



**Pre-feasibility Study**

# **CHIPBOARD MANUFACTURING PLANT**

**February 2021**

*“The figures and financial projections are approximate due to fluctuations in exchange rates, energy costs, and fuel prices etc. Users are advised to focus on understanding essential elements such as production processes and capacities, space, machinery, human resources, and raw material etc. requirements. Project investment, operating costs, and revenues can change daily. For accurate financial calculations, utilize financial calculators on SMEDA’s website and consult financial experts to stay current with market conditions.”*

**Small and Medium Enterprises Development Authority**  
Ministry of Industries and Production  
Government of Pakistan

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## 1 DISCLAIMER

The objective of 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 have been taken to compile this document, the contained information may vary due to any change in any of the concerned factors as the future is uncertain, 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 to be obtained by the user. 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 making any decision to act upon the information.

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### ***Document Control***

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## **2 EXECUTIVE SUMMARY**

Chipboards are engineered wood products that are made from gluing together small chips and saw-dust and firmly pressing them together to make boards or sheets. Chipboards are one of the most widely-used sheet materials in the world, providing affordable and convenient solutions for furniture manufacturing and housing & construction needs, especially for making Cupboard, Shelves, Cabinets and Doors etc. This particular pre-feasibility study is for setting up a chipboard manufacturing plant with state-of-the-art machinery that can produce high-grade sheets. Chipboard sheets are proposed to be sold to wholesalers and retailers. Target end-users will be furniture manufacturers and builders.

The proposed unit can produce 600,000 chipboard sheets of 16 mm thickness and 4x8 feet size in a year based on 300 working days with 20 hours operational per day. However, starting operational capacity is assumed at 50% (i.e. 300,000 chipboard sheets), and with an annual increase of 10%, it will attain a maximum capacity of 90% in 5<sup>th</sup> year. This production capacity is estimated to be economically viable and justifies the capital as well as operational cost of the project. However, the entrepreneur's knowledge of the industry, competitive pricing, and strong linkage with wholesalers and retailers of furniture and building supplies are key factors for the success of this business.

The total cost of the proposed chipboard manufacturing plant is estimated at Rs. 701.12 million out of which Rs. 655.72 million is the capital cost and Rs. 45.40 million is for working capital. The project is to be financed through 100% equity. The project NPV is around Rs. 228.11 million, with an IRR of 24% and a Payback Period of 4.95 years. The project will provide employment opportunities to 60 individuals including the owner. The legal business status of this project is proposed as 'Sole Proprietorship'.

## **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 the development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through the 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 have 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 the 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, production, marketing, finance, and business management.

The purpose of this document is to facilitate potential investors in the **Chipboard Manufacturing** business, by providing them with a general understanding of the business to support 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 its successful management.

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

## 5 BRIEF DESCRIPTION OF PROJECT AND PRODUCT

Gluing together wood particles with an adhesive, under heat and pressure makes chipboard. Chipboard is a versatile material that is relatively cheap and can be used to make furniture, carcasses for kitchen units, other cabinet applications, floor decking, shelving, doors and other general building work. Due to the increase in population and the need for constructing new houses it is expected that demand for chipboard will rise, especially in big cities. The price of timber has increased manifold as its production has gone down drastically because of unchecked deforestation. As a result use of chipboard has increased manifold, especially due to its low cost and versatility.

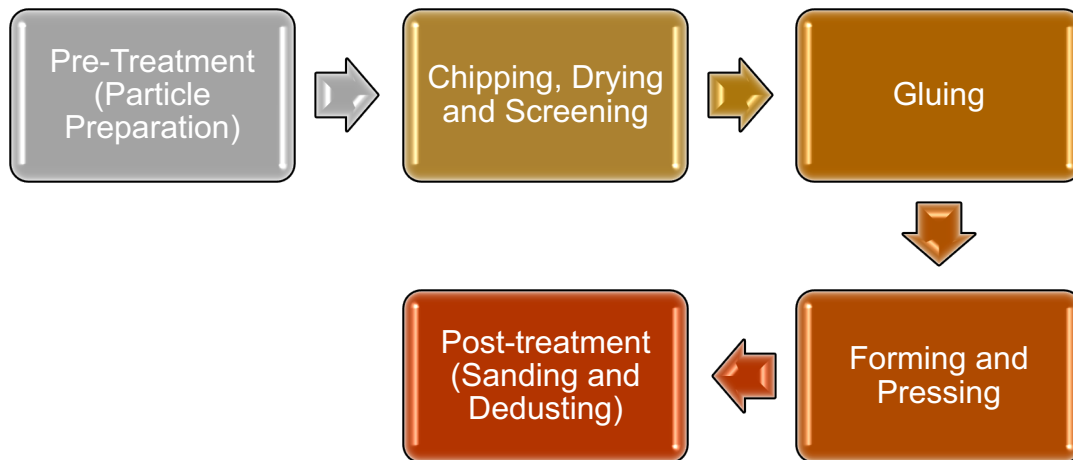
The proposed chipboard manufacturing plant will be erected on purchased land of 35 Kanals. The imported plant will be fully automatic with state of the art technology

having capacity to produce 600,000 sheets of 16 mm thickness and 8X4 feet size. The raw material is wood chips, flakes, raw dust etc. and will be procured from the local market. The final product chipboard will be directly supplied to the wholesalers and retailers. The legal status of the business is assumed to be 'Sole Proprietor'.

