	1,260,000
3	Gyratory shifter	1	720,000	720,000
4	weighing machine	1	200,000	200,000
5	Gunny bag sealing machine	1	520,000	520,000
6	Disintegrator	1	160,000	160,000
	<b>Sub total</b>	<b>5</b>	<b>2,860,000</b>	<b>2,860,000</b>
	<b>UTILITY EQUIPMENT</b>			
8	Generating set	1	1,250,000	1,250,000
9	Industrial borehole with tanks	1	550,000	550,000
	<b>Sub total</b>	<b>2</b>	<b>1,800,000</b>	<b>1,800,000</b>
	<b>OFFICE EQUIPMENT</b>			
10	Computer & printer	1	200,000	200,000
11	Furniture & Fittings	1-	50,000	50,000
	<b>Sub total</b>	<b>2</b>	<b>250,000</b>	<b>250,000</b>
	<b>VEHICLE</b>			
12	Truck (4-tons)	1	2,600,000	2,600,000
	<b>Sub total</b>		<b>2,600,000</b>	<b>2,600,000</b>
	<b>Total Capital Cost</b>		<b>8,110,000</b>	<b>8,110,000</b>
13	Working capital		1,800,000	1,800,000
14	10% contingencies & preliminary expenses		991,000	991,000
	<b>Total Project Cost</b>		<b>10,901,000</b>	<b>10,901,000</b>

## APPENDIX II ESTIMATION OF WORKING CAPITAL REQUIREMENT

N'ooo

Year of Commercial Operation	1 week	Year 2	Year 3	Year 4	Year 5
% Capacity Utilization (Inventory)	60%	70%	80%	90%	90%
1 week stock of raw material	1200	8,194	11,713	15,530	15,530
1 Day stock of finished products	400	3,443	4,887	5,376	5,376
Work in Progress	200	1,071	1,098	1,169	1,169
Bank/ Cash (5% sales of the products)	-	2,287	2,516	2,768	2,768
<b>Working capital</b>	<b>1,800</b>	<b>11,248</b>	<b>13,192</b>	<b>15,419</b>	<b>15,419</b>

## APPENDIX III FINANCING PLAN

₦

DESCRIPTION	EXISTING	PROPOSED	TOTAL
Equity	2,901,000		2,901,000
Term loan from	-	8,000,000	8,000,000
<b>Total project cost</b>	<b>2,901,000</b>	<b>8,000,000</b>	<b>10,901,000</b>
<b>% Contribution</b>	<b>15%</b>	<b>75%</b>	<b>100%</b>

## APPENDIX IV TERM LOAN REPAYMENT SCHEDULE

LOAN AMOUNT: 8,000,000 (Eight Million Naira)  
 TYPE : ANY LOCAL AVAILABLE SME FUND  
 INTEREST RATE USED: 12%  
 REPAYMENT: 5 YEARS EQUAL INSTALLMENT (Annually)

YEAR	OPENING BALANCE	REPAYMENT	INTEREST DUE	TOTAL YEAR INTEREST
1	8,000,000	1,600,000	960,000	2,560,000
2	6,400,000	1,600,000	768,000	2,368,000
3	4,800,000	1,600,000	576,000	2,176,000
4	3,200,000	1,600,000	384,000	1,984,000
5	1,600,000	1,600,000	192,000	1,792,000
<b>Total</b>		<b>8,000,000</b>	<b>2,880,000</b>	<b>10,880,000</b>

**APPENDIX V**  
**FORECAST STAFFING SCHEDULE (1<sup>ST</sup> OPERATIONAL YEAR)**

N'ooo

POSITION	No	Unit Scale	Scale/ Month	Scale / Year
<b>DIRECT LABOUR</b>				
Factory Manager	1	80	80	960
Production Manager	1	60	60	720
Unskilled labour	8	30	240	2,880
<b>Sub total</b>	<b>10</b>	<b>90</b>	<b>120</b>	<b>4,560</b>
<b>INDIRECT LABOUR</b>				
Accounts/ Admin	1	50	50	600
Marketing Officer	2	40	80	960
Driver	1	40	40	480
<b>Sub total</b>	<b>4</b>	<b>130</b>	<b>170</b>	<b>2,040</b>
<b>Total on staff (1<sup>st</sup> year)</b>	<b>14</b>	<b>220</b>	<b>290</b>	<b>6,600</b>

