
Pre-Feasibility Study

(Rhodes Grass Hay)



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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1 DISCLAIMER

This information memorandum is to introduce the subject matter and provide a general idea and information on the said matter. Although, the material included in this document is based on data/information gathered from various reliable sources; however, it is based upon certain assumptions, which may differ from case to case. The information has been provided on as is where is basis without any warranties or assertions as to the correctness or soundness thereof. Although, due care and diligence has been taken to compile this document, the contained information may vary due to any change in any of the concerned factors, and the actual results may differ substantially from the presented information. SMEDA, its employees or agents do not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. The contained information does not preclude any further professional advice. The prospective user of this memorandum is encouraged to carry out additional diligence and gather any information which is necessary for making an informed decision; including taking professional advice from a qualified consultant/technical expert before taking any decision to act upon the information.

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2 EXECUTIVE SUMMARY

Rhodes Grass Hay farm is proposed to be located at irrigated agricultural lands of Baluchistan, KP, Punjab, and Sind.

The project will be producing the **Rhodes Grass Hay** with Installed Capacity of **2,100 Tons** and initial utilization [**1,470 Tons, 70%**].

Total Cost Estimates is [**Rs. 13,859,765**] with fixed investment [**Rs. 10,229,132**] and working capital [**Rs. 3,630,633**].

Given the cost assumptions IRR and payback are [**46%**] and [**2.77 years**] respectively.

The most critical considerations or factors for success of the project are:

- Availability of Fresh Water required for Green Fodder.
- Application of quality seeds.
- Timely cutting of the product before it starts flowering.

3 INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

Preparation and dissemination of prefeasibility studies in key areas of investment has been a successful hallmark of SME facilitation by SMEDA.

Concurrent to the prefeasibility studies, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need based capacity building programs of different types in addition to business guidance through help desk services.

4 PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance and business management.

The purpose of this document is to facilitate potential investors in **Rhodes Grass Hay** by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and it's successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

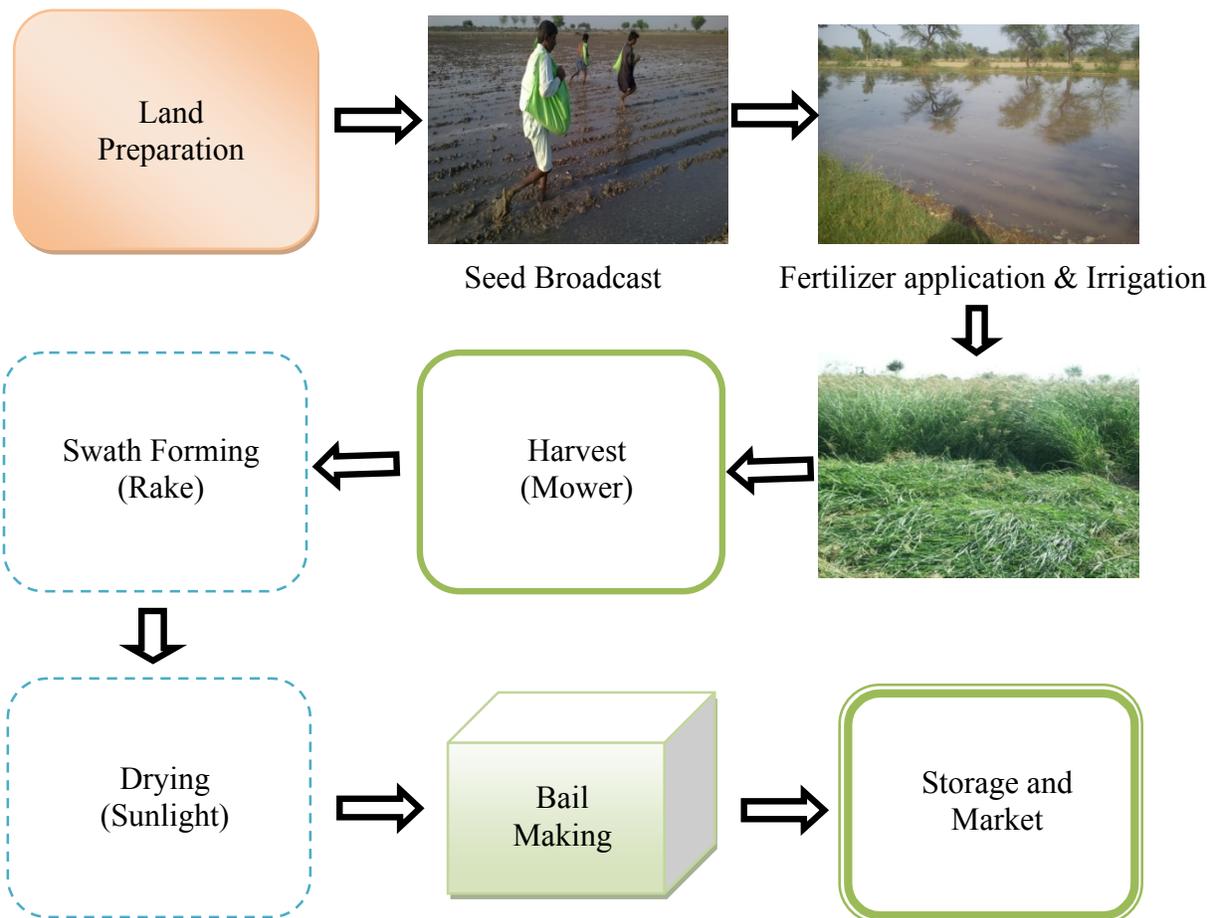
5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