## 5.1 Production Process

The brief overview of production process steps involved in chipboard manufacturing and process flow diagram is provided in the below section.

**Figure 1: Production Process Flow**



### Particle Preparation

The raw material used for the production is a mixture of wood chips, flakes, and sawdust. After the raw materials are gathered, it is sent to the chipper.

### Chipping, Drying, and Screening

Chipping is meant to make the wood waste uniform (if different wood chip sizes would be needed at a later stage, the dimensions are also made at this stage). Once chipping is complete, the wood chips are sent to a dryer, where the drying process ensures that the wood chips are at the appropriate moisture level. Once the desired moisture level is attained, the chips are screened to separate the assortment of chips into uniformly sized collections.

### Gluing and Chipboard Formation

The gluing process involves the application of synthetic resins and additives to different-sized wood chips. The chips are then ready to be formed into the chipboard product. The process of forming a chipboard involves three layers. The chipboard consists of a layer of bigger chips forming the center of the finished product and

smaller wood particles forming the outer layers. After the chips are arranged according to the desired specifications, the boards are sent to the press.

### Forming and Pressing

Pressing uses a high-temperature press to form the boards to the desired thickness. Pressing of the product induces the glued particles to adhere together tightly, creating a strong bond once the cooling process is complete. After cooling, the post-treatment process produces a chipboard to meet the desired specifications of a multitude of projects.

### Post-Treatment (Sanding and Dedusting)

Post-treatment involves several steps. The chipboard surface is sanded to produce the smooth, uncoated surface that is characteristic of the product. After sanding, the chipboard is cut to the desired dimensions of the finished product. Once the chipboard has been cut to the desired size, the product is ready for storage and shipment to distribution centers and retailers. Depending on the intended use of the chipboard, an additional process, called laminating, applies a decorative layer of paper material to the chipboard before storage.

## **5.2 Installed and Operational Capacities**

The proposed manufacturing unit will have the capacity to produce 600,000 chipboard sheets in a year with 300 working days and 2 shifts per day. However, the initial operating capacity of the project will be 50% and with an annual increase of 10%, it will achieve a maximum operational capacity of 90% in year 5.

**Table 1: Installed and Operational Capacity**

Description	Total Capacity	Operational Capacity 50% (Year 1)	Maximum Operational Capacity 90% (Year 5)
Chipboard Sheets (16 mm Thickness and 8x4 ft size)	600,000	300,000	540,000

## **6 CRITICAL SUCCESS FACTORS**

Following are critical success factors associated with this business:

- Regular surveys of the timber market should be conducted to have a fair idea about the availability of the raw materials.
- Prior knowledge and information about the chipboard industry.

- Agile marketing team to establish contacts with the wholesalers.
- Selection of appropriate location with availability of required infrastructural support and easy access to markets.
- Induction of trained human resources for the handling of business operations especially in production and sales.
- Stringent supervision of the production process at every level.
- Come up with strategies that would differentiate from competitors.
- Harness technology to optimize business and drive innovation.
- Reduce costs and increase productivity levels.

## **7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT**

Location selection is critical to the success of the project. It is important to find a location preferably in an industrial cluster where utilities especially electricity and other infrastructure are conveniently available. Presently, Karachi, Lahore, Faisalabad, Multan, and Peshawar can be considered as these cities have adequate availability of skilled labor, raw material, and infrastructure.

## **8 POTENTIAL TARGET CUSTOMERS / MARKETS**

Chipboard sheets are predominantly majorly used in manufacturing of various items of furniture as well as in construction and housing industry, especially for wooden works. The potential target customers and markets will include furniture manufacturers and builders. The housing and construction sector in the major cities is continually increasing therefore Lahore, Karachi, Peshawar, Quetta, Islamabad, Faisalabad, Multan etc., are the has potential target market of this business.

## **9 PROJECT COST SUMMARY**

A detailed financial model has been developed to analyze the commercial viability of the chipboard plant. Various cost and revenue-related assumptions along with the results of the analysis are outlined in this section.

The projected Income Statement, Balance Sheet, and Cash Flow Statement are attached as annexures.

### **9.1 Project Economics**

All the figures in this financial model have been calculated for estimated sales of Rs. 580 million in year one. The capacity utilization during year one is worked out at



50% with a 10% increase in subsequent years up to the maximum capacity utilization of 90%.

