Pre-Feasibility Study

Lubricant Manufacturing Plant

SMEDA

Small and Medium Enterprise Development Authority

Government of Pakistan

www.smeda.org.pk

May 2018

DISCLAIMER

The purpose and scope of this information memorandum is to introduce the subject matter and provide a general idea and information on the said area. All the material included in this document is based on data/information gathered from various sources and is based on certain assumptions. 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 does not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. Therefore, the content of this memorandum should not be relied upon for making any decision, investment or otherwise. The prospective user of this memorandum is encouraged to carry out his/her own due diligence and gather any information he/she considers necessary for making an informed decision.

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1 INTRODUCTION TO SMEDA

The Small and Medium Enterprise Development Authority (SMEDA) was established with the objective to provide fresh impetus to the economy through the launch of an aggressive SME support program.

Since its inception in October 1998, SMEDA had adopted a sectoral SME development approach. A few priority sectors were selected on the criterion of SME presence. In depth research was conducted and comprehensive development plans were formulated after identification of impediments. SMEDA has so far successfully formulated strategies for sectors including, fruits and vegetables, marble and granite, gems and jewelry, marine fisheries, leather and footwear, textiles, surgical instruments, urban transport and dairy.

On a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of viable business opportunities for potential SME investors. In order to facilitate these investors, SMEDA provides business guidance through its help desk services as well as development of project specific documents. These documents consist of information required to make well-researched investment decisions. Pre-feasibility studies and business plan development are some of the services provided to enhance the capacity of individual SMEs to exploit viable business opportunities in a better way.

2 PURPOSE OF THE DOCUMENT

The objective of this Business Plan is primarily to facilitate investors in regards of investment terms provide an overview about lubricant manufacturing. The project study may form the basis of an important investment decision and in order to serve this objective, the document covers various aspects of lubricant formation through blending of different base oils and additives, expansion of the blending capacity, production, finance and business management. The document also provides sectoral information, brief on government policies and international scenario.

3 PROJECT PROFILE

3.1 Project Background.

Lubricants industry is growing rapidly since the past few years and it is having a huge demand in the market, not only in Pakistan but across the globe. Incessant increasing consumption of lubricants is making the Pakistan's lubricant market very profitable. The demand of lubricants is growing steadily high because of the huge number of vehicles and great demand for power generators.

The lubricant market is flooded with number of local and international brands most of them backed by the muscle of oil marketing companies. There is also the unbranded side of the market, which sells locally manufactured oil in to the market. According to market sources there are around 22 registered companies officially authorized to sell local and imported lubricants. The main players in the lubricants markets are as follow:

Shell	Byco
PSO	Bakri Energy
Total	Zic

Oil marketing companies (OMCs) enjoy large share in lube market and most of these OMCs sell their lubricants in market either directly through retail channels like Petrol and Service Stations, Whole sellers, Distributors, or directly through their in house sales team.

Transport sector (largest lubricant consumer in Pakistan), industrial consumer, power sector, and automobile industry are the important contributors in the demand of lubricants in Pakistan's local market. The key players in the lubricants market of Pakistan are PSO, Shell, and Caltex. In 2016, the share of PSO in local market was 14% only, the share of Shell was 21%, the share of other locals was 15%, the share of imported minus Zic was 11%, and share of Mal Pakistan Ltd was 11%. Whereas 6% was smuggled and share of Zic is 5% and Castrol is 1%.

There is high growth in auto sector of Pakistan due to increased demand, economic growth and upcoming opportunities with respect to CPEC. Few international auto companies are in contact with local partners to start manufacturing of passenger and commercial vehicles in Pakistan. So overall this market is growing and industry sources expecting vehicle production touching half million vehicles per year in next five years. Because of this growth in auto sector, many auto parts vendors and lubricant manufacturing units are planning to expand their manufacturing setups as their business is directly related with the performance of auto sector in Pakistan. Due to these facts, the demand of the lubricant industry in upcoming few years will be going up which is a good sign for all the lube manufacturers.

3.2 Defining the Product

The lubricants manufacturing require an accurate blending of base oils with performance additives. Lubricants are formed by mixing up to 92% base oil (that is obtained from crude oil refineries) and up to 22% additives (mostly imported). Whereas base oil Lubricants are used mainly to reduce friction through improvement of the engine's efficiency and reduction of fuel consumption. It is also used to cool the hot areas of engine and its moving parts, to make the mechanical parts long lasting and efficient and to keep all the parts of the engine in proper condition. In a nutshell, Lubricants improves the vehicles and other industrial equipment's efficiency.

The viscosity, performance, type, and cost of the finished lubricant can be influenced directly through the additives selection as well as its quantity.

The only raw material for the project is base oil and additives. Lubricants are obtained by blending of base oil with additives. The percentages of base oil, additives and type of additive for different products slightly differ with respect to engine type.

3.3 Segmentation, Targeting And Positioning

Following segments of the consumers can be targeted for marketing.

- Motorcycle Oil Users (MCO)
- Passenger Car Motor Oil Users (PCMO)
- High Speed Diesel Engine Oil Users (HSDEO)

3.4 Opportunity Rationale

For lubricant producers, Pakistan is a very profitable and vibrant market because of the consumption patterns that are steadily going since many years due to the reason of increasing numbers of vehicles and huge demand for power generators in Pakistan.

Pakistan's overall demand for lubricant products is continuously increasing and local production fulfills only half of the demand whereas rest of the demand is inevitably met through imports from different parts of the world. Moreover, other than the automobile industry, an important contribution in demand of lubricants is made by power sector. The sub segment of the lubes industry which is growing fastest, is the industrial lubricant oil. In Pakistan, the largest consumer of lubricant is transport sector. Since 2012 onwards the transport sector is consuming 240 million liters of lubricants per anum. Because of the high margins, the industrial players are optimistic about the future of lubricant business.

Pakistan has imported approx. 231 million liters of lubricants from around the world with an importing value of USD 178 Mn. in 2016 whereas local refinery production in 2016-17 was recorded at 193,741 KL.

Table 3-a Volume imported for (HS: 27101953) imported by Pakistan in 2012-2016[1]

Product label	2012	2013	2014	2015	2016	Imported value in 2016,US Dollar thousand	Imported quantity in 2016, Kilograms
HS: 27101953	Imported unit value, US Dollar/Kilograms						
Base oil for lubricating oil	1.31	1.1	1.14	0.81	0.66	54,414	83,022,000
Lubricating oil 10ltr pack	0.78	0.79	0.95	1.14	0.93	47,508	50,886,000
Lubricating oil other	0.82	0.79	0.88	1.17	0.86	28,466	33,194,000
White oil	0.86	0.87	0.99	1.03	0.66	14,026	21,129,000
Oth lubricating oil	0.76	0.74	0.66	0.57	0.53	11,792	22,289,000
Mineral greases	0.83	0.74	0.88	1.07	1.03	9,676	9,439,000
Lubricating oil in bulk	0.72	0.64	0.74	0.66	1.21	7,811	6,449,000
Mineral oil flash point 200f	0.69	0.65	0.73	0.67	1.06	1,732	1,630,000
Breake oil	0.76	0.71	0.49	1.06	0.92	958	1,045,000
Other kerosene incl jet fuel	1.08	0.04	1.32	0.96	0.67	722	1,076,000
Transfarmer oil	1.04	1.03	0.46	1.09	0.94	681	727,000
Liquid paraffin	0.9	0.77	0.88	0.99	1.14	624	545,000
Oth gas oils	1	1.15	1.18	1.04	0.58	54	93,000
Oth fuel oils	0.92	0.32	0.88	0.5	0.51	37	72,000
Spin finish oil	0.63	0.67	0.83	0.71	0.8	4	5,000
Oth medium oil & preparation	0.9	1.08	0.87	0.77	0.33	2	6,000
Total						178,507	231,607,000