**APPENDIX VI**  
**ESTIMATE OF ANNUAL DEPRECIATION ALLOWANCE**

N'

ITEMS	INITIAL VALUE	DEPRECIATION (20%)
Machinery and Equipments	2,860,000	572,000
Utility Equipments	1,800,000	360,000
Office Equipments	250,000	50,000
Vehicle	2,600,000	520,000
<b>TOTAL</b>	<b>7,510,000</b>	<b>1,502,000</b>

**APPENDIX VII**  
**ESTIMATION OF ADMINISTRATIVE / OVERHEAD EXPENSES**  
**N'**

COST ITEM	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Selling and Distribution	1,328,400	1,394,820	1,461,240	1,534,302	1,534,302
Repairs and maintenance	226,800	238,140	249,480	261,954	261,954
Utilities (energy & water)	1,904,400	1,999,620	2,094,840	2,199,582	2,199,582
Miscellaneous	900,000	945,000	990,000	1,039,500	1,039,500
<b>TOTAL</b>	<b>4,359,600</b>	<b>4,577,580</b>	<b>4,795,560</b>	<b>5,035,338</b>	<b>5,035,338</b>

**APPENDIX VIII**  
**ESTIMATION OF PRODUCTION AND OPERATION COSTS**  
**N'**

Cost Item	Units	@	Qty/ day	Pdn Cost/day	Pdn cost/ month	Pdn Cost/ Year <sup>1</sup>
<b>Direct costs<sup>3</sup>:</b>						
Maize	Kgs	45	100	4,500	117,000	1,404,000
Wheat brand	Kgs	45	100	4,500	117,000	1,404,000
Oiled rice brand	Kgs	48	50	2,400	62,400	748,800
Molasses	Kgs	225	50	11,250	292,500	3,510,000
Groundnut cake	kgs	60	50	3,000	78,000	936,000
Mineral mixture	Kgs	600	20	12,000	312,000	3,744,000
Gunny bags	No	30	200	6,000	156,000	1,872,000
<b>Subtotal</b>					<b>1,134,900</b>	<b>13,618,800</b>

**APPENDIX IX**  
**ESTIMATION OF RAW MATERIAL/PRODUCTION COST AND SALES**

Year of Commercial Production	Year 1	Year 2	Year 3	Year 4	Year 5
% Capacity Utilization	60%	70%	80%	90%	90%
<b>1. Output</b>					
Animal feed	93,600	102,960	112,320	123,552	123,552
<b>Total output</b>	<b>93,600</b>	<b>102,960</b>	<b>112,320</b>	<b>123,552</b>	<b>123,552</b>
<b>2. Cost of Production</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>
Animal feed @ N195 (kg)	18,252,000	20,077,200	21,902,400	24,092,640	24,092,640
<b>Total cost of production</b>	<b>18,252,000</b>	<b>20,077,200</b>	<b>21,902,400</b>	<b>24,092,640</b>	<b>24,092,640</b>
<b>3. SALES</b>					
Animal feed @ N390 (kg)	36,504,000	40,154,400	43,804,800	48,185,280	48,185,280
<b>TOTAL SALES/ TURNOVER</b>	<b>36,504,000</b>	<b>40,154,400</b>	<b>43,804,800</b>	<b>48,185,280</b>	<b>48,185,280</b>

