Pre-feasibility Study

RETAIL STORE FOR TIMBER PRODUCTS

August 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, andrevenues 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

Table of Contents

Table of Tables

Table of Figures

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2 EXECUTIVE SUMMARY

Timber is the technical word used for wood; which has been a very important material in man's life since ancient times. Over centuries, the man has been using wood for variety of purposes; with its major uses being in buildings construction and furniture making. In addition, wood is also used as a fuel source. Timber is obtained by converting trees into beams, logs and planks. Construction sector represents the largest market of timber products.

This "Pre-feasibility Document" provides details for establishing a "Retail Store for Timber Products" business. The proposed retail store will also have a wood processing facility which will be used to process timber log into different timber products according to the customers' requirements. This project proposes to have three types of wood; including Kikar, Diyar and Rose wood (Sheesham). The proposed retail store can be located in any city of Pakistan. Larger to medium cities like Karachi, Sukkur, Hyderabad, Larkana, Lahore, Faisalabad, Multan, Gujrat, Chiniot, Quetta, Sibi, Jacobabad, Peshawar, Okara, Gilgit, Mardan, Muzaffarabad, Jhelum, Sahiwal, Muzaffargarh, Jhang, Bahawalpur, etc. are suitable locations for establishing this business.

The proposed retail store of timber products will sell timber obtained from Kikar Wood (Gum Arabic Tree), Diyar Wood and Rose Wood (Sheesham). In addition to wood logs/timber logs, the retail store will also sell waste wood cuttings and saw dust as its byproducts. The proposed retail store for timber products will primarily serve furniture manufacturers, construction industry and domestic households.

The proposed retail store is assumed to have a maximum capacity to sell 79,047 cubic feet of timber and 2,400,000 kg of wood By-product (waste wood cuttings to be used as fuel) and 72,000 kg of saw dust[1] during a year. During the 1st year of operations, it is assumed that the project will operate at 50% of its total capacity, which comes out to be 39,523 cubic feet of timber, 264,000 kg of waste wood (as fuel) and 36,000 kg of saw dust. The capacity utilization is assumed to increase at a rate of 5% per annum with a cap at 90% of total capacity.

The proposed project will be set up in a self-constructed building on a leased land having an area of 4,500 sq. ft. (1 Kanal). The project requires a total investment of PKR 13.76 million. This includes capital investment of PKR 3.52 million and working capital of PKR 13.759 million. The project will be established using 100% equity financing. The Net Present Value (NPV) of project is PKR 79.789 million with an Internal Rate of Return (IRR) of 60% and a Payback period of 2.64 years. Further, the proposed project is expected to generate Gross Annual Revenues of PKR 66.966 million in 1st year, Gross Profit (GP) ratio ranging from 12% to 32% and Net Profit (NP) ratio ranging from 6% to 20% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 18% (14,564 Cubic Feet) with gross revenue of PKR 24.677 million in a year.

[1] Sawdust is dust and very small pieces of wood which are produced when wood is sawed.

The proposed project may also be established using leveraged financing. At 50% financing at a cost of KIBOR+3%, the proposed project provides Net Present Value (NPV) of PKR 91.59 million, Internal Rate of Return (IRR) of 60% and Payback period of 2.65 years. Further, this project is expected to generate Net Profit (NP) ratio ranging from 5% to 20% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 26% (20,612 Cubic Feet) with breakeven revenue of PKR 34.92 million.

The project will generate direct employment opportunity for 10 people. It is evident from the above financial figures, that the proposed Retail Store for Timber Products shows reasonable profitability and is economically and financially viable. The legal form 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 the 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 ‘sectorial 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.

National Business Development Program for SMEs (NBDP) is a project of SMEDA, funded through Public Sector Development Program of Government of Pakistan.

The NBDP envisages provision of handholding support / business development services to SMEs to promote business startup, improvement of efficiencies in existing SME value chains to make them globally competitive and provide conducive business environment through evidence-based policy-assistance to the Government of Pakistan. The Project is objectively designed to support SMEDA's capacity of providing an effective handholding to SMEs. The proposed program aimed at facilitating around 314,000 SME beneficiaries over a period of five years.

4 PURPOSE OF THE DOCUMENT

The objective of this 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 provide information to potential investors about establishing a business of “Retail Store for Timber Products”. The document provides a general understanding of the business to facilitate the potential investor in crucial and effective 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 setup and its successful management.

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

5 BRIEF DESCRIPTION OF PROJECT & PRODUCTS

The business model for the proposed retail store for timber products will be based on procuring raw timber logs from the market and processing those using horizontal band saw machine and vertical band saw machine. The processed peeled logs would be sold to the end customers after cutting them into wooden planks as per the length, width and thickness requirements of the customers. This project proposes to sell three types of wood which have high demand in the local market. These include Kikar Wood (Gum Arabic Tree), Diyar Wood and Rose Wood (Sheesham). The proposed retail store for timber products will also sell second grade wood and saw dust. Second grade wood mostly includes the outer bark of the cut tree logs and the waste wood cuttings obtained during the process of cutting wooden planks.

Kikar tree is native to Pakistan and is found in all around the country in Sindh, Punjab, Balochistan and Khyber Pakhtunkhwa provinces. This wood is used more commonly for making furniture, fencing and hedges and also used as a fire wood.

Diyar wood is obtained from the national tree of Pakistan (Deodar) and has an even texture, making an ideal type of wood for doors. In Pakistan it is found at high altitudes in Azad Kashmir, Murree Hills, Hazara, Swat, Dir, Tirah and Chitral. It is one of the most expensive woods in Pakistan and is mostly used in construction of doors in expensive houses, offices and other buildings.

Sheesham wood is highly durable, long-lasting and decay-resistant. Sheesham trees are found in many areas of Pakistan (Punjab, Khyber Pakhtunkhwa and Sindh). Sheesham wood furniture is very versatile and expensive. It is used for making doors, window frames, furniture and cabinets. The pulp of wood is also used for making paper.