[1] ITC, UN COMTRADE

Table 3-b Local Refinery Production for Non Energy Products in Pakistan in 2012-2017[2]

NON-ENERGY PRODUCTS					
PRODUCTS	JULY - JUNE 2016-17	JULY - JUNE 2015 - 2016	JULY - JUNE 2014 - 2015	JULY - JUNE 2013 - 2014	JULY - JUNE 2012 - 2013
LUBRICANT OIL	**193,741**	**207,806**	**186,808**	**200,627**	**200,614**
NAPHTHA	754,767	915,073	1,008,261	878,847	660,415
OTHER POL PRODUCTS:					
Carbon Oil					
Process Oil	993	1,139	1,764	1,889	1,548
Wax	9,565	10,739	9,617	10,552	9,129
BTX					
Jute Batching Oil	2,324	1,574	2,386	2,496	3,123
Solvent	2,477	1,425	12,432	2,834	2,765
LPG	273,226	240,522	208,394	207,410	229,132
MTT	8,009	8,987	9,164	7,888	7,483
Asphalt	295,326	320,448	213,461	176,433	166,197
PMB					224
BIT Cut Back	1,866	1,576	1,146	1,051	1,962
Extt Oil				3,987	852
Sulfur	59,169	44,028	45,989	64,649	46,404
Others	1,476	33,511	19,892	24,154	43,768
GRAND TOTAL	**1,602,939**	**1,786,828**	**1,719,314**	**1,582,817**	**1,373,616**

3.5 Promotion

In beginning with limited production, the company will be dependent on a mix of push and pull strategy; however the scenario will be changing with increase in capacity utilization whereby the pull element will be reduced and might be eroded by competition. Hence, the company needs to

[2] Oil Companies Advisory Council (OCAC)

revisit its promotional strategy at a later stage and target both the consumer and the dealer/retailers to sell their product. Frequent trade promotions and incentives should be targeted for retailers and dealers while discount coupons and gift schemes should be targeted for traders, mechanics, retailers and end consumers. The market place has already become very flooded will all major brands emphasizing on high quality of their products, hence the front-runner brand would be the one offering the best incentives to both dealers and consumers.

3.6 Distribution

Lubricant products will be sold to retailers and wholesalers through authorized distributors across the country. The products should be placed in all POL related retails stores across the country.

3.7 Project Location

The plant can be set up in any industrial area in any major city across the country.

3.8 Proposed Business Status

The legal structure of the business entity will be Private Limited and registered with SECP. Grant of license for construction and operation of oil blending plant and grant of license as Oil Marketing Company from Oil & Gas Regulatory Authority (OGRA) must be obtained. Application forms can be downloaded from OGRA website: http://www.ogra.org.pk/oil-10

3.9 Project Capacity

The assumed blending capacity of the plant is 3,600,000 liters on annual basis, assuming 300 working days a year. In addition, the plant has also the capacity of 50,000 liters per month blending capacity for third party.

3.10 Viable Economics Size

The total investment required for this project is **Rs. 96.01** million. This investment mainly covers capital costs of **Rs. 64.53** million and working capital requirement of **Rs. 31.47** millions.

Capital Investment	Rs. in actuals
Land	5,000,000
Building/Infrastructure	24,457,500
Machinery & equipment	29,099,846
Furniture & fixtures	319,000
Office vehicles	1,555,400
Office equipment	295,000
Pre-operating costs	3,810,000
Total Capital Costs	**64,536,746**

Working Capital	Rs. in actuals
Equipment spare part inventory	67,500
Raw material inventory	28,873,985
Upfront insurance payment	1,532,762
Cash	1,000,000
Total Working Capital	**31,474,248**

Total Investment	**96,010,994**

Initial Financing	Rs. in actuals
Debt	-
Equity	96,010,994

4 CRITICAL FACTORS IN DECISION MAKING

4.1 Key Success Factors

- Accurate blending of base oils with performance additives.
- Each additive concentrate should be pre-analyzed in order to determine active ingredients' level of accuracy.
- At the pre-established concentrations, infrared spectra of all targeted additives should be recorded (i.e. anti-wear, anti-oxidant, viscosity improver).
- A comprehensive infrared database library can be compiled for finished lubricant products.
- Lubricant formulation should be monitored during production and minimum and maximum alarm levels must be set.
- A feedback loop can be created for data.

- Selection of proper location, equipment and staff would be required to run project successfully.
- Continuous efforts should be made for up-gradation of the blending techniques.
- To attract large number of customers the product must be processed on quality standards.

4.2 Opportunities

- Escalating demand based on rapidly growing population ultimately rising the quantity of vehicles and the huge demand of power generators in Pakistan.
- Availability of raw material.
- Availability of labor at low price.
- Established market & growing demand.
- High profit margins.

