Pre-feasibility Study

FABRICATION OF ARCHITECTURAL AND ORNAMENTAL METAL WORK

September 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

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2 EXECUTIVE SUMMARY

The United States Department of Labor defines architectural and ornamental metal work as "establishments primarily engaged in manufacturing architectural and ornamental metal work, such as stairs and staircases, open steel flooring (grating), fire escapes, grills, railings, fences and gates, except those made from wire."

Fabrication is the process of making products by combining typically standardized parts using one or more individual processes. Metal fabrication is the process of building structures or machines from metallic raw materials. Different types of metal fabrication processes include cutting, welding, machining, forming and assembly. Metal fabrication can be used to make a wide range of products; including simple structures like hand railings as well as sophisticated heavy equipment and machinery. Architectural and Ornamental Metal work products have extensive use in industrial, commercial and household activities. This business can be started with simple machinery and raw materials and can be established easily.

This "Pre-feasibility Document" provides details for setting up a business of "Fabrication of Architectural and Ornamental Metal work". The three products covered under this pre-feasibility study are metal gates, metal stair railings and metal safety grills/fences. The proposed business may be established in large to medium cities like Karachi, Lahore, Gujranwala, Faisalabad, Multan, Hyderabad, Sukkur, Peshawar, Mardan, Quetta, Skardu, Muzaffarabad, Gilgit, Sialkot, etc. These cities are preferred for the proposed unit due to their large populations and presence of target customers. Raw materials and skilled labor required for the proposed fabrication unit are also easily available in larger cities.

The proposed manufacturing unit has a maximum capacity of manufacturing 762 units which includes 42 D-shape stair railings, 56 gates (without iron sheet), 48 gates (with iron sheet), 168 safety grills (rectangular pipe), 168 safety grills (round pipe) and 280 window grills in a year. Initially, the project is estimated to fabricate architectural and ornamental metal work at 60% of its total production capacity, which is equal to 458 units. The production capacity utilization is assumed to increase at a rate of 10% per annum with a capacity at 95% of total capacity. High return on investment and steady growth of business is expected with the entrepreneur having some prior experience or education in the related field of business.

The proposed project will be set up in a rented building having an area of 1,410 sq. ft. (6.3 Marla). The project requires a total investment of PKR 4.66 million. This includes capital investment of PKR 3.56 million and working capital of PKR 1.10 million. The project will be established using 100% equity financing. The Net Present Value (NPV) of project is PKR 36.13 million with an Internal Rate of Return (IRR) of 76% and a Payback period of 2.12 years. Further, the proposed project is expected to generate Gross Annual Revenues of PKR 23.83 million in 1st year of operations, Gross Profit (GP) ratio ranging

from 29% to 42% and Net Profit (NP) ratio ranging from 4% to 20% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 46% (354 units) with gross revenue of PKR 18.42 million in a year.

The proposed project may also be established using leveraged financing. At 50% financing at a cost of KIBOR+3%, the proposed fabrication of architectural and ornamental metal work provides Net Present Value (NPV) of PKR 40.74 million, Internal Rate of Return (IRR) of 76% and Payback period of 2.12 years. Further, this project is expected to generate Net Profit (NP) ratio ranging from 3% to 20% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 49% (375 units) with breakeven revenue of PKR 19.49 million.

The proposed project will provide employment opportunities to 16 to 18 people. It is evident from the above financial figures that the project for fabrication of architectural and ornamental metal offers reasonable profitability and is economically and financially viable. The legal business status of this project is proposed as “Sole Proprietorship”. The project may also be established as a Partnership concern.

3 INTRODUCTION TO SMEDA

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

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

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

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

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 the pre-feasibility study is primarily to facilitate the 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 the potential investors about establishing a business of "Fabrication of Architectural and Ornamental Metal Work". The document provides a general understanding of the business to facilitate potential investors 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 United States Department of Labor defines architectural and ornamental metal work as “establishments primarily engaged in manufacturing architectural and ornamental metal work, such as stairs and staircases, open steel flooring (grating), fire escapes, grills, railings, fences and gates, except those made from wire.”

Architectural metal products like stairs, gates, different types of railings, such as balcony railings, are essential components of all buildings. Ornamental metal products like decorated brass work, grillwork and related products are included in luxury apartments and hotels.

Ornamental and architectural metal work manufacturers manufacture ornamental and architectural metalwork, such as metal staircases, flooring, railings, fire escapes and scaffoldings for both commercial and residential buildings.