Timber products retail store will sell timber of different sizes. Timber will be purchased in the shape of cut tree logs on weight basis (usually in kg or tons) from timber market or from forestry department. The processed timber will be sold on volume basis (usually in cubic feet) to retail stores and/or to end consumers. Depending upon the specific use of the wood by the customers, the timber products are available in the retail market in a variety of sizes. Length, width) and thickness, ranging from half an inch to 4 inches. Common types of timber products are shown in Table 1.

Table 1 Common Types of Timber Products

Products	
Product 1	Length 2 feet, Width 7-inch (2/7), Thickness (0.5-4 inches)
Product 2	Length 2 feet, Width 9-inch (2/9), Thickness (0.5-4 inches)
Product 3	Length 3 feet, Width 10-inch (3/10), Thickness (0.5-4 inches)
Product 4	Length 5 feet, Width 10-inch (5/10), Thickness (0.5-4 inches)
Product 5	Length 2 feet, Width 8-inch (2/8), Thickness (0.5-4 inches
Product 6	Length 2 feet, Width 10-inch (2/10), Thickness (0.5-4 inches)
Product 7	Length 4 feet, Width 10-inch (4/10), Thickness (0.5-4 inches)
Product 8	Length 6 feet, Width 10-inch (6/10), Thickness (0.5-4 inches)

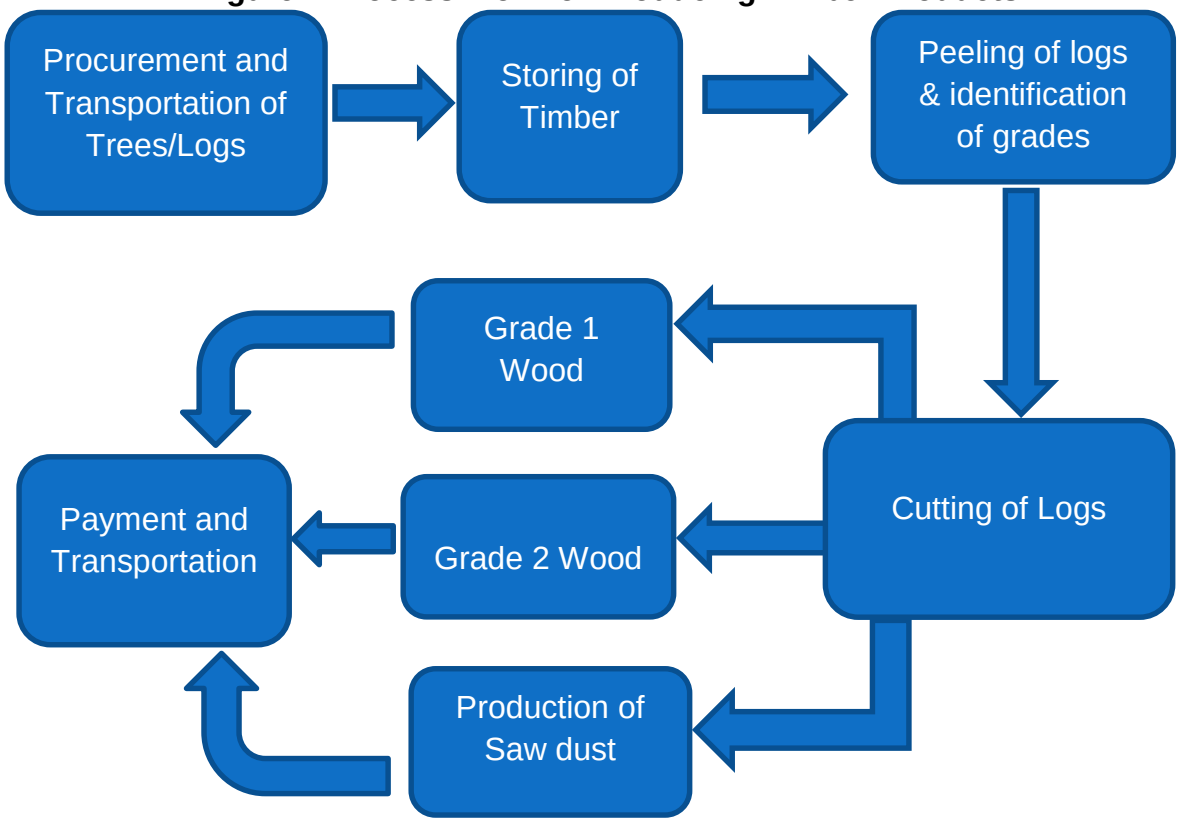
The list of timber products is not restricted to above standard sizes and the product specifications will vary from one retail store to another. This is due to the fact that specifications/sizes depend on the requirements of the retail store customers (furniture makers, construction sector, etc.).

It is due to this reason that the proposed retail store is not selling any product with fixed specifications. The retail store will sell timber from three types of wood as per the specifications required by the customers. Considering the fact that the retail store is selling its own purchased timber to customers, the retail store will not charge for the peeling and cutting processes. As per the market norm, the selling measurement unit of wood or timber will be in cubic feet and the selling measurement unit of grade-2 wood and saw dust will be in kilograms.

5.1 Production Process Flow

The process of producing timber products from cut trees logs is shown in figure 1.

Figure 1 Process Flow for Producing Timber Products



Brief description of process flow is as follows:

Procurement and Transportation of Trees/Logs

Timber logs of different sizes are procured in lots from the local timber market which are normally located in the outskirts of the cities. Other source of procuring these is the provincial forestry departments. The basis used for timber/logs procurement is kilograms/tons. The retail store staff need to ensure that the wood that is purchased from the market is already seasoned[2], otherwise unseasoned wood will weigh more and unseasoned wood will also adversely affect the quality of the final product. Thus, only seasoned wood will be procured by the retail store. The procured timber logs are loaded on a truck for transportation to the store. The logs are unloaded and stacked into piles where these are kept for cutting. **Figure 2** shows the procured logs at the timber retail store.