In order to financially appraise the project, a 100% Equity-Based Business Model has been assumed. The following table shows the Internal Rate of Return, Payback Period, and Net Present Value of the proposed venture:

**Table 2: Project Economics (Equity Financed)**

Description	Details
Internal Rate of Return (IRR)	24%
Payback Period (Yrs.)	4.95
Net Present Value (Rs.)	228,111,817

Calculation of break-even analysis is as follows:

**Table 3: Breakeven (100% Equity-Based)**

Break-Even Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Break-Even Revenue	340,872,815	325,463,145	315,799,539	309,057,480	310,346,941	303,221,091	302,681,607	303,395,895	305,527,748	288,259,833
Break-Even Units	172,594	154,011	139,662	127,738	119,880	109,465	102,121	95,666	90,035	79,389
Margin of Safety	41%	57%	67%	73%	78%	80%	81%	82%	83%	85%

However, for further explanation the Project Economics based on Debt: Equity (i.e. 50:50) Model has also been computed. On the basis of the Debt: Equity model the Internal Rate of Return, Payback Period, and Net Present Value of the proposed project are provided in the table below:

**Table 4: Project Economics Based on Debt (50%): Equity (50%)**

Description	Details
Internal Rate of Return (IRR)	24%
Payback Period (Yrs.)	4.88
Net Present Value (Rs.)	379,767,257

The financial assumptions for Debt: Equity is as follows:

**Table 4.1: Financial Assumptions for Debt: Equity Model**

Description	Details
Debt	50%
Equity	50%
Interest Rate on Debt	12%
Debt Tenure	5
Debt Payment / Year	Semi-Annual

The projected Income Statement, Balance Sheet, and Cash Flow Statement enclosed as annexures are based on a 100% Equity-Based Business Model.

## 9.2 Project Cost

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

**Table 5: Project Cost**

Description	Amount Rs.
<b>Capital Cost</b>	
Machinery and Equipment	318,907,972
Building/Infrastructure	243,850,473
Land	81,000,000
Pre-Operating Costs	6,366,000
Office Vehicles	2,644,937
Office Equipment	2,020,800
Furniture and Fixtures	923,700
<b>Total Capital Cost</b>	<b>655,713,882</b>
<b>Working Capital</b>	
Raw Material Inventory	28,763,021
Cash	9,948,346
Upfront Insurance Payment	6,470,732
Equipment Spare Part Inventory	220,313
<b>Total Working Capital</b>	<b>45,402,412</b>

<b>Total Project Cost</b>	<b>701,116,294</b>
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### 9.3 Land and Building Requirement

Approximately 35 Kanals of land would be required for the establishment of the proposed unit, it is recommended that required land should be procured in the industrial estates of any major industrial city. The cost of land is estimated at the rate of Rs. 2.3 million per Kanal. The infrastructural requirements of the project mainly comprise the construction of a production hall, warehouses for storage of raw materials and finished goods, admin block for offices of production and administration staff. The cost of construction of building for the proposed unit is provided in the table below:

**Table 6: Infrastructure Requirement**

Description	Area (Sq.Ft)	Unit Cost (Rs.)	Total Cost (Rs.)
Production Facility	65,000	2,000	130,000,000
FG / Inspection	30,000	2,000	60,000,000
RM, SS	31,000	1,000	31,000,000
Pavement/Driveway	15,000	400	6,000,000
Design Cost			5,947,573
Boundary Wall and Main Gate	3,170	1,350	4,279,500
Management Building	1,500	2,500	3,750,000
Grounds	14,334	100	1,433,400
Cafeteria	450	2,000	900,000
Electric Room	216	2,500	540,000
<b>Total Infrastructure</b>			<b>243,850,473</b>

### 9.4 Machinery and Equipment Requirement

Machinery and equipment for the proposed project are stated below:

**Table 7: Machinery and Equipment**

Description	Qty	Unit Cost (Rs.)	Total Cost (Rs.)
Plant and Machinery*	-	-	209,244,357
Custom Dusty, Sale Tax, Clearance Charges	-	-	83,441,715

Generator (2000 KVA)	1	10,000,000	10,000,000
Fork Lifter (3.0 Ton)	2	2,750,000	5,500,000
Experts Cost	1	4,000,000	4,000,000
Transformer (2000 KVA)	1	3,490,000	3,490,000
Installation Cost (Fabrication Cost)	1	2,000,000	2,000,000
Electrical Panel Etc.	1	1,000,000	1,000,000
Industrial Exhaust Fans	6	38,650	231,900
<b>Total</b>			<b>318,907,972</b>

\*Item wise details of 'Plant and Machinery' is provided as Annexure 12.4.