Following key parameters must be addressed as per pre-feasibility study under preparation

- **Technology:** The farm will use the imported hybrid seeds of Rhodes Grass, and the hand held imported harvesting machine.
- **Location:** The farming may be commenced on the irrigated agricultural lands of Baluchistan, interior Sind, KP, and Punjab.
- **Product:** The farm will initially produce and market the Rhodes Grass Hay.
- **Target Market:** The local cattle feed wholesale/retail traders and dairy farmers, Hay Export Market.
- **Employment Generation:** The proposed project will provide direct employment to 19 people.

Financial analysis shows the farm shall be profitable from the very first year of operation.

5.1 Production Process Flow



5.1.1 Land Preparation

Prepare the beds well and evenly plain so that to ensure efficient irrigation.

5.1.2 Seed Sowing

Sow the seeds by broadcast method in standing water. For good production, the seed rate should be **8 Kg per acre**. The sowing may be done from the months of February to October.

5.1.3 Application of Fertilizer per Acre

Apply 1 bag DAP, and 1 to 1.5 Bag urea at the time of sowing, and then 1 to 2 Bags urea after each cut.

5.1.4 Harvesting

Use the Mower for cutting and cut above 4 inches from the soil. First cut will be ready to harvest in 50 days, and the remaining to be cut in 30 days. The production can be obtained till 3 years.

5.1.5 Swath Forming

The Rake is used to form the Swath by raking the grass into even swaths, light tossing of the mowed mass in swaths, covering, throwing and doubling the straw swaths.

5.1.6 Drying the Green Grass in Sunlight

During the raking the drying process starts and continues under sunlight till the moisture in fodder is reduced to 15%.

5.1.7 Bale Making

Bales are made out of the dried Hay. The Baler pickups the straw swaths of natural and sow grass or straw, presses grass mass into rectangular bales and ties them with rope.

5.1.8 Storage and Marketing

The bales are stored and then supplied as per orders from customers.

5.2 Installed and Operational Capacities

The farm land will be capable of producing maximum 6,300 Tons of Green Fodder while the first year production to be 4,410 Tons. The ratio of hay from Green Fodder to Hay is 33%. The installed capacity of the farm will be **2,100 Tons** whereas it will start with the first year's operational capacity of **1,470 Tons**.

6 CRITICAL FACTORS

The project should observe the following important factors:

- Well irrigated land
- Application of quality seeds
- Timely application of water and fertilizer
- Timely cutting of the product before it starts flowering.

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

All of the irrigated lands throughout the Baluchistan, KP, Sind, and Baluchistan carry the potential for investment in this project. However, in case of Baluchistan, especial care must be taken that the farming is either done on large scale or nearest to the densely populated villages and towns with existence of dairy farms.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

The domestic market of Pakistan in shape of dairy and livestock farmers is present. The livestock population is increasing at the rate of 4.2% per year and accordingly its feed requirements are also increasing. The area under various fodder crops in the country is estimated as 2.31 million hectares and annual fodder production is 51.92 million tons¹.