Ornamental architectural metal work is used for both structural and decorative purposes. Ornamental metal works not only provide added security to home, office or any other area, but these also add value in appearance of the place. Ornamental architectural metal works are also designed for aesthetic reasons. When these items are used on high-end houses, these elements set apart the look of buildings and houses.

The document provides details for setting up a business of Fabrication of Architectural and Ornamental Metal work. Iron is the most common material to manufacture different items such as gates, fences, doors, railings, window bars and custom wrought iron creations. Iron is a lustrous, ductile, malleable, silver-gray metal. Material is the most significant cost of a proposed products; going as high as 90% of the total product cost. The success of this project is dependent on use of good quality raw material and availability of skilled labor force.

A medium sized unit involves purchase of iron pipes, Iron bars (saria), iron strips and other accessories (locks, joints, etc.) as the main raw materials to manufacture gates, safety fences, stair railings and grills.

Metal fabrication is used to make metal structures by using multiple processes, such as cutting, bending, assembling, etc. Fabricated metal products are formed by combining shaping and/or otherwise processing different metal parts. The proposed project

manufacture different product according to customer's demand. The installation services are not provided by this unit. For this project, proposed products are described as follows:

- ***D-Shape Stair Railing (16 Feet Length*3 Feet Height)***

The proposed product D-Shape stair railing is 3 feet high and 16 feet long. The raw materials used for this product are iron bars (16 mm), decorative (Talai)[1] iron strips (solid patti) (1/2 inch by 2 inch), pillars and red oxide primer. Figure 1 shows few examples of fancy stairs railings.

Figure 1: Stair Railings

- ***Gate (Without Iron sheet) (12 Feet width*9 Feet Height)***

The proposed gate is 12 feet wide and 9 feet high. The raw materials used for this product are iron pipe (rectangular, 1.5 inch by 3-inch,16 Gauge), decorative (Talai), iron bar (saria), 4 sooter[2] (16mm), lock, joints and red oxide primer. Figure 2 shows a gate made without iron sheet.

Figure 2: Gate without Iron Sheet

[1] Decorative (Talai) are different designs, iron arts and metal sculpture used in ornamental metal works.

[2] Sooter is unit of measurement used in Pakistan and India for diameter measurement. 1 sooter is equal to 1/8 of inch.

- ***Gate (with iron sheet) (12 feet width*9 feet height)***

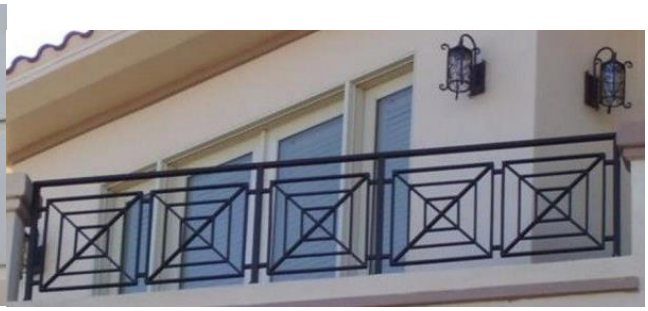
The proposed gate is 12 feet wide and 9 feet high. The raw material used for this product are Iron pipe-rectangular (1.5 inch by 3-inch,16 gauge), decorative (Talai), iron rod (saria 4 sooter,16 mm), iron sheet (16'-gauge,12' width *9 height), lock, joints and red oxide primer. Figure 3**Error! Reference source not found.** shows gate with iron sheet.

Figure 3 Gate with Iron Sheet

- ***Safety Grill (Rectangular Pipe) (6 feet Length *4 feet height)***

The proposed safety grill is 6 feet long and 4 feet high. The raw materials used for this are rectangular pipe (16-gauge, 1.5 inch by 0.75 inch) and red oxide primer. Figure 4 shows some pictures of safety grills made from rectangular pipes.

Figure 4 Safety Grills (Rectangular Pipes)



- ***Safety Grill (Round pipe) (6 Feet Length*4 Feet height)***

The proposed safety grill is 6 feet long and 4 feet high. The raw materials used for this are round pipe (16-gauge, 1.5 inch by 0.75 inch) and red oxide primer. Figure 5 shows some safety grills mad from round pipes.