## 9.5 Furniture and Fixtures Requirement

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

**Table 8: Furniture and Fixture**

Description	Quantity / Area	Unit Cost (Rs.)	Total Cost (Rs.)
Table	14	20,900	292,600
Cupboards	10	25,000	250,000
Sitting Chairs	38	6,200	235,600
Carpeting	50 sq. ft.	1,250	62,500
Guest Chairs	10	5,800	58,000
Sofa	1	25,000	25,000
<b>Total</b>			<b>923,700</b>

## 9.6 Office Equipment Requirement

Following office equipment will be required for the chipboard plant.

**Table 9: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Electric Wiring and Lighting	1	400,000	400,000
Air-Conditioners (1.5 Ton Split)	4	83,000	332,000
Laptops	5	63,200	316,000
Computers for Staff	8	29,375	235,000

Fans	32	4,500	144,000
Fire Extinguishers	15	9,000	135,000
Computer Server	1	125,000	125,000
UPS for Computers	1	95,000	95,000
Fridge	1	51,500	51,500
Water Cooler	1	45,000	45,000
Tube Lights	51	800	40,800
LED For Meeting Room	1	32,500	32,500
Exhaust Fans	7	3,900	27,300
Telephones	14	1,500	21,000
Printer	1	13,200	13,200
Microwave Oven	1	7,500	7,500
<b>Total</b>			<b>2,020,800</b>

### 9.7 Vehicle Requirement

Vehicles are required for transportation of raw material, semi-finished and finished goods. One Mazda Pickup Truck and One Motor Cycle is recommended to ensure smooth transportation requirements of the proposed unit. Details of the vehicles required for the project are given below.

**Table 10: Vehicles Requirement**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Mazda Pickup Truck	1	2,490,000	2,490,000
Motor Cycle (CD 70)	1	77,900	77,900
Registration Charges (3% of Vehicles Cost)			77,037
<b>Total</b>			<b>2,644,937</b>

### 9.8 Raw Material Requirement

The main raw material required for the manufacturing of chipboard is wood particles. Following are the details of raw material required.

**Table 10: Raw Material Requirement**

Description	Cost per Sheet (Rs.)
Wood Particles	680
Glue and Lamination	495

### 9.9 Human Resource Requirement

In order to run the operations of chipboard smoothly, details of human resources required along with a number of employees and monthly salary are recommended as under:

**Table 11: Human Resource Requirement**

Description	No. of Employees	Monthly Salary Per Person (Rs.)
CEO	1	150,000
Production Manager	1	100,000
Plant Engineer	2	60,000
Finance Manager	1	60,000
Sales and Marketing Manager	1	60,000
Procurement Incharge	2	45,000
HSE Officer	1	40,000
Electrical Engineer	1	40,000
Admin/HR	1	35,000
Production Supervisor	2	30,000
Warehouse Incharge	2	30,000
Quality/Inspection Incharge	2	30,000
Accounts Officer	1	30,000
Sales Officer	4	30,000
Electrician	1	30,000
Plant Engineer Assistant	2	25,000
Security Guard	4	25,000
Labour	26	20,000
Driver	1	20,000
Office Boys	2	20,000

Sweeper	2	18,000
<b>Total</b>	<b>60</b>	

For this particular pre-feasibility, the salary amount will be Rs. 1.80 million per month in year 1.

### 9.10 Utilities and Other Costs

An essential cost to be borne by the project is the cost of electricity. The electricity expense is estimated to be around Rs. 86.85 million per year. Similarly, during the 1st year of operation, communication and office expenses are estimated at Rs. 0.516 million and Rs. 1.34 million, respectively. The cost of maintenance of machinery is assumed at Rs. 2.64 million.

### 9.11 Revenue Generation

Based on the operational capacity utilization of 50%, sales revenue during the first year of operations is provided in the table below.

**Table 12: Revenue Generation (Year 1)**

Description	Rate	*No. of units sold	Total Revenue (Rs.)
Chipboard Sheets	1,975	293,750	<b>580,156,250</b>

\*Seven days finished goods inventory is considered while calculating the number of chipboards sold during year 1.

## 10 CONTACT DETAILS

In order to facilitate potential investors, contact details of private-sector vendors relevant to the proposed project are given below.

Name of Supplier	Type of Supplies	Website/Email	Phone
Linyi Youming Wood-Based Panel Machinery Co., Ltd	Machinery	<a href="http://www.rzbjx.com">www.rzbjx.com</a> , <a href="mailto:1039424619@qq.com">1039424619@qq.com</a>	86-18853937611
WOODPECKER	Office Furniture	<a href="http://www.apnafurniture.pk">www.apnafurniture.pk</a>	0331-8999222, 0331-7151566