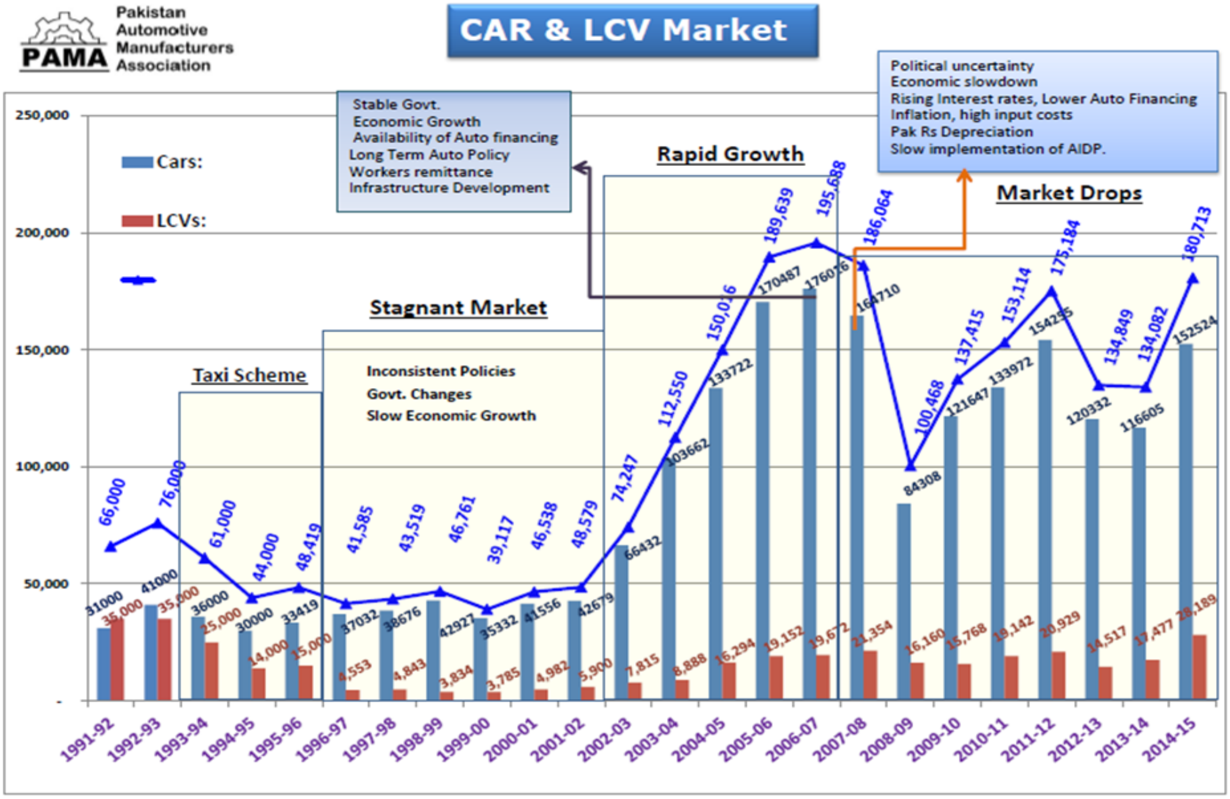
4.3 Threats

- Price fluctuations and macroeconomic instability.
- High Competition.
- Rise in the prices of base oil purchased from local refineries.
- Rise in import tariffs.
- Smuggled lube products in the market.

5 Market Analysis

5.1 Market Potential

The market for this product is developed as can be seen from the organized distribution system that is in place for the product. Pakistan has a big market for lube products and for the distributors this product has big potential market. Following graphs will show the increasing number of consumer and industrial vehicles which shows the potential of POL products.



Pakistan Automotive Manufacturers Association
PAMA
CAR & LCV Market
Cars:
LCVs:
Stable Govt.
Economic Growth
Availability of Auto financing
Long Term Auto Policy
Workers remittance
Infrastructure Development
Rapid Growth
Political uncertainty
Economic slowdown
Rising Interest rates, Lower Auto Financing
Inflation, high input costs
Pak Rs Depreciation
Slow implementation of AIDP.
Market Drops
Stagnant Market
Inconsistent Policies
Govt. Changes
Slow Economic Growth
Taxi Scheme
250,000
200,000
150,000
100,000
50,000
-
66,000
76,000
61,000
44,000
48,419
41,585
43,519
46,761
39,117
46,538
48,579
74,247
112,550
150,016
189,639
195,688
186,064
100,468
137,415
153,114
175,184
134,849
134,082
180,713
31000
41000
36000
30000
33419
37032
38676
42927
35332
41556
42679
66432
103662
133722
170487
176016
164710
84308
121647
133972
154255
120332
116605
152524
35,000
35,000
25,000
14,000
15,000
4,553
4,843
3,834
3,785
4,982
5,900
7,815
8,888
16,294
19,152
19,672
21,354
16,160
15,768
19,142
20,929
14,517
17,477
28,189
1991-92
1992-93
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
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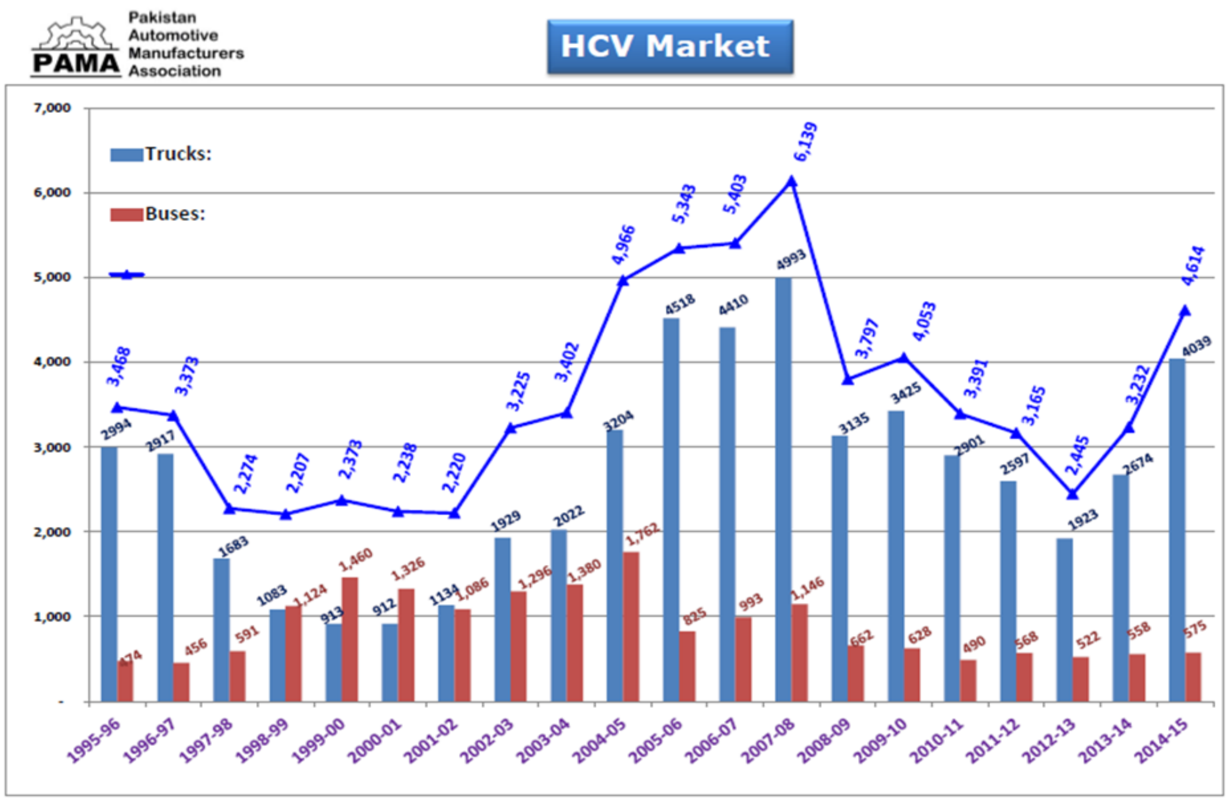
2011-12
2012-13
2013-14
2014-15