Figure 2 Procured Logs

[2] Seasoning is the process of drying timber to remove the bound moisture contained in walls of the wood cells to produce seasoned timber.

Storing of Timber

After procurement of logs, the retail store staff stores the timber of three types of trees separately. Timber must be stored horizontally and on a flat surface, so that the wood is exposed to air. The surface should be stable and evenly structured to prevent the timber from sinking in. The retail store will store timber in the "Open Area-For Lumber".

Peeling of Logs

The unloaded logs are peeled off using horizontal band saw machine (locally called *Aaraa* machine). Peeling helps to increase the longevity of wood. It helps in improving the condition of the wood to be used in other products. While peeling the wood, the staff will identify the grade 1 and grade 2 wood. Saw dust will also be produced during peeling process. Wood is peeled and kept in the form of large lumber. Some grade 2 wood will be identified and stored separately from grade 1 wood. Peeled logs will be stored in the processed wood store area. Figure 3 shows the machine used for peeling of logs.

Figure 3 Peeling of Logs by Horizontal Band Saw Machine

Cutting of Logs

As a customer approaches the retail store, the staff will select the required tree type (i.e., Sheesham, Diyar or Kikar) and cut the stored timber as per the size (length, width and thickness) requirement of the customer. Wood log is cut to obtain grade 1 wood. During this process, grade 2 wood and saw dust is also obtained as byproducts.

Grade 1 wood is of fine quality, which are sold to furniture manufacturers and construction sector. While grade 2 and saw dust is mostly used as a fuel for domestic use. Saw dust is also used in paper industry, furniture manufacturing and brick furnaces as fuel. The cutting process uses vertical band saw machine for cutting of peeled wood. Figure 4 shows the machine used for cutting of logs of timber.

Figure 4 Vertical Band Saw Machine

Grade 2 Wood

Sometimes, wood logs are damaged from inside which is only discovered at the time of peeling. According to market research, on an average, 20%-25% of total purchase is grade 2 wood due to low quality wood and issues during cutting process. During cutting, small wood pieces are also produced which can only be used as fuel. This damaged wood is sold as byproduct in market and is called as grade 2 wood. For the purpose of this study, 22% of total processed wood in a year has been considered as damaged wood.

Saw Dust

Saw dust is produced during wood sawing process. According to market research, normally 3-5% of total processed wood is obtained as saw dust. Saw dust is normally required by furniture manufacturers for gluing the joints together. It is also used by carpenters in making furniture and gluing broken furniture. It is mixed with glue and pasted in the joint to make the hold strong. It is also used by the paper industry as raw material and by brick furnaces as fire.

Payment and Transportation

After cutting the logs as per customer's specifications, the payment process will proceed. Usually, the payment is made in cash but for reliable customers, credit facility is also provided for grade 1 product. The timber retail store will only provide delivery service for large orders and long-standing customers.

Grade 2 wood and saw is usually sold on cash and store does not provide delivery service for these products.

5.2 Installed and Operational Capacities

The total annual installed capacity of the proposed retail store for timber products is 79,047 cubic feet of grade 1 timber, 528,000 kg of grade 2 wood (used for fuel) and 72,000 kg saw dust which is used in paper industry and furniture manufacturing. However, during the first year of operations, the store is expected to achieve 50% of its total installed capacity. The store would operate in a single shift of 8 hours per day. Based on 300 working days in a year, the retail store shall sell 39,523 cubic feet of timber and 264,000 kg of wood used for fuel and 36,000 kg saw dust during 1st year at 50% capacity.

Table 2 shows the installed and operational capacity of timber products retail store at 50% capacity.

Table 4 shows the product wise capacity of timber products retail store.

Table 2 Installed and Operational Capacity

Particulars	Number of Horizantal Band Saw Machine (Aara Machine)	Per Day Capacity (kg)	Max Operational Capacity Per Year (kg)	Intial Capacity per Year @50%
Operational Capacity	1	8,000	2,400,000	1,200,000

Table 3 Assumption for Finished Product

Product	%age	Finished Goods (Kgs)
Grade 1 Wood	75%	1,800,000
Grade 2 Wood	22%	528,000
Saw Dust	3%	72,000
Total		**2,400,000**

Table 4 Product Wise Capacity

Product	Ratio	Wood (kg)	Kg/Cubic feet	Total Production (cubic feet)	Intial Year Production @50%
Kikar Wood	70%	1,260,000	23.588	53,417	26,709
Diyar Wood	10%	180,000	16.339	11,017	5,508
Rose Wood (Sheesham)	20%	360,000	24.636	14,613	7,306
Grade 1 Wood*		**1,800,000**		**79,047**	**39,523**

*The wood procured and sold by the proposed project is divided between Kikar, Diyar and Rose Wood (Sheesham) in a proportion of 70%, 10% and 20% respectively.

Table 5 By-Product Capacity

Product	By-Product Ratio	Total Production (kg)	Intial Year Production @50% (kg)
Grade 2 Wood (used as Fuel) (kg)	22%	528,000	264,000
Saw Dust (kg)	3%	72,000	36,000
Total		**600,000**	**300,000**

6 CRITICAL FACTORS

The following factors should be taken into account while making the investment decision:

- Continuous knowledge of market linkages
- Good quality of products
- Consistent marketing of retail store
- Availability of skilled workforce
- Reliable storage facility for timber
- Procurement of seasoned wood

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Two major users of lumber or timber are in construction industry and furniture manufacturing. A good quantity of wood is also used by general households as fuel. Therefore, the geographical potential for investing in the proposed Retail Store for Timber Products is in all the large to medium cities/towns; such as Karachi, Sukkur,