The target market of this scale fodder farm will be the Domestic fodder wholesalers and retailers, the dairy farmers, and the Exporters of Hay.

9 PROJECT COST SUMMARY

9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of **Rs. 26.46 million** in the year one. The capacity utilization during year one is worked out at 70% with 5% increase in subsequent years up to the maximum capacity utilization of 90%.

The following table shows internal rate of return, payback period and net present value of the proposed venture.

Table 1: Project Economics

Description	Details
Internal Rate of Return (IRR)	46%
Payback Period (Yrs.)	2.77
Net Present Value (Rs.) @16%	30,232,825

¹Source: Pakistan Agriculture Research Council

9.2 Project Financing

Following table provides details of the equity required and variables related to bank loan;

Table 2: Project Financing

Description	Details
Total Equity (50%)	Rs. 6,929,883
Bank Loan (50%)	Rs. 6,929,883
Markup to the Borrower (%age / annum)	12%
Tenure of the Loan (Years)	10

9.3 Project Cost

Following fixed and working capital requirements have been identified for operations of the proposed business.

Table 3: Project Cost

Description	Amount Rs.
Capital Cost	
Building/Infrastructure	1,635,000
Machinery and Equipment's	7,524,000
Furniture and Fixtures	33,000
Office Equipment	2,000
Pre Operating Cost	1,035,132
Total Capital Costs	10,229,132
Working Capital	
Equipment and Spare Parts Inventory	5,333
Up-front Land Lease Rent	3,001,085
Cash	624,215
Total Working Capital	3,630,633
Total Project Cost	13,859,765

9.4 Space Requirement

The space requirement for the proposed **Rhodes Grass** is estimated considering various facilities including Farm Land, store for raw material, and pavements. Details of space requirement and cost related to land & building is given below;

Table 4: Space Requirement

Description	Estimated Area (Sq. ft)	Unit Cost (Rs.)	Total Cost (Rs.)
Room for Labor	225	1,800	405,000
Room for Guest	225	2,000	450,000
Kitchen	100	1,500	150,000
Washroom	25	1,200	30,000
Cultivation Area	4,356,017		200,000
Store	400	700	280,000
Grounds	600	200	120,000
Total Infrastructure			1,635,000

The land will be on ten years lease basis with an annual rent of **Rs. 3,001,085**.

9.5 Machinery & Equipment Requirement

Plant, machinery and equipment for the proposed project are stated below.

Table 5: Machinery & Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Water Bore	04	693,500	2,774,000
Tractor	01	1,400,000	1,400,000
Mower	01	890,000	890,000
Racking Machine	01	610,000	610,000
Baler	01	1,800,000	1,800,000
Miscellaneous	01	50,000	50,000
Total Machinery			7,524,000

9.6 Furniture & Fixtures Requirement

Details of the furniture and fixture required for the project are given below;

Table 6: Furniture & Fixture

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Office Table	01	5,000	5,000
Office Chairs	04	3,000	12,000
Cots/Beds for Workers	02	3,000	6,000
Electric Wiring and Lighting			10,000
Total Furniture and Fixtures	07		33,000

9.7 Office Equipment Requirement

Such type of small scale farm does not require any office equipment except a cell phone worth **Rs. 2,000**.

9.8 Human Resource Requirement

For this scale of **Rhodes Grass Hay** farm the services of following labor will be hired.

Table 7: Human Resource Requirement

Description	No. of Employees	Monthly Salary/ Person	First Year Salaries (Rs)
CEO	01	100,000	1,200,000
Labor for Irrigation	12	16,000	2,304,000
Machinery Operators	03	20,000	720,000
Tractor Driver	01	20,000	240,000
Guards/Support Staff	02	15,000	360,000
Total	19		4,824,000

9.9 Utilities and other costs

The following costs are essential for **Rhodes Grass Hay Farm**, given as under:

Table 8: Cost of Material

Description	Unit	Rate	Qty	Rs./Year
Seeds	Kg	1,500	560	840,000
DAP	Bags	3,500	490	1,715,000
Urea	Lump Sum	1,500	3,430	5,145,000
Total Cost				7,700,000