Pakistan Automotive Manufacturers Association
PAMA
HCV Market
Trucks:
Buses:
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
3,468
3,373
2,274
2,207
2,373
2,238
2,220
3,225
3,402
4,966
5,343
5,403
6,139
3,797
4,053
3,391
3,165
2,445
3,232
4,614
2994
2917
1683
1083
913
912
1134
1929
2022
3204
4518
4410
4993
3135
3425
2901
2597
1923
2674
4039
474
456
591
1,124
1,460
1,326
1,086
1,296
1,380
1,762
825
993
1,146
662
628
490
568
522
558
575
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
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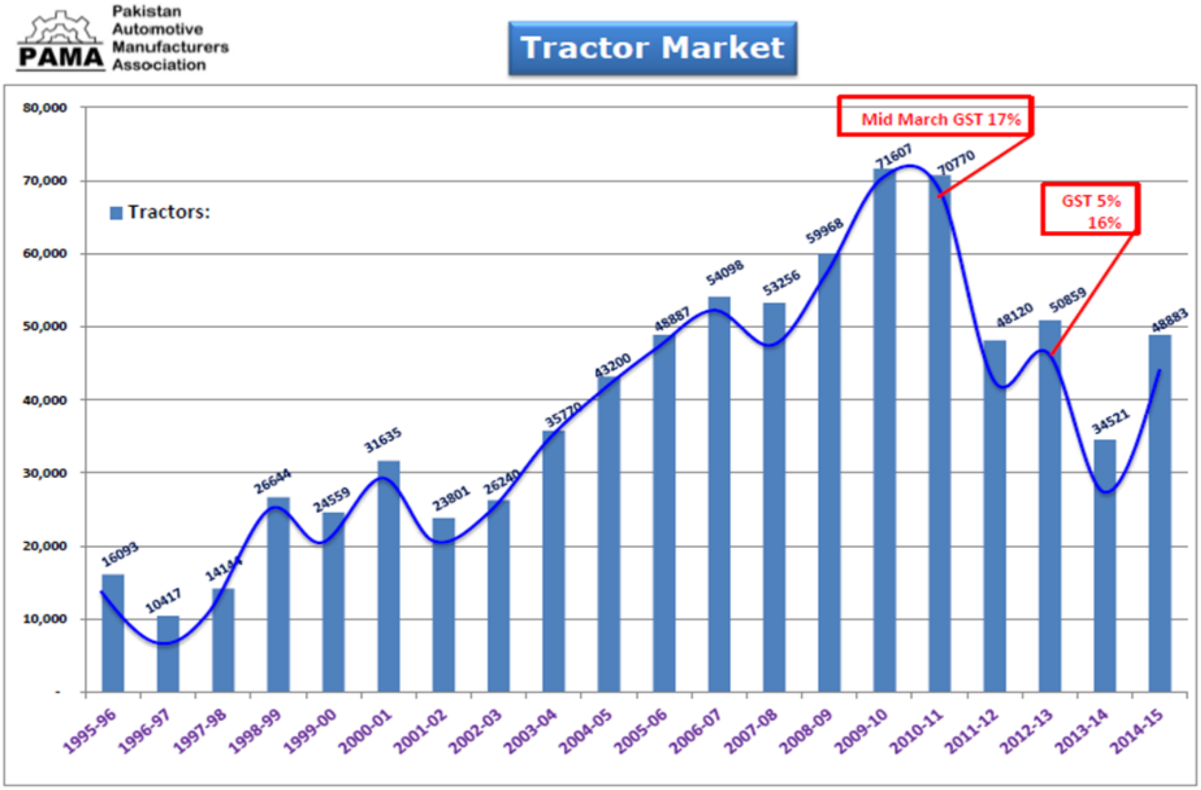
2012-13
2013-14
2014-15



Pakistan Automotive Manufacturers Association
PAMA
Tractor Market
Mid March GST 17%
GST 5%
16%
Tractors:
16093
10417
14144
26644
24559
31635
23801
26240
35770
43200
48887
54098
53256
59968
71607
70770
48120
50859
34521
48883
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
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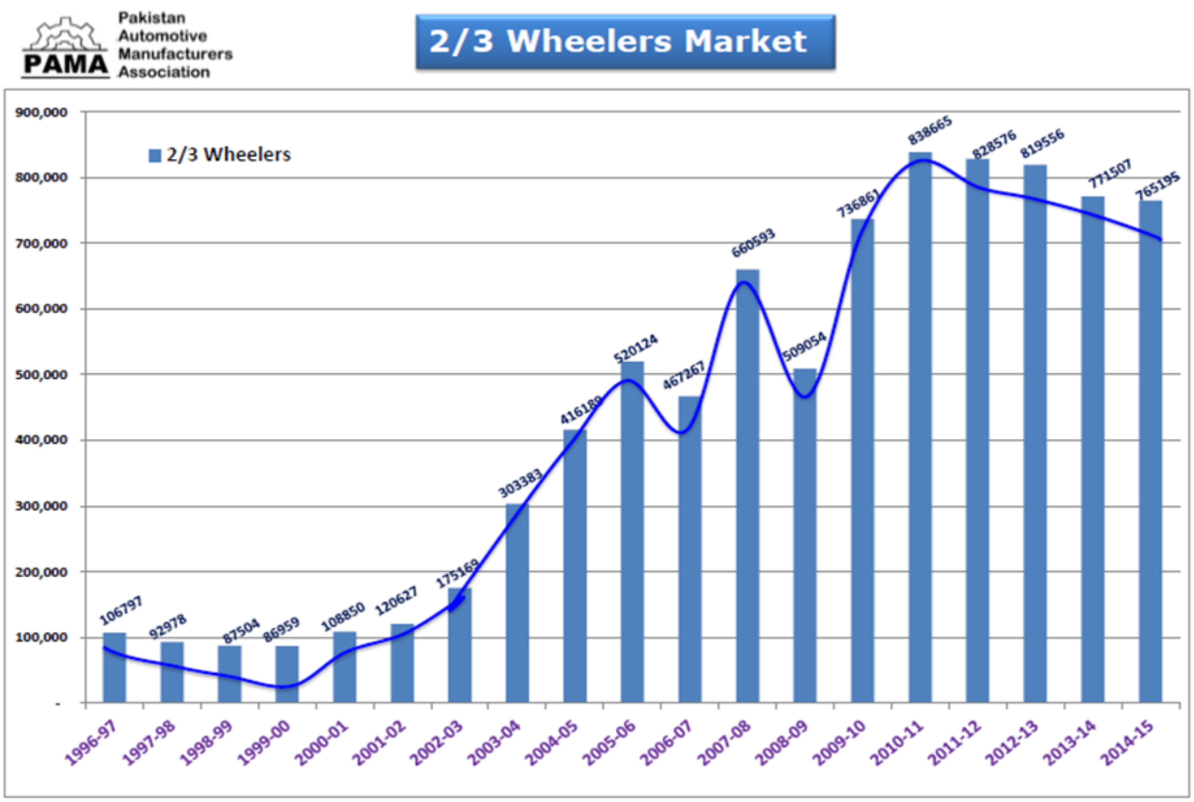
2012-13
2013-14
2014-15



Pakistan Automotive Manufacturers Association
PAMA
2/3 Wheelers Market
2/3 Wheelers
106797
92978
87504
86959
108850
120627
175169
303383
416189
520124
467267
660593
509054
736861
838665
828576
819556
771507
765195
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15

5.2 Target Customer

In Pakistan, the consumption of lubricants is increasing because of the increasing number of vehicles on the roads. Considering the projects of CPEC the infrastructure development is going to increase which will ultimately give rise to the consumption of lubricants because of the high usage of industrial equipment, heavy vehicles and cars on roads.

The target is transport sector, automobile industry and power sector of Pakistan. The lubricants will be manufactured for the Pakistani market because of the continuous increase in demand of lubricants in Pakistan.