Hyderabad, Larkana, Lahore, Faisalabad, Gilgit, Multan, Gujrat, Chiniot, Muzaffarabad, Quetta, Sibi, Jacobabad, Peshawar, Okara, Mardan, Muzaffargarh, Jhelum, Bahawalnagar, Sahiwal, Jhang, Bahawalpur, etc. Any city/town with a medium to large population will be a feasible location to establish such a store. There is also a demand of firewood in smaller cities.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

The services provided by the proposed store will be mainly used by general public and the businesses such as furniture manufacturing and construction. The wooden furniture industry represents 95%[3] of the total furniture market in the country. The leading furniture making districts of Pakistan are Chiniot, Gujrat, Peshawar, Lahore and Karachi. According to a report by Food and Agriculture Organization (FAO 2009), 68% of the Pakistan's population depends on firewood as a major source of household energy and about 100,000 people are involved in the fuel wood trade, generating about PKR 11.3 billion (US$113 million) revenue annually. Construction industry is another major customer of timber which is currently growing at a high rate. In 2020, the construction industry contributed PKR 794 billion in the Gross Domestic Product (GDP) of Pakistan; and registered a growth of 8.1%. The growth in construction industry is expected to directly raise the demand for timber products.

The potential target customers of this business are listed below:

- Construction Industry
- Furniture manufacturers
- Domestic Households
- Manufacturer of wooden crates and boxes
- Village carpenters
- Plywood Manufacturers
- Sports goods manufacturers

Currently, there are multiple forms of timber businesses operating in the Pakistani market. Some businesses are working as retails stores which purchase wood from timber shops that are operating their own timber cutting machines. There are also timber stores which have their own cutting machines; and upon receiving customer orders, these stores cut timber as per the customer specifications. The types of wood proposed for the retail timber store is easily available in the local markets. There is no shortage of these wood, given the fact all these trees are available in abundant number in Pakistan.

[3] Source: https://tribune.com.pk/story/19304/prospects-and-fears-for-pakistans-furniture-industry

9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Retail Store for Timber Products. Various assumptions relevant to revenue and costs, along with the results of the analysis, are outlined in this section.

The projected Income Statement, Cash Flow Statement and Balance Sheet are attached as annexure of this document.

Project is proposed to be financed through 100% equity. Total project cost has been estimated to be PKR 13,758,566 which comprises of capital investment of PKR 3,584,400 and working capital of PKR 10,174,167.

9.1 Initial Project Cost Estimates

Table 6 provides fixed and working capital requirements for establishment and operations of the retail store for timber products.

Table 6 Initial Project Cost

Cost Item	Cost (PKR)	Details Reference
Land	-	9.1.1
Building / Infrastructure	1,802,000	9.1.1
Machinery & Equipment	850,000	9.1.3
Office equipment	273,000	9.1.4
Furniture & Fixtures	200,000	9.1.5
Office vehicles	252,500	9.1.6
Pre-operating costs	206,900	9.1.7
Total Capital Cost	**3,584,400**	
Working Capital	10,174,167	9.1.8
Total Project Cost	**13,758,566**	

9.1.1 Land

The proposed retail store for timber products will be established on a leased land. Suitable location for setting up of the unit like this can be easily found on lease. Therefore, no land cost has been added to the project cost. Total space requirement for the proposed manufacturing unit has been estimated as 4,500 sq. ft. (1Kanal).

Maximum production capacity of the proposed project would be 80,000 cubic feet. The proposed project would be maintaining 2 months of inventory which would be 13,333 cubic feet. Storage area for processed wood is 1,200 sq. feet and has wall height of 12 feet which can store around 14,000 cubic feet of wood.

The breakup of the space requirement is provided in Table 7.

Table 7 Land Area Break-up

Description	% Break-Up	Area Sq. Ft.
Office Area	5%	240
Store-Processed Wood	27%	1,200
Machine Area	36%	1,600
Open Area -For Lumber	31%	1,400
Washrooms	1%	60
Total	**100%**	**4,500**

9.1.2 Building

The proposed retail store for timber products will be established by constructing building on leased land. The building will include office area, storage for processed wood, machine area, open area for lumber and washrooms. The proposed store requires an estimated electricity load of 20-22 KW for which an electricity connection under the General Supply Tariff-Industrial three phase will be required. Cost of such electricity connection has been included in the capital cost.
Table 8 provides details of building cost. Table 9 shows the details of shed cost of machine area and

Table 11 shows the details of boundary wall.

Table 8 Building Cost

Description	Area (Sq. Feet)	Construction Cost (PKR/Sq. Feet)	Total Construction Cost (PKR)
Office Area	240	2,500	600,000
Washrooms	60	2,500	150,000
Boundary Wall			428,000
Shed Cost			560,000
Pillar Cost			64,000
Total Cost			**1,802,000**

Table 9 Precast Shed Cost for Machine and Store Area (2,800 Sq. Feet)

Cost Item	UOM	Total Area	Cost per Sq.feet (PKR)	Total Cost (PKR)
Precast Roof Cost*	Feet	2,800	200	560,000
Total Cost				**560,000**

* Precast shed is built for store of processed wood and machine area. It reduces capital expenditure of the proposed project. It requires less time to build and dismantle.

Table 10 Precast Pillar Cost for Machine and Store Area (2,800 Sq. Feet)

Cost Item	No. of Pillar used for (2,800 Sq. feet)	Cost per Sq.feet (PKR)	Total Cost (PKR)
Precast Pillar Cost	4	16,000	64,000
Total Cost			**64,000**

Table 11 Precast Boundary Wall (75*60 Area) Sq. Feet

Description	Length	Height	Total Length (Runing Feet)	Cost per Running feet (PKR)	Total Cost (PKR)
Boundary Wall 75 feet- Length	75	8	140	1,400	196,000
Boundary Wall 60 feet- Width	60	8	120	1,400	168,000
Iron Gate	10	8	80	800	64,000
Total Cost					**428,000**

Table 12 Iron Gate

Description	Length	Height	Total Area (Sq.feet)	Cost per Sq. feet (PKR)	Total Cost (PKR)
Iron Gate	10	8	80	800	64,000
Total Cost					**64,000**

9.1.3 Machinery and Equipment Requirement

Table 13 provides details of machinery and equipment required for the project.