Table 9: Cost of Occasional Labor

Description	Unit	Rate	Qty	Rs./Year
Harvesting	Rs./Ton of Green Fodder	200	4,410	882,000
Sowing (Y0, and every 4 th Year)	Rs./Ton of Green Fodder	177.7	4,410	784,000
Total Cost				1,666,000

Table 10: Other Costs

Description	Rs./year
Direct Electricity	3,126,583
Machinery Maintenance	64,000
Machinery Maintenance	1,500,000

9.10 Revenue Generation

Based on the capacity utilization of 70%, for **Rhodes Grass Hay**, sales revenue during the first year of operations is estimated as under;

Table 11: Revenue Generation – Year 1

Description	No. of Units Produced (No.)	Finished Goods Inventory (No.)	Units available for Sale (No.)	Sale Price / unit (Rs.)	Sales Revenue (Rs.)
Hay	1,470	0	1,470	18,000	26,460,000
Total					26,460,000

10 CONTACT DETAIL

In order to facilitate potential investors, contact details of private sector Service Providers relevant to the proposed project be given.

10.1 Machinery Suppliers

Name of Supplier	Address	Phone	Fax	E-mail	Website
Matra Asia (Pvt.) Ltd.	94-d, Mall 1, Main Boulevard, Gulberg 3, Lahore	0344-0000600	0423 – 5790034	info@matraasia.com salman@matraasia.com	www.matraasia.com

10.2 Raw Material Suppliers

Name of Supplier	Address	Phone	Fax	E-mail	Website
Matra Asia (Pvt.) Ltd.	94-d, Mall 1, Main Boulevard, Gulberg 3, Lahore	0344-0000600	0423 – 5790034	info@matraasia.com salman@matrasia.com	www.matrasia.com
Maxim International Pvt Ltd	69-A, Sector XX, Phase 3, DHA, Lahore	056-3406210	056-3406212	Abdul.mateen@maxim-intl.com	www.maxim-intl.com

10.3 Technical Experts / Consultants

Name of Expert/Organization	Address	Phone	E-mail
Dr. Muqarrab Ali Khan	Livestock Dept, Bacha Khan Chowk, Peshawar	091-9210281	Muqarrab58@yahoo.com
Muhammad Salman Naeem	Matra Asia Pvt Ltd	0340-0005676	salman@matraasia.com

11 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries & Production	www.moip.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sind	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Baluchistan	www.balochistan.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Matra Asia Pvt Ltd	www.matraasia.com
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sind Small Industries Corporation	www.ssic.gos.pk
Pakistan Horticulture Development and Export Company (PHDEC)	www.phdec.org.pk
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Pakistan Readymade Garment Technical Training Institute	www.prgmea.org/prgtti/
Livestock & Dairy Development Department, Government of Punjab.	www.livestockpunjab.gov.pk
Livestock & Dairy Development Department, Government of Sind	
Livestock & Dairy Development Department, Government of KP	
Livestock & Dairy Development Department, Government of Baluchistan	
Pak Dairy Info	www.pakdairyinfo.com