5.3 Global Market

Lubricants are widely used around the world and its consumption has been increasing dramatically fast due to the massive demand and increase in population. International magazine "Machinery Lubrication" says that between 2014 and 2019, the global lubricants market is projected to grow at an annual rate of 2.5 percent and be worth $162.3 billion by 2019, as per the recent report of "*MarketsAndMarkets*".

The fastest growing market of lubricants is Asia-Pacific with a yearly growth rate of 3% for the years 2014-2019. The regions that are expected to drive the materials market of lubricants are Asia-Pacific, the Middle East and Africa. In 2013, together these markets accounted for almost 51% of the total market. The key countries like China, India, South Africa, Brazil and Iran are driving the lubricants market's growth because of the development of end-user industries in these countries.

The growth of industrial production and automotive sector resulted in greater demand for lubricants. The transportation segment is having the largest share in terms of volume, at nearly 57% of the total market of lubricants.

5.4 Global Major Consumers & Producers

According to "Machinery Lubrication", the largest lubricants market that is comprised of more than 56% of the total Asia –Pacific market in 2013, is Chinese market. Because of the growing industrial activities in China, in the next 5 years the Chinese market is projected to grow at a high rate. In the previous recent years, the United States' lubricants market (which is the top Lubricants Market) is surpassed by China and it is estimated that China will continue to dominate the lubricants market. The North American market for lubricants is now on a mature stage and is estimated to record sluggish growth. In the lubricants market, the top companies are Shell, Lukoil, Exxon Mobil, BP, Total and others.

5.5 National Market

In Pakistan, according to the line of business, the market size of Lubricants consists of transport, consumer and industrial market. These mentioned categories are having different sectors and lubricants are sold through these sectors. Most of the lubricants is consumed by the transport sector in Pakistan.

The market in Pakistan is very profitable because of the continuous high consumption of lubricants due to the increasing number of vehicles and huge demand for power generators. The demand level of lubricants in Pakistan is so high that even the existing lubricants producers are not producing enough to cater the local demand. This gap of meeting local demand has allowed some lubricants producers from the world to enter the Pakistan's lubricant market.

Local production only fulfills the half of the lubricants demand in Pakistan whereas the demand for lubricants is continuously increasing in Pakistan. A number of factors are contributing to the continuous increasing demand of lubricants in Pakistan such as increase in consumer vehicles, industrial development, power generators, and infrastructure development under CPEC project etc.

5.6 Demand & Supply

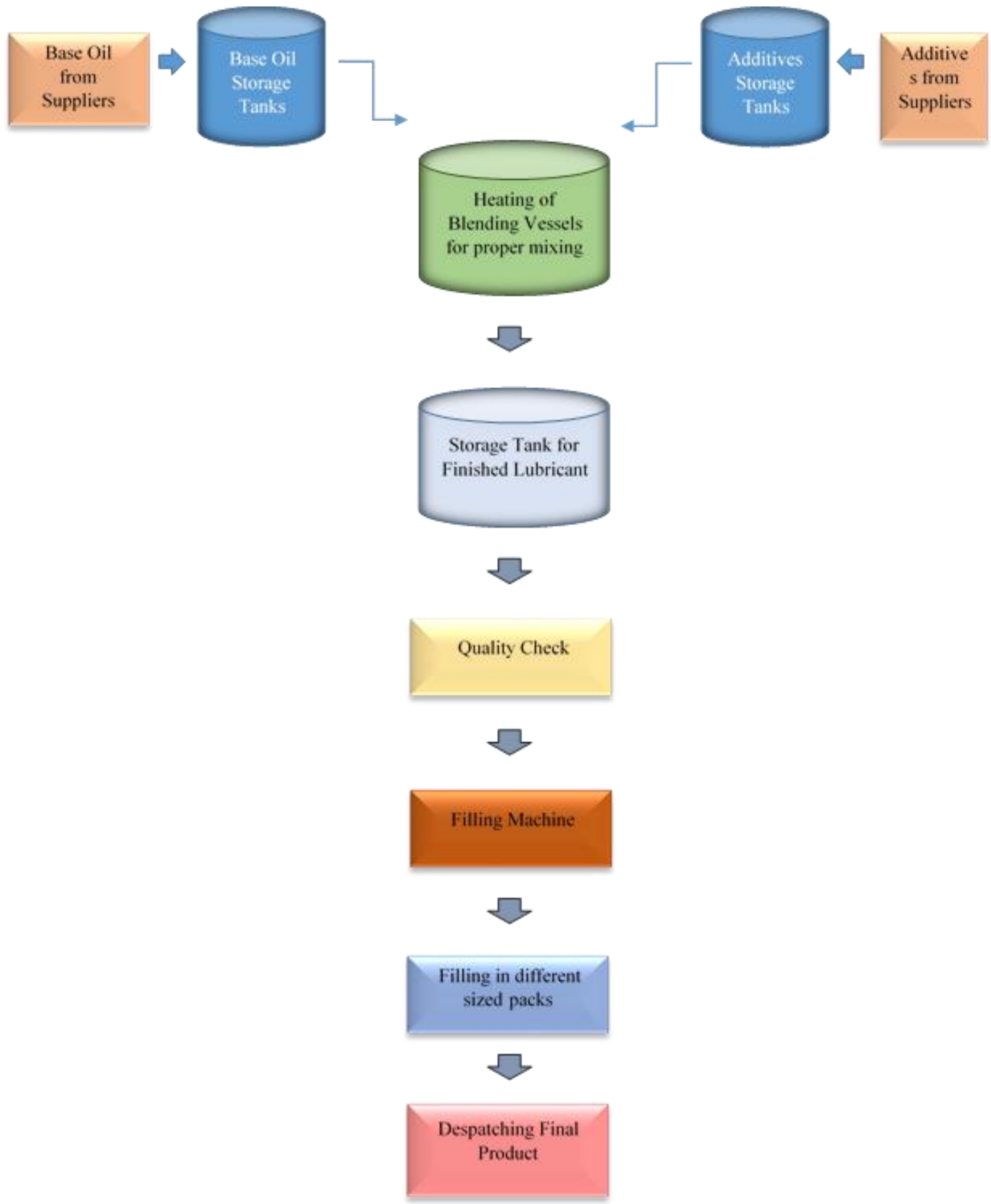
According to Industry experts, the overall demand for lubricant products stands around 500,000 kilo liters, of which 40% is fulfilled by local production whereas the remaining is met by the imports from different regions of the world. The demand is continuously increasing and a sharp surge has been witnessed in the recent past and therefore, the lubricant market is becoming more competitive.

There are ample opportunities for local lubricants manufacturers in Pakistan as they can gain huge market share by filling the gap of the existing increasing local demand for lubricants through quality products.

6 PRODUCTION PROCESS

The process of lubricants manufacturing is primarily subjected to the base oil and additives used, however the overall operation based on simple blending principal. A glimpse over process is depicted as under:

Figure 1: Process flow



6.1 Packaging & Dispatching

The final product is packed in plastic bottles of various sizes for consumers and in drum and barrels for industrial users.