## 11 USEFUL WEB LINKS

Small and Medium Enterprises Development Authority (SMEDA)	<a href="http://www.smeda.org.pk">www.smeda.org.pk</a>
Government of Pakistan	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
Ministry of Industries and Production	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
Government of Punjab	<a href="http://www.punjab.gov.pk">www.punjab.gov.pk</a>
Government of Sindh	<a href="http://www.sindh.gov.pk">www.sindh.gov.pk</a>
Government of Khyber Pakhtunkhwa	<a href="http://www.khyberpakhtunkhwa.gov.pk">www.khyberpakhtunkhwa.gov.pk</a>
Government of Balochistan	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
Government of Gilgit Baltistan	<a href="http://www.gilgitbaltistan.gov.pk">www.gilgitbaltistan.gov.pk</a>
Government of Azad Jammu Kashmir	<a href="http://www.ajk.gov.pk">www.ajk.gov.pk</a>
State Bank of Pakistan (SBP)	<a href="http://www.sbp.org.pk">www.sbp.org.pk</a>
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
Security and Exchange Commission of Pakistan (SECP)	<a href="http://www.secp.gov.pk">www.secp.gov.pk</a>
Trade Development Authority of Pakistan (TDAP)	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
Technical Education and Vocational Training Authority (TEVTA)	<a href="http://www.tevta.org">www.tevta.org</a>
All Pakistan Particleboards Manufacturers Association	<a href="http://www.appbma.org">www.appbma.org</a>
Punjab Industrial Estates (PIE)	<a href="http://www.pie.com.pk">www.pie.com.pk</a>
Punjab Small Industries Corporation	<a href="http://www.psic.gop.pk">www.psic.gop.pk</a>
Sindh Small Industries Corporation	<a href="http://www.ssic.gos.pk">www.ssic.gos.pk</a>
Faisalabad Industrial Estate Development & Management Company	<a href="http://www.fiedmc.com.pk">www.fiedmc.com.pk</a>
All Pakistan Furniture Makers Association	<a href="http://www.apfma.org.pk">www.apfma.org.pk</a>



## 12 ANNEXURES

### 12.1 Income Statement

Calculations										SMEDA
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	580,156,250	758,128,438	946,868,078	1,158,316,439	1,394,727,917	1,495,821,421	1,600,528,920	1,712,565,945	1,832,445,561	1,960,716,750
<i>Cost of sales</i>										
Cost of Wood	199,750,000	256,147,500	313,936,875	376,864,819	445,300,715	468,650,590	492,083,119	516,687,275	542,521,639	569,647,721
Cost of Glue and lamination	145,406,250	186,460,313	228,527,578	274,335,420	324,152,726	341,150,062	358,207,565	376,117,943	394,923,840	414,670,032
Direct Labor	11,280,000	12,628,000	13,897,714	15,293,190	16,827,389	18,553,075	20,408,383	22,449,221	24,694,143	27,163,557
Machinery Maintenance	2,643,750	3,390,188	4,155,047	4,987,917	5,893,686	6,202,728	6,512,865	6,838,508	7,180,433	7,539,455
Direct Electricity	85,789,104	112,456,994	142,552,186	177,206,818	217,055,757	236,607,584	258,114,593	281,772,302	307,795,783	292,302,053
Total cost of sales	444,869,104	571,082,994	703,069,400	848,688,163	1,009,230,273	1,071,164,039	1,135,326,524	1,203,865,249	1,277,115,839	1,311,322,818
Gross Profit	135,287,146	187,045,443	243,798,678	309,628,276	385,497,644	424,657,382	465,202,396	508,700,695	555,329,722	649,393,932
<i>General administration &amp; selling expenses</i>										
Administration expense	10,332,000	11,365,200	12,501,720	13,751,892	16,356,925	17,992,618	19,791,879	21,771,067	23,948,174	26,342,992
Administration benefits expense	309,960	340,956	375,052	412,557	490,708	539,779	593,756	653,132	718,445	790,290
Electricity expense	1,070,076	1,177,084	1,294,792	1,424,271	1,566,698	1,723,368	1,895,705	2,085,275	2,293,803	2,523,183
Water expense	60,000	63,000	66,150	69,458	72,930	76,577	80,406	84,426	88,647	93,080
Gas expense	180,000	189,000	198,450	208,373	218,791	229,731	241,217	253,278	265,942	279,239
Travelling expense	1,239,840	1,363,824	1,500,206	1,650,227	1,962,831	2,159,114	2,375,026	2,612,528	2,873,781	3,161,159
Communications expense (phone, fax, mail, internet, etc.)	516,600	568,260	625,086	687,595	817,846	899,631	989,594	1,088,553	1,197,409	1,317,150
Office vehicles running expense	264,494	290,943	320,037	352,041	387,245	425,970	468,567	515,423	566,966	623,662
Office expenses (stationary, entertainment, janitorial serv	1,343,160	1,477,476	1,625,224	1,787,746	2,126,400	2,339,040	2,572,944	2,830,239	3,113,263	3,424,589
Promotional expense	4,351,172	4,133,613	3,926,933	3,730,586	3,544,057	3,366,854	3,198,511	3,038,586	2,886,656	2,742,324
Insurance expense	6,470,732	5,823,659	5,176,586	4,529,513	3,882,439	3,235,366	2,588,293	1,941,220	1,294,146	647,073
Professional fees (legal, audit, consultants, etc.)	1,450,391	1,895,321	2,367,170	2,895,791	3,486,820	3,739,554	4,001,322	4,281,415	4,581,114	4,901,792
Depreciation expense	44,825,245	44,825,245	44,825,245	44,866,448	44,866,448	44,866,448	44,914,146	44,914,146	44,914,146	44,969,362
Amortization of pre-operating costs	1,273,200	1,273,200	1,273,200	1,273,200	1,273,200	-	-	-	-	-
Bad debt expense	5,801,563	5,511,484	5,235,910	4,974,115	4,725,409	4,489,138	4,264,682	4,051,447	3,848,875	3,656,431
Subtotal	79,488,431	80,298,265	81,311,760	82,613,811	85,778,748	86,083,187	87,976,048	90,120,736	92,591,367	95,472,325
Operating Income	55,798,715	106,747,178	162,486,918	227,014,466	299,718,896	338,574,195	377,226,349	418,579,959	462,738,355	553,921,607
Other income (interest on cash)	890,740	2,661,529	5,133,943	8,112,051	11,783,428	15,886,145	20,092,919	24,414,732	28,811,159	35,340,286
Gain / (loss) on sale of computer equipment	-	-	470,520	-	-	235,260	-	-	117,630	-
Earnings Before Interest & Taxes	56,689,455	109,408,707	168,091,381	235,126,517	311,502,324	354,695,601	397,319,267	442,994,692	491,667,144	589,261,893
Tax	18,961,309	37,413,047	57,951,983	81,414,281	108,145,813	123,263,460	138,181,743	154,168,142	171,203,500	205,361,662
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>37,728,146</b>	<b>71,995,660</b>	<b>110,139,398</b>	<b>153,712,236</b>	<b>203,356,511</b>	<b>231,432,141</b>	<b>259,137,524</b>	<b>288,826,550</b>	<b>320,463,644</b>	<b>383,900,231</b>