Figure 5 Safety Grill (Round Pipes)

- ***Window Grill (6 Feet width* 4 Feet height)***

The proposed window grill is 6 feet wide and 4 feet high. The raw materials used for this are Iron pipe-rectangular, (1.5 inch by 3-inch, 16 gauge), decorative (Talai) and red oxide primer. Figure 6 shows window grill.

Figure 6 Window Grills

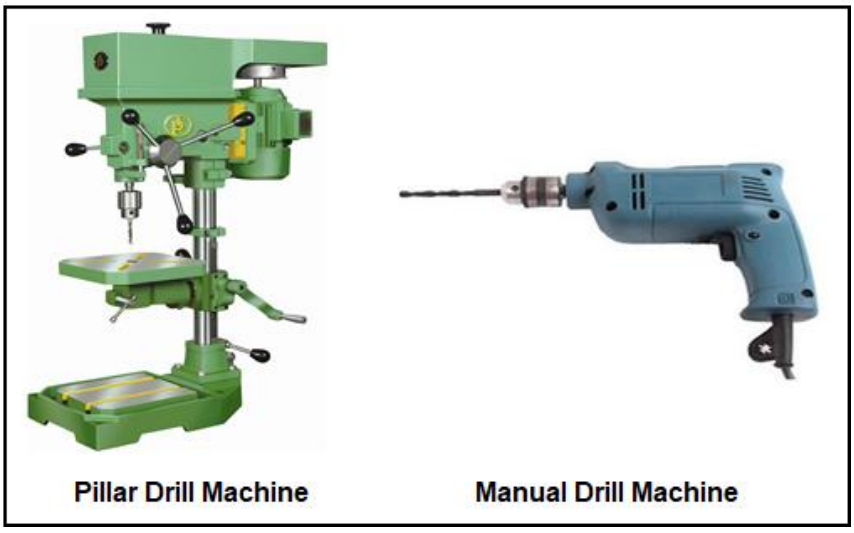
5.1 Machinery and Equipment

Machinery and equipment required for establishing a business unit for Fabrication of Architectural and Ornamental Metal Work products are briefly discussed below:

Drill Machine

A drill machine is a tool primarily used for making round holes or driving fasteners. Two types of drill machines will be used in the project; pillar drill machine and manual drill machine. Pillar drills are free-standing machines that use a motor to rotate at variable speeds; while manual drills are a hand tool used with a bit (drill bit or auger) to drill holes Figure 7 shows two types of drill machines.

Figure 7 Drill Machines



Cut off Saw Machine

An abrasive saw, also known as a cut-off saw or chop saw, is a circular saw (a power tool) which is typically used to cut hard materials, such as metals, tiles, concrete, etc.

Figure 8 shows cut off saw machine.

Figure 8 Cut off Saw Machine

Angle Grinder

An angle grinder is a handheld power tool that can be used for a variety of metal fabrication jobs that include cutting, grinding, deburring, finishing and polishing. Figure 9 shows angle grinder.

Figure 9 Angle Grinder

Welding Plant

Welding machines are used to permanently connect metal pieces with heat; generated by using electrical energy. They are available in a variety of sizes and output voltages,

from a small hobby model with an 80 amperes output to an industrial model with a 12,000 amperes output; for spot welding. TIG (Tungsten Intert Gas) welding is used for joining metals. This welding process creates a low heat input, which makes it perfect for thin material. Figure 10 shows welding plant.

Figure 10: TIG Welding Plant

Degree Pipe Bending Machine

Pipe bending is a technique used in various metal forming processes with the aim of increasing the fabrication capabilities of plumbing fixtures. Roller pipe bending machine is semi-automatic electric machine used to bend the large diameter pipes whereas degree pipe bending is manual machine used for bending small diameter pipes. The pipe can be bent at varying angles and in different directions using pipe bending machine. Figure 11 shows degree pipe bending machine.

Figure 11 Degree Pipe Bending Machine

Three Roller Pipe Bending Machine	Degree Pipe Bending Machine

Angle cutting Machine

Angle cutting machine is mainly used for cutting angle. This machine is divided into fixed and adjustable types, according to their blade angles. These machines use hydraulic angle bar for cutting.

Figure 12 Angle Cutting Machine

Air compressor

A compressor is a mechanical device that increases the pressure of a gas by reducing its volume. Compressors are similar to pumps: both increase the pressure on a fluid and both can transport the fluid through a pipe. In this project, compressed air is used for polishing of finished products. Figure 13 shows air compressor.