12 ANNEXURES

12.1 Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Rs. in actuals
Revenue	26,460,000	31,185,000	36,590,400	42,765,030	49,808,682	54,789,550	60,268,505	66,295,356	72,924,891	80,217,380	
Cost of goods sold	17,560,583	18,129,295	20,601,209	26,010,971	26,522,293	29,161,115	35,761,534	35,252,621	38,760,166	47,540,136	
Gross Profit	8,899,417	13,055,705	15,989,191	16,754,059	23,286,389	25,628,435	24,506,971	31,042,735	34,164,725	32,677,244	
<i>General administration & selling expenses</i>											
Administration expense	1,320,000	1,448,517	1,589,547	1,744,307	1,914,135	2,100,498	2,305,006	2,529,425	2,775,693	3,045,938	
Rental expense	3,001,085	3,301,193	3,631,312	3,994,444	4,393,888	4,833,277	5,316,605	5,848,265	6,433,092	7,076,401	
Utilities expense	96,920	106,612	117,273	129,000	141,900	156,090	171,699	188,869	207,756	228,532	
Travelling & Comm. expense (phone, fax, etc.)	60,000	66,000	72,600	79,860	87,846	96,631	106,294	116,923	128,615	141,477	
Office vehicles running expense	-	-	-	-	-	-	-	-	-	-	
Office expenses (stationary, etc.)	108,000	118,800	130,680	143,748	158,123	173,935	191,329	210,461	231,508	254,658	
Promotional expense	-	-	-	-	-	-	-	-	-	-	
Insurance expense	-	-	-	-	-	-	-	-	-	-	
Professional fees (legal, audit, etc.)	-	-	-	-	-	-	-	-	-	-	
Depreciation expense	837,650	837,650	837,650	837,650	837,650	837,650	837,650	837,650	837,650	837,650	
Amortization expense	207,026	207,026	207,026	207,026	207,026	-	-	-	-	-	
Property tax expense	-	-	-	-	-	-	-	-	-	-	
Miscellaneous expense	-	-	-	-	-	-	-	-	-	-	
Subtotal	5,630,681	6,085,799	6,586,089	7,136,036	7,740,569	8,198,081	8,928,582	9,731,594	10,614,314	11,584,656	
Operating Income	3,268,736	6,969,906	9,403,102	9,618,023	15,545,820	17,430,353	15,578,389	21,311,141	23,550,411	21,092,588	
Other income	-	-	-	-	-	-	-	-	-	-	
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-	
Earnings Before Interest & Taxes	3,268,736	6,969,906	9,403,102	9,618,023	15,545,820	17,430,353	15,578,389	21,311,141	23,550,411	21,092,588	
Interest expense	718,721	562,812	522,515	477,107	425,940	368,284	303,316	230,108	147,616	54,662	
Earnings Before Tax	2,550,015	6,407,094	8,880,588	9,140,916	15,119,880	17,062,069	15,275,073	21,081,033	23,402,795	21,037,926	
Tax	357,004	1,461,982	2,327,705	2,418,820	4,511,457	5,191,224	4,565,775	6,597,861	7,410,478	6,582,773	
NET PROFIT/(LOSS) AFTER TAX	2,193,012	4,945,112	6,552,883	6,722,096	10,608,422	11,870,846	10,709,298	14,483,172	15,992,317	14,455,153	

12.2 Balance Sheet

Rs. in actuals

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
<i>Current assets</i>											
Cash & Bank	624,215	470,276	2,121,436	3,739,126	4,641,890	6,836,140	8,249,177	18,560,896	32,339,698	47,543,239	68,951,303
Accounts receivable	-	1,102,500	1,200,938	1,411,988	1,653,238	1,928,619	2,179,130	2,397,043	2,636,747	2,900,422	3,190,464
Finished goods inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	5,333	6,453	7,809	9,448	11,432	13,833	16,738	20,253	24,507	29,653	-
Raw material inventory	-	-	-	-	-	-	-	-	-	-	-
Pre-paid annual land lease	3,001,085	3,301,193	3,631,312	3,994,444	4,393,888	4,833,277	5,316,605	5,848,265	6,433,092	7,076,401	-
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	-	-	-	-	-	-	-	-	-	-	-
Total Current Assets	3,630,633	4,880,422	6,961,494	9,155,005	10,700,449	13,611,869	15,761,650	26,826,457	41,434,043	57,549,714	72,141,767
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	1,635,000	1,553,250	1,471,500	1,389,750	1,308,000	1,226,250	1,144,500	1,062,750	981,000	899,250	817,500
Machinery & equipment	7,524,000	6,771,600	6,019,200	5,266,800	4,514,400	3,762,000	3,009,600	2,257,200	1,504,800	752,400	-
Furniture & fixtures	33,000	29,700	26,400	23,100	19,800	16,500	13,200	9,900	6,600	3,300	-
Office vehicles	-	-	-	-	-	-	-	-	-	-	-
Office equipment	2,000	1,800	1,600	1,400	1,200	1,000	800	600	400	200	-
Total Fixed Assets	9,194,000	8,356,350	7,518,700	6,681,050	5,843,400	5,005,750	4,168,100	3,330,450	2,492,800	1,655,150	817,500
<i>Intangible assets</i>											
Pre-operation costs	1,035,132	828,106	621,079	414,053	207,026	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	1,035,132	828,106	621,079	414,053	207,026	-	-	-	-	-	-
TOTAL ASSETS	13,859,765	14,064,878	15,101,273	16,250,108	16,750,875	18,617,619	19,929,750	30,156,907	43,926,843	59,204,864	72,959,267
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	109,394	87,477	102,437	176,085	138,995	152,958	248,050	185,256	203,894	329,032
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	-	109,394	87,477	102,437	176,085	138,995	152,958	248,050	185,256	203,894	329,032
<i>Other liabilities</i>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	-	-	-	-	-	-	-	-	-	-
Long term debt	6,929,883	4,832,590	4,514,851	4,156,816	3,753,373	3,298,763	2,786,497	2,209,264	1,558,822	825,888	-
Total Long Term Liabilities	6,929,883	4,832,590	4,514,851	4,156,816	3,753,373	3,298,763	2,786,497	2,209,264	1,558,822	825,888	-
<i>Shareholders' equity</i>											
Paid-up capital	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883	6,929,883
Retained earnings	-	2,193,012	3,569,062	5,060,972	5,891,534	8,249,978	10,060,412	20,769,710	35,252,882	51,245,200	65,700,352
Total Equity	6,929,883	9,122,894	10,498,944	11,990,855	12,821,417	15,179,861	16,990,295	27,699,593	42,182,765	58,175,082	72,630,235
TOTAL CAPITAL AND LIABILITI	13,859,765	14,064,878	15,101,273	16,250,108	16,750,875	18,617,619	19,929,750	30,156,907	43,926,843	59,204,864	72,959,267