## 12.2 Balance Sheet

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
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	9,948,346	61,310,869	151,611,475	259,103,998	389,860,101	552,814,166	718,077,453	889,356,040	1,063,822,542	1,241,070,159	1,586,152,717
Accounts receivable		23,842,038	27,499,000	35,034,175	43,257,216	52,459,816	59,394,849	63,623,637	68,077,292	72,842,702	77,941,691
Finished goods inventory		9,465,300	11,939,017	14,691,002	17,727,168	21,074,414	22,315,917	23,652,636	25,080,526	26,606,580	27,319,225
Equipment spare part inventory	220,313	296,641	381,745	481,178	596,984	659,702	727,322	801,872	884,064	974,681	-
Raw material inventory	28,763,021	38,728,184	49,838,922	62,820,473	77,939,622	86,127,803	94,955,903	104,688,883	115,419,494	127,249,992	-
Pre-paid insurance	6,470,732	5,823,659	5,176,586	4,529,513	3,882,439	3,235,366	2,588,293	1,941,220	1,294,146	647,073	-
<b>Total Current Assets</b>	<b>45,402,412</b>	<b>139,466,691</b>	<b>246,446,745</b>	<b>376,660,339</b>	<b>533,263,531</b>	<b>716,371,268</b>	<b>898,059,738</b>	<b>1,084,064,289</b>	<b>1,274,578,065</b>	<b>1,469,391,187</b>	<b>1,691,413,633</b>
<i>Fixed assets</i>											
Land	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000	81,000,000
Building/Infrastructure	243,850,473	231,657,949	219,465,425	207,272,902	195,080,378	182,887,854	170,695,331	158,502,807	146,310,284	134,117,760	121,925,236
Machinery & equipment	318,907,972	287,017,175	255,126,377	223,235,580	191,344,783	159,453,986	127,563,189	95,672,392	63,781,594	31,890,797	0
Furniture & fixtures	923,700	831,330	738,960	646,590	554,220	461,850	369,480	277,110	184,740	92,370	-
Office vehicles	2,644,937	2,380,443	2,115,950	1,851,456	1,586,962	1,322,469	1,057,975	793,481	528,987	264,494	-
Computer equipment	784,200	522,800	261,400	907,810	605,206	302,603	1,050,903	700,602	350,301	1,216,552	811,034
Office equipment	1,236,600	1,112,940	989,280	865,620	741,960	618,300	494,640	370,980	247,320	123,660	-
WAPDA Security											
<b>Total Fixed Assets</b>	<b>649,347,881</b>	<b>604,522,637</b>	<b>559,697,392</b>	<b>515,779,957</b>	<b>470,913,510</b>	<b>426,047,062</b>	<b>382,231,517</b>	<b>337,317,372</b>	<b>292,403,226</b>	<b>248,705,632</b>	<b>203,736,271</b>
<i>Intangible assets</i>											
Pre-operation costs	6,366,000	5,092,800	3,819,600	2,546,400	1,273,200	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>6,366,000</b>	<b>5,092,800</b>	<b>3,819,600</b>	<b>2,546,400</b>	<b>1,273,200</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>701,116,293</b>	<b>749,082,128</b>	<b>809,963,738</b>	<b>894,986,696</b>	<b>1,005,450,240</b>	<b>1,142,418,330</b>	<b>1,280,291,255</b>	<b>1,421,381,660</b>	<b>1,566,981,291</b>	<b>1,718,096,819</b>	<b>1,895,149,904</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		15,896,911	20,392,548	25,065,253	30,194,168	35,430,190	37,466,573	39,546,341	41,751,258	44,089,750	40,761,255
<b>Total Current Liabilities</b>	<b>-</b>	<b>15,896,911</b>	<b>20,392,548</b>	<b>25,065,253</b>	<b>30,194,168</b>	<b>35,430,190</b>	<b>37,466,573</b>	<b>39,546,341</b>	<b>41,751,258</b>	<b>44,089,750</b>	<b>40,761,255</b>
<i>Shareholders' equity</i>											
Paid-up capital	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293	701,116,293
Retained earnings		32,068,924	88,454,897	168,805,151	274,139,779	405,871,846	541,708,389	680,719,026	824,113,740	972,890,776	1,153,272,356
<b>Total Equity</b>	<b>701,116,293</b>	<b>733,185,217</b>	<b>789,571,190</b>	<b>869,921,444</b>	<b>975,256,072</b>	<b>1,106,988,139</b>	<b>1,242,824,682</b>	<b>1,381,835,319</b>	<b>1,525,230,033</b>	<b>1,674,007,069</b>	<b>1,854,388,649</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>701,116,293</b>	<b>749,082,128</b>	<b>809,963,738</b>	<b>894,986,696</b>	<b>1,005,450,240</b>	<b>1,142,418,330</b>	<b>1,280,291,255</b>	<b>1,421,381,660</b>	<b>1,566,981,291</b>	<b>1,718,096,819</b>	<b>1,895,149,904</b>