Figure 13 Air Compressor

General Tool Kit

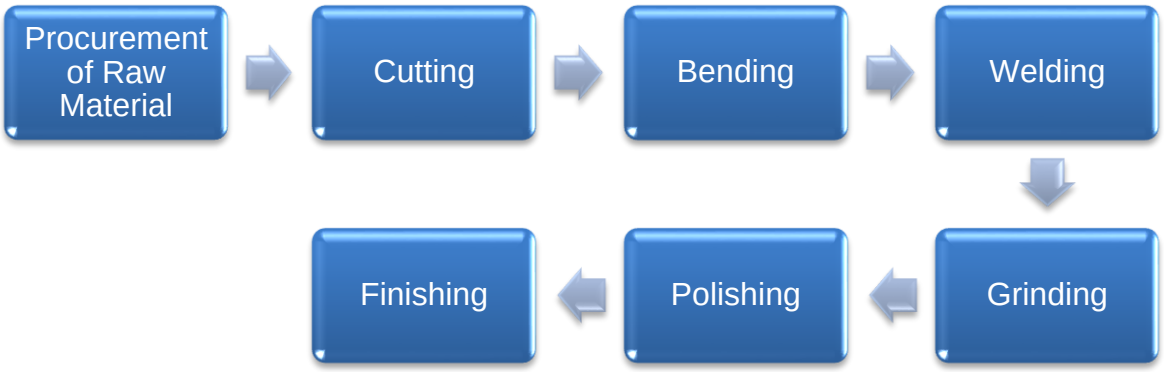
General Tool Kit includes fitting tools, such as wrenches, spanners, screwdrivers, pliers, etc. Figure 14 shows general tool kit.

Figure 14 General Tool Kit

5.2 Production Process Flow

The process flow for Fabrication of Architectural and Ornamental Metal Work is shown in Figure 15 shows production process flow.

Figure 15 Production Process Flow



Brief description of process flow is as follows:

Procurement of Raw Material

Raw materials incudes iron pipes of different shapes i.e., rectangular (1.5 inch by 3-inch,16 gauge) round pipe (10 mm,16 gauge), iron bars (saria) (1/2 sooter,1.58 mm) iron strips (16 gauge) and other accessories (locks, joints, etc.) are procured. These raw materials are easily available in the local market.

Figure 16 shows the main raw materials required in the manufacturing process. Locations of major markets in different cities of the country are given in Table 1.

Table 1: Major Raw material Markets

Origin/City	Market
Karachi	Moin Steel Market
	Jodia Bazaar
Lahore	Brandreth Road
	Railway Road
Faisalabad	Jhang road motor market
	Main market Dijkot road
Gujranwala	Gondlanwala road
	Ghanta Ghar clock Tower Circular road
Peshawar	Khybar Bazar
	Ring road
Quetta	Sirki road, Quetta Balochistan

Figure 16 Raw Materials

Cutting

Cutting is the most fundamental process in metal fabrication. Cutting may be done by using laser cutting, waterjet cutting, shearing, sawing or flame cutting. However, for the proposed unit of fabrication of architechtural and ornamental work, cutting is done by using cut off saw machine. This cut off saw machine is a kind of power tool, which is typically used to cut hard materials, such as metals, tiles and concrete. In this step, the raw material (iron rod, pipes, strips) are cut into different sizes as per the finalized design of the item being manufactured. The cut is made by placing the toothed edge against the material and moving it forcefully forth and less forcefully back or continuously forward. Figure 17 shows cutting process.

Figure 17 Cutting process

Bending

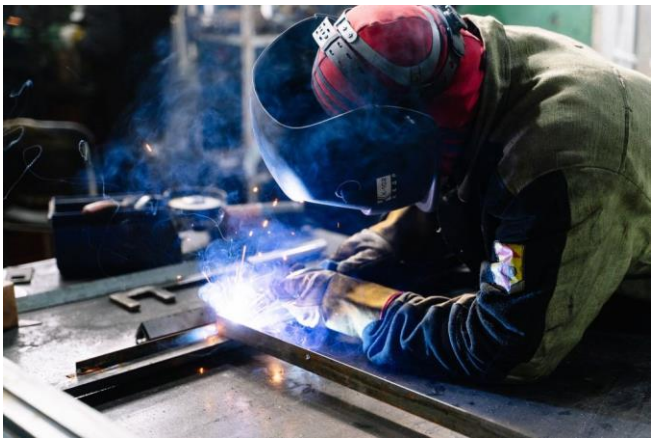
In the second step, the iron rods, pipes or strips are bent in different shapes such V shapes or U shapes using Degree Pipe Bending machine. Pipe bending is a technique used in various steel forming processes with the aim of increasing the fabrication capabilities. The main objective of a pipe bender is to bend the pipe without any buckling (collapsing under pressure) and with as little crimping and flattening as possible. It is important that the pipe keeps its shape as deformed pipes can break under pressure, crack and generally look less appealing.