Table 13 Machinery and Equipment Requirement

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Horizantal Band Saw Machine (Aara Machine)	1	400,000	400,000
Vertical Band Saw Machine (Aara Machine)	1	350,000	350,000
Wood Cutter	2	15,000	30,000
General Tool Kit	2	10,000	20,000

Weight Scale (Kanda)	1	50,000	50,000
Total Cost			**850,000**

9.1.4 Office Equipment Requirement

Table 14 presents the office equipment requirement proposed for the unit.

Table 14 Office Equipment Requirement

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
LED/LCD (Survellience)	1	40,000	40,000
Water Dispenser	1	20,000	20,000
Ceiling Fan	6	5,000	30,000
Pedestal Fan	4	10,000	40,000
Security Cameras - 2MP	8	2,000	16,000
Digital Video Recorder (DVR)	1	12,000	12,000
Laptop	1	80,000	80,000
Wi-Fi / Internet router	1	5,000	5,000
Electronic Cash Register	1	30,000	30,000
Total			**273,000**

9.1.5 Furniture and Fixture Requirement

Table 15 gives details of the furniture and fixture required for the project.

Table 15 Furniture and Fixtures Requirement

Cost Item	No.	Unit Cost(PKR)	Total Cost (PKR)
Reception & Sales Counter	1	40,000	40,000
Owner Tables	1	30,000	30,000
Owner Chairs	1	20,000	20,000
Staff Chairs	4	10,000	40,000
Sofa Sets	2	35,000	70,000
Total			**200,000**

9.1.6 Vehicle Requirement

Details of vehicles required for the project is given in

Table 16.

Table 16 Vehicle Requirement

Cost Item	No.	Unit Cost (PKR)	Registration fee @ 1%	Total Cost (PKR)
Loader Rickshaw	1	250,000	2,500	252,500
Total Cost				**252,500**

9.1.7 Pre-Operating Cost Requirement

Details of pre operating cost required for the project is given in Table 17.

Table 17 Pre-Operating Cost Requirement

Staff	No.	Hiring Before Year 0 (Months)	Unit Cost (PKR)	Total (PKR)
Labour Skilled	2	1	45,000	90,000
Utilities Cost for One month			116,900	116,900
Total Cost				**206,900**

9.1.8 Working Capital Requirement

Details of working capital required for the project are given in Table 18.

Table 18 Working Capital Requirement

Cost Item	No./ Month	Total Cost (PKR)
Equipment Spare Parts Inventory	1	14,167
Consumables Material Inventory	2	8,800,000
Upfront land rent	1	360,000
Cash		1,000,000
Total Initial Working Capital Cost		**10,174,167**

9.2 Breakeven Analysis

Table 19 shows calculation of break-even analysis.

Table 19 Break-Even Analysis

Description	Amount First Year (PKR)	Ratios
Sales (PKR)	66,966,300	100%
Variable Cost (PKR)	59,452,799	89%
Contribution (PKR)	7,513,501	11%
Fixed Cost (PKR)	2,762,303	4%
Contribution Margin	11%	
Breakeven Revenue (PKR)	24,619,847	
Contribution Margin Per Cubic Feet	190	
Breakeven Quantity (Cubic Feet)	14,530	
Breakeven Capacity	18%	

9.3 Revenue Generation

Based on 60% capacity utilization, sales revenues, obtained by selling timber during the first year of operations are shown in Table 20**Error! Reference source not found.**.

Table 20 Revenue Generation

Product	Total Production (Cubic Feet)	Intial Year Production @50%	Price Per cubic feet (PKR)	Revenue (PKR)
Kikar Wood (cubic feet)	53,417	26,709	700	18,696,031
Diyar Wood (cubic feet)	11,017	5,508	4,000	22,033,450
Rose Wood (Sheesham) (cubic feet)	14,613	7,306	3,000	21,919,484
Total				**62,648,965**

Table 21 By-Product Revenue Generation

By-Product	Total Production	Intial Year Production @50%	Price Per kg (PKR)	Revenue (PKR)
Grade 2 Wood (kg)	528,000	264,000	15	3,960,000
Saw Dust (kg)	72,000	36,000	10	360,000
Total				**4,320,000**

9.4 Variable Cost Estimate

Variable costs of the project have been provided in Table 22.

Table 22 Variable Cost Estimate

Description of Costs	Amount (PKR)
Raw Material Cost	52,800,000
Transportation Cost	2,640,000
Utilities Cost	842,799
Direct Labor	2,580,000
Machinery Maintenance Cost	170,000
Total (PKR)	**59,032,799**

Table 23 Raw Material Cost

Product	Cost per kg (PKR)	Consumption (kg)	Total Cost (PKR)
Kikar Wood	20	840,000	16,800,000
Diyar Wood	150	120,000	18,000,000
Rose Wood (Sheesham)	75	240,000	18,000,000
Total (PKR)		**1,200,000**	**52,800,000**

Table 24 Transportation Cost

Particular	Rate	Material Cost (PKR)	Total Cost (PKR)
Transportation Cost	5%	52,800,000	2,640,000
Total (PKR)			**2,640,000**

Table 25 Direct Labor

Post	No of Personnel	Monthly Salary (PKR)	Annual Salary (PKR)
Labour–Skilled	2	45,000	1,080,000
Labour–Unskilled	2	25,000	600,000
Labour-Loading/Unloading	3	25,000	900,000

Total (PKR)	**6**	**95,000**	**2,580,000**

Table 26 Machinery Maintenance Cost

Cost Item	Rate	Machinery Cost (PKR)	Total Cost (PKR)
Maintenance Cost	20%	850,000	170,000
Total (PKR)			**170,000**

Table 27 Variable Cost Assumptions

Description of Costs	Details
Telephone expense	5% of Management staff expense
Office vehicles running expense	20% of Management staff expense
Office expenses (stationery, entertainment, janitorial services, etc.)	25% of Management staff expense

9.5 Fixed Cost Estimate

Table 28 shows the estimated fixed cost of the project.