## 12.3 Cash Flow Statement

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
<i>Operating activities</i>											
Net profit		37,728,146	71,995,660	110,139,398	153,712,236	203,356,511	231,432,141	259,137,524	288,826,550	320,463,644	383,900,231
Add: depreciation expense		44,825,245	44,825,245	44,825,245	44,866,448	44,866,448	44,866,448	44,914,146	44,914,146	44,914,146	44,969,362
amortization of pre-operating costs		1,273,200	1,273,200	1,273,200	1,273,200	1,273,200	-	-	-	-	-
Accounts receivable		(23,842,038)	(3,656,963)	(7,535,175)	(8,223,041)	(9,202,599)	(6,935,034)	(4,228,788)	(4,453,655)	(4,765,410)	(5,098,989)
Finished goods inventory		(9,465,300)	(2,473,717)	(2,751,985)	(3,036,166)	(3,347,246)	(1,241,503)	(1,336,718)	(1,427,890)	(1,526,054)	(712,645)
Equipment inventory	(220,313)	(76,329)	(85,104)	(99,433)	(115,806)	(62,718)	(67,619)	(74,550)	(82,192)	(90,617)	974,681
Raw material inventory	(28,763,021)	(9,965,163)	(11,110,738)	(12,981,551)	(15,119,149)	(8,188,181)	(8,828,100)	(9,732,980)	(10,730,611)	(11,830,498)	127,249,992
Advance insurance premium	(6,470,732)	647,073	647,073	647,073	647,073	647,073	647,073	647,073	647,073	647,073	647,073
Accounts payable		15,896,911	4,495,637	4,672,705	5,128,915	5,236,022	2,036,382	2,079,768	2,204,917	2,338,492	(3,328,495)
Cash provided by operations	(35,454,066)	57,021,745	105,910,294	138,189,477	179,133,711	234,578,509	261,909,788	291,405,474	319,898,339	350,150,775	548,601,209
<i>Financing activities</i>											
Issuance of shares	701,116,293	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	701,116,293	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(655,713,881)	-	-	(907,810)	-	-	(1,050,903)	-	-	(1,216,552)	-
Cash (used for) / provided by investing activities	(655,713,881)	-	-	(907,810)	-	-	(1,050,903)	-	-	(1,216,552)	-
<b>NET CASH</b>	<b>9,948,346</b>	<b>57,021,745</b>	<b>105,910,294</b>	<b>137,281,667</b>	<b>179,133,711</b>	<b>234,578,509</b>	<b>260,858,885</b>	<b>291,405,474</b>	<b>319,898,339</b>	<b>348,934,224</b>	<b>548,601,209</b>