Figure 18 Bending of Pipes

Welding

Welding is a fabrication process, whereby two or more parts are fused together by means of heat, pressure or both forming a joint as the parts cool. TIG (Tungsten Intert Gas) welding is most commonly used for joining metals. This welding process creates a low heat input, which makes it perfect for thin material. As part of manufacturing process, the iron rods, pipes or strips, after bending, are joined by welding plant. In welding process, different parts, produced during cutting and bending, are welded togther to form gates, safety fences and stairs as per finalized design. Figure 19 shows welding process.

Figure 19 Welding



Grinding

Grinding is machining process that is used to remove extra material from a workpiece using a angle grinder. As the grinding wheel turns, it cuts material off the workpiece to create a smooth surface. After welding, the welded metal structures are ground using

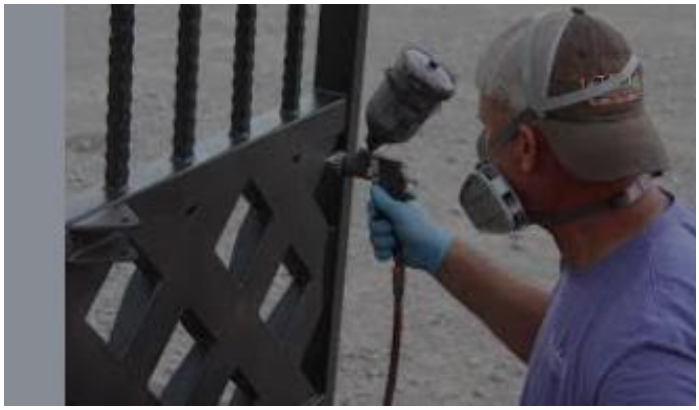
angle grinder to make their surface smooth and also to remove any sharp metal edges formed due to cuttting and welding. Figure 20 shows grinding process.

Figure 20 Grinding

Polishing

Polishing is the process of creating a smooth and shiny surface, with a significant specular reflection, by rubbing action or by applying a chemical treatment. The grinding process makes the surface smooth but leaves some scratches behind. To remove those scratches, polish is applied on that surface to make it shiny and to enhance the appearance of that item. Figure 21 shows polishing process.

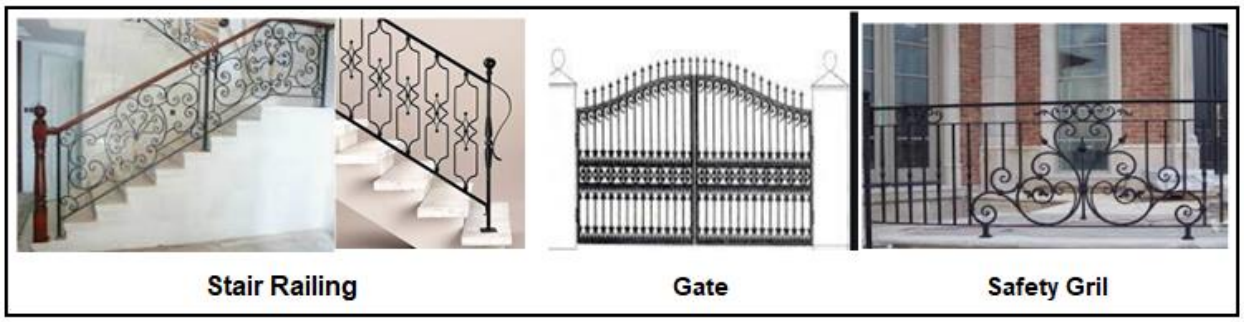
Figure 21 Polishing



Finishing

In the last process, remaining accessories (locks, joints or any decorative items required by the customers) are attached to the finalized products as per design requirements to make the product complete. The final product is then dispatched at the required place.