7 TECHNICAL PARAMETERS / ASSUMPTIONS

Technical parameters and assumptions are described as follows:

- The buying price for base oil and additive is assumed at Rs. 150/ltr (including all tax/tariffs). It is assumed that selling price for lubricant on an average is Rs. 350/ltr.
- For this pre-feasibility study we have assumed 05 different grades of lube products with respect to their usage.
- Careful processing techniques must be used to avoid any damages to oil.

8 PROJECT INPUTS

8.1 Equipment Requirement

Table 8.1: Equipment & Machinery Details

Following is the list of machinery and equipment already installed at the blending plant.

Description	No	Total Price (PKR)
Liquid Filling Machine	01	855,000
Products Transfer Pump With Auto Control For Can	01	141,300
Drum Filling Machine – Semi Automatic	01	877,500
Products Transfer Pump With Auto Control For Drum	01	141,300
Roller Conveyors	02	150,000
Cap Tightening Machine	01	350,000
Extra Cap Tightening Head Supply	02	31,400
Working Table	04	101,200
Semi-Automatic Strapping Machine	01	55,000

Paste Filler	01	240,000
Thermal Oil Circulation Boiler	01	800,000
Blending Cattles	04	995,000
Additive Mixture	02	210,000
Drop Tanks	04	677,096
Storage Tanks (50000 Liters)	02	2,225,000
Lab Machines	08	4,044,550
Inkjet Printer & Speed Variable Conveyor	01	362,000
Shrink Tunnel & L Type Sealer	01	351,000
Continuous Induction Sealer	01	292,500
Fork lifter (Used In Good Condition)	01	3,000,000
Storage Tanks (110000 Lit*6) (Material/Fabrication/Fitting)	06	11,000,000
Generator (50 KVA)	01	2,200,000
Total		**29,099,846**

8.2 Office Equipment Requirement

Table 8.2: Office Equipment Details

Other Equipment Details	Qty	Cost/Unit	Total Cost (PKR)
Laptop	02	75,000	150,000
Computer Printer (s)	01	20,000	20,000
Telephones & Modem	01	5,000	5,000
Fax Machines	01	20,000	20,000
Surveillance System	01	60,000	100,000
Total			**295,000**

8.3 Human Resource Requirement

Table 8.3: Human Resource Requirement Details

Description – HR Requirements	Nos	Salary per month	Salary per year (PKR)
CEO	1	100,000	1,200,000
Operations Manager	1	50,000	600,000
Supervisor	1	30,000	360,000

Quality Inspector	1	30,000	360,000
Accountant	1	25,000	300,000
Helpers	9	15,000	1,620,000
Boiler Operator	1	20,000	240,000
Store Keeper	1	15,000	180,000
Electrician	1	15,000	180,000
Guards	3	15,000	540,000
Total	20		**5,580,000**

Note: *The staff salaries are estimated according to the market trends; however, the investor may set different pay scales.*

8.4 Land & Building Requirement

Table 8.4: Land & Building Requirement Details

Description – Land & Building	Cost/Sq. Ft	Area in Sq. ft	Total Cost (PKR)
Management Building	1,800	2,000	3,600,000
Factory	2,000	4,300	8,600,000
Tank Foundation	950	3,150	2,992,500
Boiler Room	1,500	520	780,000
Store	1,500	2,692	4,038,000
Guard Room	1,500	144	216,000
Panel Room	1,500	54	81,000
Boundary Wall			1,900,000
Open Space Shed	500	4500	2,250,000
Total Land and Cost			**24,457,500**

8.5 Furniture & Fixture Requirement

Table 8.5: Furniture & Fixture Details

Description	Quantity	Cost/Unit	Total Cost (PKR)
Tables	02	15,000	30,000
Chairs	08	3,000	24,000
Stools	20	2,000	40,000
Storage Racks	05	15,000	75,000
Air Conditioners (1.5 ton)	02	75,000	150,000
Total Furniture & Fixtures			**319,000**

8.6 Office Vehicles

Table 8.6: Office Vehicles

Description	Quantity	Cost/Unit	Total Cost (PKR)
Suzuki Ravi	01	740,000	740,000
Suzuki Bolan	01	800,000	800,000
Total Office Vehicles Cost	**02**		**1,540,000**

9 PROJECT ECONOMICS

Capital Investment	Rs. in actuals
Land	5,000,000
Building/Infrastructure	24,457,500
Machinery & equipment	29,099,846
Furniture & fixtures	319,000
Office vehicles	1,555,400
Office equipment	295,000
Pre-operating costs	3,810,000
Total Capital Costs	**64,536,746**

Working Capital	Rs. in actuals
Equipment spare part inventory	67,500
Raw material inventory	28,873,985
Upfront insurance payment	1,532,762
Cash	1,000,000
Total Working Capital	**31,474,248**

Total Investment	**96,010,994**

Initial Financing	Rs. in actuals
Debt	-
Equity	96,010,994

	Equity		Project	
Internal Rate of Return (IRR)		43%		43%
Modified Internal Rate of Return (MIRR)*		29%		29%
Payback Period (yrs)		3.19		3.19
Net Present Value (NPV)	@ 25%	104,078,125	@ 25%	104,078,125