**APPENDIX X**  
**FORECAST INCOME STATEMENT (PROFIT & LOSS ACCOUNT)**

Year of commercial operation	Year 1	Year 2	Year 3	Year 4	Year 5
% Capacity Utilization	60%	70%	80%	90%	90%
<b>1. SALES</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>
Gross Sales	36,504,000	40,154,400	43,804,800	48,185,280	48,185,280
VAT @ 5%	1,825,200	2,007,720	2,190,240	2,409,264	2,409,264
Net Revenue	<b>34,678,800</b>	<b>38,146,680</b>	<b>41,614,560</b>	<b>45,776,016</b>	<b>45,776,016</b>
<b>2. OPERATION COST</b>					
Cost of Raw materials consumed	18,252,000	20,077,200	21,902,400	24,092,640	24,092,640
Staff and labour	6,600,000	7,260,000	7,986,000	8,785,000	8,785,000
Admin. & Overhead Expenses	4,359,600	4,577,580	4,795,560	5,035,338	5,035,338
Depreciation	1,502,000	1,502,000	1,502,000	1,502,000	1,502,000
<b>Total Operating Cost</b>	<b>30,713,600</b>	<b>33,416,780</b>	<b>36,185,960</b>	<b>39,414,978</b>	<b>39,414,978</b>
<b>3. OTHER COSTS</b>					
Interest on Term Loan (12%)	960,000	768,000	576,000	384,000	192,000
Loan Repayment	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
<b>Total (Other Costs)</b>	<b>31,673,600</b>	<b>34,184,780</b>	<b>36,761,960</b>	<b>39,798,978</b>	<b>39,606,978</b>
Profit Before Tax	3,005,200	3,961,900	4,852,600	5,977,038	6,169,038
Tax @ 12%	360,624	475,428	582,312	717,244.56	740,284.56
<b>Profit after tax (NET PROFIT)</b>	<b>2,644,576</b>	<b>3,486,472</b>	<b>4,270,288</b>	<b>5,259,793</b>	<b>5,428,753</b>
% Return on Sales	0.08	0.09	0.10	0.12	0.12
% Return on Equity	0.91	1.20	1.47	1.81	1.87
% Return on Investment	0.24	0.32	0.39	0.48	0.50



## APPENDIX XI

### FORECAST HIGH RATE AND LOW RATE COMPUTATION

Year	C/F	DF 12%	NPV
	N'000		N'000
0	(10,901,000)	1	(10,901,000)
1	2,644,576	0.893	2361606.368
2	3,486,472	0.797	2778718.184
3	4,270,288	0.712	3040445.056
4	5,259,793	0.636	3345228.348
5	5,428,753	0.567	3078102.951
<b>Total Profit</b>	<b>21,089,882</b>		<b>14,604,101</b>
<b>Average Profit</b>	<b>4217976.4</b>		<b>2,920,820.181</b>

Year	C/F	DF 60%	NPV
	N'000		N'000
0	(10,901,000)	1	(10,901,000)
1	2,644,576	0.625	1,652,860
2	3,486,472	0.3906	1,361,815.963
3	4,270,288	0.2441	1,042,377.301
4	5,259,793	0.1526	802,644.4118
5	5,428,753	0.0954	517,903.0362
<b>Total Profit</b>	<b>21,089,882</b>		<b>5,377,601</b>
<b>Average Profit</b>	<b>4,217,976.4</b>		<b>1,075,520.142</b>

## APPENDIX XII

### FORECAST IRR AND ARR COMPUTATION

$$IRR = a + \left( \frac{A}{A+B} \right) * (b-a)$$

Where

$$a = 12\%$$

$$b = 60\%$$

$$A = 14,604,101$$

$$B = 5,377,601$$

$$12\% + \frac{14,604,101}{14,604,101 + 5,377,601} (60-12)$$

$$12\% + 34.5$$

$$\mathbf{22.1\%}$$

$$ARR = \frac{\text{Estimated Average Profit}}{\text{Estimated initial investment}} * 100$$