Table 28 Fixed Cost Estimate

Description of Costs	Amount (PKR)
Management Staff	840,000
Land rental expense	1,440,000
Depreciation expense	416,525
Utilities	30,798
Amortization of pre-operating costs	41,380
Total	**2,768,703**

Table 29 Management Staff Salary

Post	No of personnel	Monthly Salary (PKR)	Annual Salary (PKR)
Cashier/Supervisor	1	30,000	360,000
Security Guard	2	20,000	480,000
Total	**3**	**50,000**	**840,000**

Table 30 Land Lease Rental Expense

Cost Item	Months	Monthly Expense (PKR)	Annually Expense (PKR)
Land Rental	12	120,000	1,440,000
Total			**1,440,000**

Table 31 Fixed Cost Assumptions

Description of Costs	Details
Depreciation expense	
Building	10% of building cost
Machinery	15% of machinery cost
Equipment	15% of equipment cost

9.6 Financial Feasibility Analysis

The financial feasibility analysis provides the information regarding projected Internal Rate of Return (IRR), Net Present Value (NPV) and Payback period of the study, which is shown in Table 32.

Table 32 Financial Feasibility Analysis

Description	Project
IRR	60%
NPV (PKR)	79,789,269
Payback Period (years)	2.64
Projection Years	10
Discount rate used for NPV	15%

9.7 Financial Feasibility Analysis with 50% Debt

The financial feasibility analysis provides the information regarding projected IRR, NPV and payback period of the study on the basis of Debt: Equity Model (50:50), which is shown in Table 33.

Table 33 Financial Feasibility Analysis with 50% Debt

Description	Project
IRR	60%
NPV (PKR)	91,591,191
Payback Period (years)	2.65

Projection Years	10
Discount rate used for NPV	13%

9.8 Human Resource Requirement

For the 1st year of operations, the Retail Store for Timber Products shall require the workforce at a salary cost shown in Table 34.

Table 34 Human Resource Requirement

Post	No. of Employees	Monthly Salary (PKR)	Annual Salary (PKR)
Labour Skilled	2	45,000	1,080,000
Labour–Unskilled	2	25,000	600,000
Labour–Loading/Unloading	3	25,000	900,000
Cashier/Supervisor	1	30,000	360,000
Security Guard	2	20,000	480,000
Total	**10**		**3,420,000**

10 CONTACT DETAILS

Names and contact details of some relevant suppliers are provided in Table 35.

Table 35 Contact Details

Supplier Name	Type	Contact Number	Email/Web Address
Ma Sha Allah Trolley and Band Saw Machine (Gujranwala)	Machinery	0333-8211235 0314-4611235	mashaallah.1235@gmail.com
Al-Jeddah Machinery (Lahore)	Machinery	0302-4244914	aljeddahmech@gmail.com
Libra Scale Lahore(Lahore)	Machinery	0300-8616317	www.librascales.com
Wood Gallery (Quetta)	Timber	0300-7765327	
SAK Timber (Karachi)	Timber	021-32761005	www.saktimber.com.pk
United 2 Furniture-Peshawar	Furniture	0300-5686299	
Standard Furniture-Muzaffarabad	Furniture	0333-5045063	

Stylish Furniture House Danyore- Gilgit-Baltistan	Furniture	0313-8897711	

11 USEFUL WEB LINKS

Table 36 Useful Web Links

Name of Organization	Website
Small and Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
National Business Development Program	www.nbdp.org.pk
Government of Pakistan	www.pakistan.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of Khyber Pakhtunkhwa	www.kp.gov.pk
Government of Azad Jammu and Kashmir	www.ajk.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Trade Development Authority of Pakistan	www.tdap.gov.pk
Punjab Forest, Wildlife and Fisheries Department	www.fwf.punjab.gov.pk
Wildlife & Forest Department Government of Khyber Pakhtunkhwa	www.few.kp.gov.pk
Sindh Forest Department	www.sindhforests.gov.pk
Wildlife & Forest Department Government of Balochistan	balochistan.gov.pk/departments/forest-and-wildlife/
Forestry, Wildlife & Fisheries Department of AJK	www.forest.ajk.gov.pk/
Pakistan Forests Association	www.facebook.com/globalforesters
Punjab Board of Investment and Trade	www.pbit.gop.pk/
Industries Department Government of Khyber Pakhtunkhwa	www.industries.kp.gov.pk
Industries and Commerce Department Balochistan	www.dgicd.gob.pk
Industries and Commerce Department Sindh	www.industries.sindh.gov.pk