10 FINANCIAL ANALYSIS.

Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	402,260,772	473,773,799	552,420,249	638,798,688	733,553,827	837,379,907	951,024,323	1,008,085,782	1,068,570,929	1,132,685,185
Cost of sales										
Cost of goods sold 1	110,848,500	130,554,900	152,227,013	176,029,783	202,140,867	230,751,575	262,067,860	277,791,931	294,459,447	312,127,014
Cost of goods sold 2	139,352,400	164,126,160	191,371,103	221,294,584	254,119,947	290,087,694	329,456,738	349,224,142	370,177,591	392,388,246
Cost of goods sold 3	48,261,750	56,841,617	66,277,325	76,640,689	88,009,058	100,465,724	114,100,358	120,946,380	128,203,162	135,895,352
Cost of goods sold 4	38,325,507	45,138,931	52,631,993	60,861,723	69,889,546	79,781,604	90,609,108	96,045,654	101,808,394	107,916,897
Cost of goods sold 5	9,699,665	11,424,050	13,320,443	15,403,276	17,688,095	20,191,641	22,931,935	24,307,851	25,766,322	27,312,301
Operation costs (direct labor)	3,360,000	3,687,134	4,046,119	4,440,055	4,872,345	5,346,723	5,867,288	6,438,535	7,065,400	7,753,297
Operating costs (machinery maintenance)	405,000	472,500	545,738	625,118	711,071	804,057	904,565	949,793	997,282	1,047,147
Operating costs (direct electricity)	1,529,280	1,682,208	1,850,429	2,035,472	2,239,019	2,462,921	2,709,213	2,980,134	3,278,147	3,605,962
Operating costs (direct water)	405,000	495,000	598,950	718,740	856,499	1,014,621	1,195,804	1,315,384	1,446,922	1,591,615
Operating costs (direct gas)	405,000	495,000	598,950	718,740	856,499	1,014,621	1,195,804	1,315,384	1,446,922	1,591,615
Operating costs (genset)	1,101,600	1,211,760	1,332,936	1,466,230	1,612,853	1,774,138	1,951,552	2,146,707	2,361,377	2,597,515
Total cost of sales	353,693,703	416,129,260	484,800,999	560,234,408	642,995,797	733,695,319	832,990,222	883,461,895	937,010,968	993,826,961
Gross Profit	48,567,069	57,644,538	67,619,250	78,564,280	90,558,030	103,684,588	118,034,100	124,623,887	131,559,961	138,858,224
	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
General administration & selling expenses										
Administration expense	2,220,000	2,436,142	2,673,329	2,933,608	3,219,228	3,532,656	3,876,601	4,254,032	4,668,211	5,122,714
Administration benefits expense	222,000	243,614	267,333	293,361	321,923	353,266	387,660	425,403	466,821	512,271
Travelling expense	333,000	365,421	400,999	440,041	482,884	529,898	581,490	638,105	700,232	768,407
Communications expense (phone, fax, mail, internet, etc.)	111,000	121,807	133,666	146,680	160,961	176,633	193,830	212,702	233,411	256,136
Office vehicles running expense	46,662	51,328	56,461	62,107	68,318	75,150	82,665	90,931	100,024	110,027
Office expenses (stationary, entertainment, janitorial services, etc.)	88,800	97,446	106,933	117,344	128,769	141,306	155,064	170,161	186,728	204,909
Promotional expense	1,206,782	1,421,321	1,657,261	1,916,396	2,200,661	2,512,140	2,853,073	3,024,257	3,205,713	3,398,056
Insurance expense	1,532,762	1,371,709	1,210,656	1,049,603	888,549	852,746	682,196	511,647	341,098	170,549
Professional fees (legal, audit, consultants, etc.)	1,206,782	1,421,321	1,657,261	1,916,396	2,200,661	2,512,140	2,853,073	3,024,257	3,205,713	3,398,056
Depreciation expense	4,505,340	4,505,340	4,505,340	4,505,340	4,505,340	4,695,257	4,695,257	4,695,257	4,695,257	4,695,257
Amortization of pre-operating costs	762,000	762,000	762,000	762,000	762,000	-	-	-	-	-
Bad debt expense	2,011,304	2,368,869	2,762,101	3,193,993	3,667,769	4,186,900	4,755,122	5,040,429	5,342,855	5,663,426
Subtotal	14,246,432	15,166,319	16,193,340	17,336,869	18,607,064	19,568,091	21,116,031	22,087,182	23,146,062	24,299,807
Operating Income	34,320,637	42,478,219	51,425,911	61,227,411	71,950,966	84,116,497	96,918,070	102,536,705	108,413,899	114,558,417
Other income (interest on cash)	746,139	3,092,142	6,785,692	11,254,751	16,642,008	23,146,914	31,354,837	41,146,526	52,233,740	71,449,741
Earnings Before Interest & Taxes	35,066,776	45,570,361	58,211,603	72,482,161	89,215,133	107,263,411	128,272,906	143,683,231	160,647,639	186,008,158
Interest expense on long term debt (Project Loan)	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	35,066,776	45,570,361	58,211,603	72,482,161	89,215,133	107,263,411	128,272,906	143,683,231	160,647,639	186,008,158
Tax	7,013,355	9,114,072	11,642,321	14,496,432	17,843,027	21,452,682	25,654,581	28,736,646	32,129,528	37,201,632
NET PROFIT/(LOSS) AFTER TAX	**28,053,421**	**36,456,289**	**46,569,282**	**57,985,729**	**71,372,107**	**85,810,729**	**102,618,325**	**114,946,585**	**128,518,111**	**148,806,526**
Balance brought forward		28,053,421	64,509,709	111,078,991	169,064,720	240,436,827	326,247,556	428,865,881	543,812,466	672,330,577
Total profit available for appropriation	28,053,421	64,509,709	111,078,991	169,064,720	240,436,827	326,247,556	428,865,881	543,812,466	672,330,577	821,137,103
Balance carried forward	28,053,421	64,509,709	111,078,991	169,064,720	240,436,827	326,247,556	428,865,881	543,812,466	672,330,577	821,137,103
	7%	8%	8%	9%	10%	10%	11%	11%	12%	13%

Calculations — SMEDA

Balance Sheet

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
Current assets											
Cash & Bank	1,000,000	13,922,777	47,920,063	87,793,771	137,301,240	195,538,913	267,399,364	359,697,371	463,233,151	581,441,650	847,553,180
Accounts receivable		33,062,529	36,001,421	42,172,358	48,954,203	56,398,049	64,558,921	73,496,064	80,511,374	85,342,057	90,462,580
Equipment spare part inventory	67,500	82,688	100,279	120,609	144,052	171,034	202,034	222,742	245,573	270,745	-
Raw material inventory	28,873,985	35,707,495	43,716,686	53,080,006	64,001,217	76,712,843	91,480,065	101,817,313	113,322,669	126,128,131	-
Pre-paid insurance	1,532,762	1,371,709	1,210,656	1,049,603	888,549	852,746	682,196	511,647	341,098	170,549	-
Total Current Assets	31,474,248	99,158,390	146,610,138	204,791,891	275,066,292	356,963,109	455,461,503	571,098,258	695,149,065	833,121,019	980,194,987
Fixed assets											
Land	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Building/Infrastructure	24,457,500	23,234,625	22,011,750	20,788,875	19,566,000	18,343,125	17,120,250	15,897,375	14,674,500	13,451,625	12,228,750
Machinery & equipment	29,099,846	26,189,861	23,279,877	20,369,892	17,459,908	14,549,923	11,639,938	8,729,954	5,819,969	2,909,985	(0)
Furniture & fixtures	319,000	287,100	255,200	223,300	191,400	159,500	127,600	95,700	63,800	31,900	-
Office equipment	295,000	265,500	236,000	206,500	177,000	147,500	118,000	88,500	59,000	29,500	-
Total Fixed Assets	60,726,746	56,221,406	51,716,067	47,210,727	42,705,388	40,705,035	36,009,778	31,314,521	26,619,264	21,924,007	17,228,750
Intangible assets											
Pre-operation costs	3,810,000	3,048,000	2,286,000	1,524,000	762,000	-	-	-	-	-	-
Total Intangible Assets	3,810,000	3,048,000	2,286,000	1,524,000	762,000	-	-	-	-	-	-
TOTAL ASSETS	**96,010,994**	**158,427,797**	**200,612,204**	**253,526,619**	**318,533,680**	**397,668,144**	**491,471,282**	**602,412,779**	**721,768,329**	**855,045,026**	**997,423,737**
Liabilities & Shareholders' Equity											
Current liabilities											
Accounts payable		31,453,397.71	37,181,517.01	43,526,648.96	50,547,981.43	58,310,339.24	66,884,744.72	75,789,913.80	80,780,876.17	86,121,458.09	80,275,640.32
Total Current Liabilities	-	31,453,398	37,181,517	43,526,649	50,547,981	58,310,339	66,884,745	75,789,914	80,780,876	86,121,458	80,275,640
Other liabilities											
Deferred tax		2,909,985	2,909,985	2,909,985	2,909,985	2,909,985	2,327,988	1,745,991	1,163,994	581,997	0
Long term debt (Project Loan)	-	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	-	2,909,985	2,909,985	2,909,985	2,909,985	2,909,985	2,327,988	1,745,991	1,163,994	581,997	0
Shareholders' equity											
Paid-up capital	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994	96,010,994
Retained earnings		28,053,421	64,509,709	111,078,991	169,064,720	240,436,827	326,247,556	428,865,881	543,812,466	672,330,577	821,137,103
Total Equity	96,010,994	124,064,414	160,520,703	207,089,985	265,075,714	336,447,821	422,258,549	524,876,874	639,823,459	768,341,571	917,148,097
TOTAL CAPITAL AND LIABILITIES	**96,010,994**	**158,427,797**	**200,612,204**	**253,526,619**	**318,533,680**	**397,668,144**	**491,471,282**	**602,412,779**	**721,768,329**	**855,045,026**	**997,423,737**