$$ARR = \frac{4,217,976.4}{10,901,000} \times 100$$

$$\mathbf{38.7\%}$$

**APPENDIX XIII  
CASH FLOW PROJECTION**

Year of Comm. Production	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
% Capacity Utilization		60%	70%	80%	90%	90%
<b>A) CASH RECEIPTS</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>	<b>N'</b>
Equity Capital	2,901,000	-	-	-	-	-
Term Loan	8,000,000	-	-	-	-	-
Gross Revenue	-	34,678,800	38,146,680	41,614,560	45,776,016	45,776,016
<b>Total Receipts</b>	<b>10,901,000</b>	<b>34,678,800</b>	<b>38,146,680</b>	<b>41,614,560</b>	<b>45,776,016</b>	<b>45,776,016</b>
<b>B) CASH PAYMENTS</b>						
<b>Capital Payment</b>						
Machinery & Equipments	2,860,000	-	-	-	-	-
Utility Equipment	1,800,000	-	-	-	-	-
Office equipments	250,000	-	-	-	-	-
Vehicle	2,600,000	-	-	-	-	-
<b>TOTAL</b>	<b>7,510,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>(ii) Operating Expenses</b>						
Depreciation	-	1,502,000	1,502,000	1,502,000	1,502,000	1,502,000
Change in working capital	3,391,000	29,211,600	31,914,780	34,683,960	37,912,978	37,912,978
<b>Sub total</b>	<b>3,391,000</b>	<b>30,713,600</b>	<b>33,416,780</b>	<b>36,185,960</b>	<b>39,414,978</b>	<b>39,414,978</b>
<b>(iii) Financial Expenses</b>						
Repayment of Term Loan	-	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000
Interest on Term Loan	-	960,000	768,000	576,000	384,000	192,00
Value Added Tax	-	1,825,200	2,007,720	2,190,240	2,409,264	2,409,264
Tax	-	360,624	475,428	582,312	717,244.56	740,284.56
<b>Sub total</b>	<b>-</b>	<b>4,745,824</b>	<b>4,851,148</b>	<b>4,948,552</b>	<b>5,110,509</b>	<b>4,749,549</b>
<b>Total cash payment (ii)-(iii)</b>	<b>3,391,000</b>	<b>25,967,776</b>	<b>28,565,632</b>	<b>31,237,408</b>	<b>34,304,469</b>	<b>34,665,429</b>
<b>Net cash flow c/f</b>	<b>3,391,000</b>	<b>25,967,776</b>	<b>28,565,632</b>	<b>31,237,408</b>	<b>34,304,469</b>	<b>34,665,429</b>

**APPENDIX XIV  
BALANCE SHEET PROJECTION**

Year of comm. Operation	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
<b>ASSETS</b>	<b>N'000</b>	<b>N'000</b>	<b>N'000</b>	<b>N'000</b>	<b>N'000</b>	<b>N'000</b>
<b>(i) Fixed assets</b>						
Machinery and Equipments	2,860,000	-	-	-	-	-
Utility equipment	1,800,000					
Office Equipment	250,000					
Vehicle	2,600,000	-	-	-	-	-
Value at Acquisition	-	7,510,000	7,510,000	7,510,000	7,510,000	7,510,000
Less Cumulated Depreciation	-	1,502,000	3,004,000	4,506,000	6,008,000	7,510,000
<b>Net fixed assets</b>	<b>7,510,000</b>	<b>6,008,000</b>	<b>4,506,000</b>	<b>3,004,000</b>	<b>1,502,000</b>	<b>0</b>
<b>(ii)Current Assets/ liability</b>						
Stock of Raw Materials	1,800,000	6,369,176	10,182,445	12,504,533	14,539,652	16,881,090
Debtors /prepayment		1,453,000	2,098,000	3,308,000	4,139,000	5,653,000
Bank and Cash Balances	1,591,000	4,150,024	5,160,031	6,170,539	7,180,674	7,180,741
Creditor / accruals	-	(4,074,000)	(6,039,000)	(8,947,000)	(11,013,000)	(13,785,000)
Company Tax	-	(360,624)	(475,428)	(582,312)	(717,244.56)	(740,284.56)
<b>Net current assets</b>	<b>3,391,000</b>	<b>7,537,576</b>	<b>10,926,048</b>	<b>12,453,760</b>	<b>14,129,081</b>	<b>15,189,546</b>
<b>TOTAL NET ASSETS</b>	<b>10,901,000</b>	<b>13,545,576</b>	<b>15,432,048</b>	<b>15,457,760</b>	<b>15,631,081</b>	<b>15,189,546</b>
<b>(ii) FINANCED BY</b>						
Equity Capital	2,901,000	2,901,000	2,901,000	2,901,000	2,901,000	2,901,000
P&L	-	2,644,576	3,486,472	4,270,288	5,259,793	5,428,753
Retained Profit	-	-	2,644,576	3,486,472	4,270,288	5,259,793
<b>SHAREHOLDERS FUND</b>	<b>2,901,000</b>	<b>5,545,576</b>	<b>9,032,048</b>	<b>10,657,760</b>	<b>12,431,081</b>	<b>13,589,546</b>
Long Term Loan	8,000,000	8,000,000	6,400,000	4,800,000	3,200,000	1,600,000
<b>TOTAL EQUITY &amp; LIABILITY</b>	<b>10,901,000</b>	<b>13,545,576</b>	<b>15,432,048</b>	<b>15,457,760</b>	<b>15,631,081</b>	<b>15,189,546</b>