Department of Industries and Commerce	www.industries.ajk.gov.pk

12 ANNEXURES

12.1 Income Statement

Calculations

Income Statement **SMEDA**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue (PKR)-Kikar Wood	18,696,300	22,868,614	27,741,865	33,419,860	40,021,732	47,683,206	56,558,816	66,824,425	78,680,057	87,492,223
Revenue (PKR)-Diyar Wood	22,032,000	26,950,432	32,694,223	39,386,558	47,167,859	56,198,106	66,651,892	78,750,788	92,723,754	103,108,815
Revenue (PKR)-Rose Wood (Sheesham)	21,918,000	26,811,432	32,526,053	39,180,302	46,921,683	55,905,656	66,307,780	78,345,008	92,246,809	102,578,452
Revenue (PKR)-Grade 2 Wood (used as Fuel) (kg) (waste)	3,960,000	4,843,872	5,876,057	7,078,690	8,477,004	10,099,744	11,979,643	14,153,949	16,665,026	18,531,509
Revenue (PKR)-Saw Dust (kg)	360,000	440,352	534,187	643,517	770,637	918,159	1,089,058	1,286,723	1,515,002	1,684,683
Total Revenue	**66,966,300**	**81,914,702**	**99,372,385**	**119,708,927**	**143,358,915**	**170,804,870**	**202,587,191**	**239,360,892**	**281,830,648**	**313,395,681**
Cost of sales										
Timber Cost-Kikar	16,800,000	20,013,840	23,645,442	27,742,015	32,355,726	37,544,197	43,371,057	49,906,533	57,228,115	61,978,048
Timber Cost-Diyar	18,000,000	21,443,400	25,334,402	29,723,588	34,666,849	40,225,926	46,468,989	53,471,285	61,315,837	66,405,052
Timber Cost-Rose Wood (Shisham)	18,000,000	21,443,400	25,334,402	29,723,588	34,666,849	40,225,926	46,468,989	53,471,285	61,315,837	66,405,052
Transportation Cost	2,640,000	3,145,032	3,715,712	4,359,460	5,084,471	5,899,802	6,815,452	7,842,455	8,992,989	9,739,408
Utilities Cost	842,799	918,960	1,002,003	1,092,551	1,191,281	1,298,933	1,416,314	1,544,301	1,683,855	1,836,019
Direct Labor	2,580,000	2,830,260	3,104,795	3,405,960	3,736,339	4,098,763	4,496,343	4,932,489	5,410,940	5,935,801
Machinery Maintenance - Cost	170,000	184,110	199,391	215,941	233,864	253,274	274,296	297,063	321,719	348,422
Total cost of sales	59,032,799	69,979,002	82,336,149	96,263,102	111,935,378	129,546,822	149,311,441	171,465,411	196,269,293	212,647,801
Gross Profit	7,933,501	11,935,700	17,036,236	23,445,825	31,423,537	41,258,048	53,275,750	67,895,481	85,561,356	100,747,880
	12%	15%	17%	20%	22%	24%	26%	28%	30%	32%
General administration & selling expenses										
Management Staff	840,000	921,480	1,010,864	1,108,917	1,216,482	1,334,481	1,463,926	1,605,927	1,761,701	1,932,586
Land rental expense	1,440,000	1,584,000	1,742,400	1,916,640	2,108,304	2,319,134	2,551,048	2,806,153	3,086,768	3,395,445
Utilities	30,798	33,582	36,616	39,925	43,533	47,467	51,756	56,434	61,533	67,094
Telephone expense	42,000	46,074	50,543	55,446	60,824	66,724	73,196	80,296	88,085	96,629
Office vehicles running expense	168,000	184,912	203,526	224,015	246,566	271,387	298,706	321,185	353,518	389,105
Office expenses (stationery, entertainment, janitorial services, etc.)	210,000	230,370	252,716	277,229	304,121	333,620	365,981	401,482	440,425	483,147
Depreciation expense	416,525	416,525	416,525	416,525	416,525	416,525	337,750	614,090	614,090	614,090
Amortization of pre-operating costs	41,380	41,380	41,380	41,380	41,380	-	-	-	-	-
Subtotal	3,188,703	3,458,323	3,754,570	4,080,077	4,437,735	4,789,338	5,142,364	5,885,566	6,406,121	6,978,097
Operating Income	4,744,797	8,477,377	13,281,666	19,365,748	26,985,802	36,468,709	48,133,386	62,009,914	79,155,234	93,769,783
Gain / (loss) on sale of machinery & equipment	-	-	-	-	-	-	212,500	-	-	
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	68,250	-	-	
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	63,125	-	-	
Earnings Before Interest & Taxes	4,744,797	8,477,377	13,281,666	19,365,748	26,985,802	36,468,709	48,477,261	62,009,914	79,155,234	93,769,783
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	4,744,797	8,477,377	13,281,666	19,365,748	26,985,802	36,468,709	48,477,261	62,009,914	79,155,234	93,769,783
Tax	843,439	2,087,082	3,768,583	5,898,012	8,565,031	11,884,048	16,087,041	20,823,470	26,824,332	31,939,424
NET PROFIT/(LOSS) AFTER TAX	**3,901,358**	**6,390,295**	**9,513,083**	**13,467,736**	**18,420,771**	**24,584,661**	**32,390,220**	**41,186,444**	**52,330,902**	**61,830,359**
	6%	8%	10%	11%	13%	14%	16%	17%	19%	20%