## 12.4 Machinery Details

Chip Preparation Section (Wood Based)			
Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Flaker	2	4,998,750	9,997,500
Drum Chipper	1	4,082,313	4,082,313
Screen	1	2,616,013	2,616,013
Double Screw Conveyor	2	716,488	1,432,975
Double Screw Conveyor	2	716,488	1,432,975
Belt Conveyor	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Magnet	1	238,274	238,274
Drying and Screening Section			
Thermal Oil Dryer	1	10,747,313	10,747,313
Rectangle Screen	1	2,999,250	2,999,250
Double Screw Conveyor	2	716,488	1,432,975
Double Screw Conveyor For Core Particle Silo	2	716,488	1,432,975
Screw Conveyor For Fine Particle	2	716,488	1,432,975
Belt Conveyor	2	476,548	953,095
Feeder	1	599,850	599,850
Blower	1	476,548	476,548
Belt Conveyor	1	476,548	476,548
Glue Blending and Applying Section			

Glue Blender For Core And Surface	2	2,166,125	4,332,250
Glue Distribution and Blending System	1	3,565,775	3,565,775
Scale Silo	2	1,432,975	2,865,950
Belt Conveyor	4	476,548	1,906,190
Magnet	2	238,274	476,548
<b>Forming and Pressing Section</b>			
Diamond Roller Forming Machine (2heads)	1	29,759,225	29,759,225
Hot Press	1	28,326,250	28,326,250
Multi Roller Pre-Press	1	16,162,625	16,162,625
Hot Press Hydraulic System	1	9,164,375	9,164,375
Loader and Unloader	2	3,332,500	6,665,000
Mats Belt Conveyor	6	716,488	4,298,925
Transverse Edge Saw	1	1,666,250	1,666,250
Longitudinal Edge Saw	1	1,666,250	1,666,250
Board Cooler	1	1,432,975	1,432,975
Pusher and Puller	1	966,425	966,425
Mat Cross Cut Saw	1	949,763	949,763
Loading Conveyor	1	949,763	949,763
Board Pusher	1	716,488	716,488
Stacking Machine	1	476,548	476,548
Uneven Edge Saw	2	238,274	476,548
Magnet	1	354,911	354,911
Transverse Roller Hydraulic Lifter	1	349,913	349,913
Edge Waste Chips Recycle Screw	1	238,274	238,274
Belt Conveyor	1	238,274	238,274
Roller Conveyor	1	238,274	238,274

Roller Conveyor	1	238,274	238,274
Roller Conveyor	1	238,274	238,274
Roller Conveyor	1	238,274	238,274
Transition Roller	1	238,274	238,274
Forklift Roller	1	238,274	238,274
<b>Sanding Section</b>			
Sanding Machine	1	17,162,375	17,162,375
Sanding Machine	1	9,530,950	9,530,950
Pusher	1	716,488	716,488
Hydraulic Platform	1	476,548	476,548
Roller Conveyor	1	476,548	476,548
Roller Conveyor	1	476,548	476,548
Roller Conveyor	1	476,548	476,548
Hydraulic Platform	1	476,548	476,548
<b>Delta Electric Control System</b>			
Electric Control For Main Line	1	11,997,000	11,997,000
Material Prepare Section Control System	1	2,166,125	2,166,125
Electric Control For Sanding Section	1	2,166,125	2,166,125
<b>Grand Total</b>			<b>209,244,357</b>

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Operating Costs Growth Rate	5.0%
Administration Benefits Expense	3.0% pf Admin Expense
Traveling Expense	12.0% of Admin Expense
Communication Expense	5.0% of Admin Expense
Office Expenses (Stationary, Entertainment, Janitorial Services, Etc.)	13.0% of Admin Expense
Office Vehicles Running Expense	10.0 % of Vehicles Cost
Promotional Expense	0.8% of Revenue
Professional Fees (Legal, Audit, Consultants, Etc.)	0.3 % of Revenue
Bad Debt Expense	1.0 % of Revenue
Machinery and Equipment Insurance Rate	2.0%
Office Vehicles Insurance Rate	3.5%
Depreciation Rate	10%
Depreciation Method	Straight Line
Inflation Rate	10%
Electricity Growth Rate	10%
Water Price Growth Rate	5%
Gas Price Growth Rate	5%
Wage Growth Rate	10%

### 13.2 Production Cost Assumptions

Description	Details
Wood	Rs. 680 Per Sheet
Glue and Lamination	Rs. 495 Per Sheet
Machinery Maintenance	Rs. 9 Per Sheet
Labor	Rs. 38 Per Sheet
Hours Operational / Day	20
No. of Shifts	2

Shift Length (Hours)	10
Days Operational / Year	300

### 13.3 Revenue Assumptions

Description	Details
Maximum Production Capacity	600,000 sheets
Capacity Utilization Growth Rate	10%
Capacity Utilization for Year 1	50%
Production for Year 1	300,000
Production Quantity Sold Year 1	293,750
Sale Price Per Unit	1,975
Growth in Sales Price	7%



# Small and Medium Enterprises Development Authority

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