Calculations

SMEDA

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
Operating activities											
Net profit		28,053,421	36,456,289	46,569,282	57,985,729	71,372,107	85,810,729	102,618,325	114,946,585	128,518,111	148,806,526
Add: depreciation expense		4,505,340	4,505,340	4,505,340	4,505,340	4,505,340	4,695,257	4,695,257	4,695,257	4,695,257	4,695,257
amortization of pre-operating costs		762,000	762,000	762,000	762,000	762,000	-	-	-	-	-
Deferred income tax		2,909,985	-	-	-	-	(581,997)	(581,997)	(581,997)	(581,997)	(581,997)
Accounts receivable		(33,062,529)	(2,938,891)	(6,170,937)	(6,781,845)	(7,443,846)	(8,160,872)	(8,937,144)	(7,015,310)	(4,830,682)	(5,120,523)
Finished goods inventory		(15,011,192)	(2,649,841)	(2,914,512)	(3,201,486)	(3,512,494)	(3,849,398)	(4,214,197)	(2,142,079)	(2,272,688)	(2,411,340)
Equipment inventory	(67,500)	(15,188)	(17,592)	(20,329)	(23,443)	(26,982)	(31,000)	(20,708)	(22,831)	(25,171)	270,745
Raw material inventory	(28,873,985)	(6,833,510)	(8,009,191)	(9,363,319)	(10,921,211)	(12,711,626)	(14,767,222)	(10,337,247)	(11,505,356)	(12,805,462)	126,128,131
Advance insurance premium	(1,532,762)	161,053	161,053	161,053	161,053	35,804	170,549	170,549	170,549	170,549	170,549
Accounts payable		31,453,398	5,728,119	6,345,132	7,021,332	7,762,358	8,574,405	8,905,169	4,990,962	5,340,582	(5,845,818)
Cash provided by operations	(30,474,248)	12,922,777	33,997,285	39,873,709	49,507,469	60,742,660	71,860,451	92,298,007	103,535,780	118,208,499	266,111,530
Financing activities											
Issuance of shares	96,010,994	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	96,010,994	-	-	-	-	-	-	-	-	-	-
Investing activities											
Capital expenditure	(64,536,746)	-	-	-	-	(2,504,987)	-	-	-	-	-
Cash (used for) / provided by investing activities	(64,536,746)	-	-	-	-	(2,504,987)	-	-	-	-	-
NET CASH	1,000,000	12,922,777	33,997,285	39,873,709	49,507,469	58,237,672	71,860,451	92,298,007	103,535,780	118,208,499	266,111,530
Cash balance brought forward		1,000,000	13,922,777	47,920,063	87,793,771	137,301,240	195,538,913	267,399,364	359,697,371	463,233,151	581,441,650
Cash available for appropriation	1,000,000	13,922,777	47,920,063	87,793,771	137,301,240	195,538,913	267,399,364	359,697,371	463,233,151	581,441,650	847,553,180
Dividend		-	-	-	-	-	-	-	-	-	-
Cash balance	1,000,000	13,922,777	47,920,063	87,793,771	137,301,240	195,538,913	267,399,364	359,697,371	463,233,151	581,441,650	847,553,180
Cash carried forward	1,000,000	13,922,777	47,920,063	87,793,771	137,301,240	195,538,913	267,399,364	359,697,371	463,233,151	581,441,650	847,553,180

Calculations

SMEDA

Ratio Analysis

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Profitability ratios											
Profit margin on sales		7%	8%	8%	9%	10%	10%	11%	11%	12%	13%
ROI (same as ROA)		18%	18%	18%	18%	18%	17%	17%	16%	15%	15%
ROE		23%	23%	22%	22%	21%	20%	20%	18%	17%	16%
Liquidity ratios											
Current ratio		3	4	5	5	6	7	8	9	10	12
Quick ratio		2	3	3	4	5	5	6	7	8	12
Asset management ratios											
Inventory turnover ratio		11	11	10	10	10	9	9	9	8	
Days sales outstanding		30	27	27	28	28	28	28	29	29	29
Fixed assets turnover ratio		7	9	12	15	18	23	30	38	49	66
Total assets turnover ratio		3	2	2	2	2	2	2	1	1	1
Debt management ratios											
Debt ratio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

11 KEY ASSUMPTIONS

Table 11-1 Cost of Goods Sold per Unit of Production

Cost of Goods Sold	Rs. (Average)
Product 1	298
Product 2	187
Product 3	217
Product 4	179
Product 5	174

Table 11-2 Revenue Related Assumptions

Selling Price	Rs. (Average)
Product 1	350
Product 2	220
Product 3	255
Product 4	210
Product 5	205
Sale price growth rate per annum	06%

Table 11-3 Production Related Assumptions

Production capacity per year (Ltrs)	3,600,000
Product 1	23%
Product 2	46%
Product 3	14%
Product 4	14%
Product 5	04%
Sale price growth rate per annum	06%
Production capacity utilization in first year	45%
Production capacity utilization growth rate	05%
Maximum production capacity utilization	75%

Table 11-4 Economic Related Assumptions

Inflation rate	10%
Wage growth rate	10%
Electricity Growth Rate	10%
Water Price Growth Rate	05%

Fuel Price Growth Rate	05%

Table 11-5 Financing Assumptions

Interest rate on long term debt	10.5%
Project Debt Component	66%
Project Equity Component	34%
Required rate of return on equity	25%
WACC	14%

Table 11-6 Expense Assumptions

Administrative benefit expense	10%
Traveling expense (% of Admn. Exp.)	15%
Communication expense (% of Admn. Exp.)	05%
Office vehicle running expense	03%
Office expense (stationary, entertainment etc.)	04%
Promotional Expense (% of Revenue)	0.3%
Machinery & equipment insurance rate	05%
Office vehicle insurance rate	05%
Professional Fee (Legal, Audit etc.) (% of Revenue)	0.3%
Bad debt expense	0.5%

Table 11-7 Depreciation Rates

Building & Infrastructure	05%
Furniture & fixtures	10%
Machinery	10%
Office equipment	10%
Office Vehicle	20%

Table 11-8 Cash Flow Assumptions

Accounts Receivables Cycle (In Days)	30
Accounts Payable Cycle (In Days)	30
Initial cash on hand	Rs. 1,000,000
Raw material Inventory Purchase Cycle (In Days)	30