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
Assets											
Current assets											
Cash & Bank	1,000,000	4,250,377	4,351,696	11,072,841	20,921,365	34,708,503	53,377,835	75,368,332	107,479,568	151,819,948	278,502,821
Accounts receivable	-	3,348,315	4,095,735	4,968,619	5,985,446	7,167,946	8,540,244	10,129,360	11,968,045	14,091,532	12,230,678
Finished goods inventory		-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	14,167	16,810	19,947	23,669	28,086	33,327	39,547	46,926	55,683	66,074	-
Raw material inventory	8,800,000	11,353,566	14,527,060	18,458,515	23,315,158	29,299,385	36,655,921	45,680,409	56,729,700	66,537,641	-
Pre-paid annual land rental	360,000	396,000	435,600	479,160	527,076	579,784	637,762	701,538	771,692	848,861	-
Total Current Assets	10,174,167	19,365,068	23,430,039	35,002,805	50,777,131	71,788,944	99,251,308	131,926,565	177,004,687	233,364,056	290,733,499
Fixed assets											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	1,802,000	1,621,800	1,441,600	1,261,400	1,081,200	901,000	720,800	540,600	360,400	180,200	-
Machinery & equipment	850,000	722,500	595,000	467,500	340,000	212,500	85,000	1,611,269	1,369,579	1,127,888	886,198
Furniture & fixtures	200,000	170,000	140,000	110,000	80,000	50,000	20,000	379,122	322,254	265,385	208,517
Office vehicles	252,500	214,625	176,750	138,875	101,000	63,125	25,250	384,710	327,003	269,297	211,590
Office equipment	273,000	232,050	191,100	150,150	109,200	68,250	27,300	517,502	439,876	362,251	284,626
Total Fixed Assets	3,377,500	2,960,975	2,544,450	2,127,925	1,711,400	1,294,875	878,350	3,433,203	2,819,112	2,205,022	1,590,931
Intangible assets											
Pre-operation costs	206,900	165,520	124,140	82,760	41,380	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	206,900	165,520	124,140	82,760	41,380	-	-	-	-	-	-
TOTAL ASSETS	**13,758,566**	**22,491,563**	**26,098,628**	**37,213,490**	**52,529,911**	**73,083,819**	**100,129,658**	**135,359,768**	**179,823,799**	**235,569,078**	**292,324,430**
Liabilities & Shareholders' Equity											
Current liabilities											
Accounts payable		6,782,317	8,169,575	9,771,354	11,620,039	13,753,175	16,214,353	19,054,243	22,331,831	25,746,207	20,671,200
Other liabilities											
Total Current Liabilities	-	6,782,317	8,169,575	9,771,354	11,620,039	13,753,175	16,214,353	19,054,243	22,331,831	25,746,207	20,671,200
Other liabilities											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
Shareholders' equity											
Paid-up capital	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566	13,758,566
Retained earnings		1,950,679	4,170,487	13,683,570	27,151,306	45,572,077	70,156,738	102,546,958	143,733,402	196,064,305	257,894,664
Total Equity	13,758,566	15,709,246	17,929,054	27,442,136	40,909,873	59,330,644	83,915,305	116,305,525	157,491,969	209,822,871	271,653,230
TOTAL CAPITAL AND LIABILITIES	**13,758,566**	**22,491,563**	**26,098,628**	**37,213,490**	**52,529,911**	**73,083,819**	**100,129,658**	**135,359,768**	**179,823,799**	**235,569,078**	**292,324,430**

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
Operating activities											
Net profit		3,901,358	6,390,295	9,513,083	13,467,736	18,420,771	24,584,661	32,390,220	41,186,444	52,330,902	61,830,359
Add: depreciation expense		416,525	416,525	416,525	416,525	416,525	416,525	337,750	614,090	614,090	614,090
amortization of pre-operating costs		41,380	41,380	41,380	41,380	41,380	-	-	-	-	-
Equipment inventory	(14,167)	(2,644)	(3,137)	(3,722)	(4,417)	(5,241)	(6,219)	(7,380)	(8,757)	(10,391)	66,074
Consumables Iventory	(8,800,000)	(2,553,566)	(3,173,495)	(3,931,455)	(4,856,643)	(5,984,227)	(7,356,536)	(9,024,488)	(11,049,290)	(9,807,941)	66,537,641
Pre-paid land rent	(360,000)	(36,000)	(39,600)	(43,560)	(47,916)	(52,708)	(57,978)	(63,776)	(70,154)	(77,169)	848,861
Accounts payable		6,782,317	1,387,257	1,601,779	1,848,685	2,133,137	2,461,177	2,839,891	3,277,587	3,414,376	(5,075,007)
Cash provided by operations	(9,174,167)	5,201,057	4,271,805	6,721,145	9,848,523	13,787,138	18,669,332	24,883,100	32,111,236	44,340,380	126,682,873
Financing activities											
Issuance of shares	13,758,566	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	13,758,566	-	-	-	-	-	-	-	-	-	-
Investing activities											
Capital expenditure	(3,584,400)	-	-	-	-	-	-	(2,892,603)	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(3,584,400)	-	-	-	-	-	-	(2,892,603)	-	-	-
NET CASH	1,000,000	5,201,057	4,271,805	6,721,145	9,848,523	13,787,138	18,669,332	21,990,498	32,111,236	44,340,380	126,682,873

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Table 37 Operating Cost Assumptions

Description	Details
Building depreciation	10%
Furniture and fixture depreciation	15%
Vehicle depreciation	15%
Office equipment depreciation	15%
Inflation growth rate	10.1%
Wage growth rate	9.7%
Electricity price growth rate	9.0%
Office equipment price growth rate	10%
Office vehicle price growth rate	6.2%

13.2 Revenue Assumptions

Table 38 Revenue Assumptions

Description	Details
Sale price growth rate	11.2%
Initial year capacity utilization	60%
Capacity growth rate	10%
Maximum capacity utilization	90%

13.3 Financial Assumptions

Table 39 Financial Assumptions

Description	Details
Project life (Years)	10
Debt: Equity	0:100
Discount Rate (Used For Equity)	15%
Discount Rate (Used For Debt: Equity 50:50)	13%

Small and Medium Enterprises Development Authority

HEAD OFFICE

4th Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road, Lahore
Tel: (92 42) 111 111 456, Fax: (92 42) 36304926-7

www.smeda.org.pk, **helpdesk@smeda.org.pk**

REGIONAL OFFICE PUNJAB	REGIONAL OFFICE SINDH	REGIONAL OFFICE KPK	REGIONAL OFFICE BALOCHISTAN
3rd Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road Lahore, Tel: (042) 111-111-456 Fax: (042) 36304926-7 helpdesk.punjab@smeda.org.pk	5TH Floor, Bahria Complex II, M.T. Khan Road, Karachi. Tel: (021) 111-111-456 Fax: (021) 5610572 helpdesk-khi@smeda.org.pk	Ground Floor State Life Building The Mall, Peshawar. Tel: (091) 9213046-47 Fax: (091) 286908 helpdesk-pew@smeda.org.pk	Bungalow No. 15-A Chaman Housing Scheme Airport Road, Quetta. Tel: (081) 831623, 831702 Fax: (081) 831922 helpdesk-qta@smeda.org.pk