12.3 Cash Flow Statement

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
											Rs. in actuals
<i>Operating activities</i>											
Net profit	-	2,193,012	4,945,112	6,552,883	6,722,096	10,608,422	11,870,846	10,709,298	14,483,172	15,992,317	14,455,153
Add: depreciation expense	-	837,650	837,650	837,650	837,650	837,650	837,650	837,650	837,650	837,650	837,650
amortization expense	-	207,026	207,026	207,026	207,026	207,026	-	-	-	-	-
Deferred income tax	-	-	-	-	-	-	-	-	-	-	-
Accounts receivable	-	(1,102,500)	(98,438)	(211,050)	(241,251)	(275,381)	(250,511)	(217,913)	(239,704)	(263,675)	(290,042)
Finished good inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment inventory	(5,333)	(1,120)	(1,355)	(1,640)	(1,984)	(2,401)	(2,905)	(3,515)	(4,253)	(5,146)	29,653
Raw material inventory	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	-	-	-	-	-	-	-	-	-	-	-
Accounts payable	-	109,394	(21,916)	14,960	73,648	(37,090)	13,963	95,093	(62,794)	18,638	125,138
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(5,333)	2,243,462	5,868,079	7,399,829	7,597,186	11,338,227	12,469,043	11,420,613	15,014,070	16,579,784	15,157,551
<i>Financing activities</i>											
Change in long term debt	6,929,883	(2,097,293)	(317,738)	(358,035)	(403,443)	(454,610)	(512,266)	(577,234)	(650,442)	(732,934)	(825,888)
Change in short term debt	-	-	-	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	3,001,085	3,301,193	3,631,312	3,994,444	4,393,888	4,833,277	5,316,605	5,848,265	6,433,092	7,076,401
Land lease payment	(3,001,085)	(3,301,193)	(3,631,312)	(3,994,444)	(4,393,888)	(4,833,277)	(5,316,605)	(5,848,265)	(6,433,092)	(7,076,401)	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	6,929,883	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing	10,858,681	(2,397,401)	(647,857)	(721,167)	(802,888)	(893,999)	(995,593)	(1,108,894)	(1,235,268)	(1,376,243)	6,250,513
<i>Investing activities</i>											
Capital expenditure	(10,229,132)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by investing	(10,229,132)	-	-	-	-	-	-	-	-	-	-
NET CASH	624,215	(153,939)	5,220,222	6,678,662	6,794,298	10,444,228	11,473,449	10,311,719	13,778,802	15,203,541	21,408,064

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Description	Details
Hours Operational Per Day	24
Days Operational Per Month	30
Days Operational Per Year	360
Operating Cost Growth Rate	10%

13.2 Production Cost Assumptions

Description	Details
COGS Annual Growth Rate	10%

13.3 Revenue Assumptions

Description	Details
Sales Price Growth Rate	10%
Maximum Capacity Utilization	90%
Initial Capacity Utilization	70%

13.4 Economy Related Assumptions

Description	Details
Inflation Rate	10%
Electricity Price Growth Rate	10%
Wage Growth Rate	10%