Figure 22 Finished Products



5.3 Installed and Operational Capacities

The total manufacturing capacity of the proposed fabrication unit is dependent on the capacity of the team. The proposed unit would operate in a single shift of 8 hours per day and will have maximum capacity to produce 762 units of metal products; while operating for 280 working days in a year. The products produced by the unit include D-shaped stair railings, gates (without sheet), gates (with sheet), safety grills (round pipes), safety grills (rectangular pipes) and window safety grills. During first year of operation, the fabrication unit is expected to achieve 60% of its installed capacity and will produce 458 units. Table 2 shows the installed and operational capacities of the proposed unit.

Table 2 Installed and Operational Capacity

Particulars	Time required for Per Unit (Hours)	Available Working Hours	Production Ratio	Product Wise Time (Hours)	Annual Production @ 100%	Annual Production @60%
D shape Stair Railing (18' length*3' height)	16	4,480	15%	672	42	25
Gate (Without Sheet) (12' width*9, Height)	12		15%	672	56	34
Safety Grill (6' Length *4' height) (Rectangular Pipe)	4		15%	672	168	101

Safety Grill (6' Length*4' height) (Round Pipe)	4		15%	672	168	101
Gate (With Sheet) (12' width *9' height)	14		15%	672	48	29
Window Grill (6' width*4' height)	4		25%	1,120	280	168
Total				**4,480**	**762**	**458**

6 CRITICAL FACTORS

Before making the decision to invest in the business of Fabrication of Architectural and Ornamental Metal Work business, one should carefully analyze the associated risk factors. The important considerations in this regard include:

- Good technical know-how and knowledge of the business
- Easy availability of quality raw materials
- Effective market linkages
- Easy availability of skilled workforce
- Awareness about new product designs and styles
- Awareness about the current modern trends
- Useful knowledge of technological innovations

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The fabrication of architectural and ornamental metal works business is proposed to be established in Karachi, Lahore, Islamabad, Peshawar, Rawalpindi, Quetta, Faisalabad, Sialkot, Hyderabad, Muzaffarabad, Gujranwala, Gilgit, Multan, Sialkot or any other major city of Pakistan. The large cities will be suitable for the proposed business due to presence of large customer base. Furthermore, majority of public and private sector residential buildings, private/public sector health institutes, public/private sector educational institutes, large number of restaurants, hostels and hotels are also located in these cities. All the aforementioned buildings offer a big market for the proposed business. Additionally, due to increase in the urban population of Pakistan, large number

of people are migrating to big cities. This urbanization trend is expected to increase the demand for new building and houses in these cities, which in turn will increase the demand for architectural and ornamental metal works in these cities.

In addition to large cities, such units may also be established in small cities/towns, which have a sizeable population and where the basic requirements of the business, such as raw material availability, skilled manpower availability, market access, etc. can be adequately fulfilled.

8 POTENTIAL TARGET CUSTOMERS / MARKETS

Potential target customers for this proposed unit will be large houses, shopping malls, industrial units, schools, hospitals, clinics, hotels, restaurants and offices. Currently, the fabrication of architectural and ornamental metal works also acts as a status symbol in higher class, which also triggers a demand for the proposed products. Therefore, homeowners in upper to upper-middle class of the local population are the major potential customers of the proposed business. In addition to homeowners, there will be great demand of fabrication of architectural and ornamental metal works by luxury apartments, hotels, villas and shopping malls.

As per the population census of 2017, upper middle and upper classes constituted a sizeable portion of the total population; with 18.69 million people categorized under these groups.

During the previous two decades, Pakistan has witnessed a fast growth of modern housing societies and commercial buildings in all the major cities of the country. The residents of these societies belong to the upper middle and upper class of society and thus can be classified as the primary customers of proposed architectural and ornamental metal work business. Therefore, metropolitan cities and cities with large urban and commercial base would be more suitable for this type of business.

As per Pakistan Bureau of Statistics, around 0.5 million houses were under construction in 2017-18 in Pakistan. Province-wise details of these houses is given in Table 3. The construction industry of Pakistan recorded a growth rate of 8.1% in 2021. Rapid growth in construction industry is expected to directly raise the demand for the architectural and ornamental metal work products.

Table 3[3] Under-Construction Houses

Provinces	Under-Construction Houses
Punjab	212,382
Sindh	166,344

[3]Source: https://www.pbs.gov.pk/content/final-results-census-2017-018

Khyber Pakhtunkhwa	60,577
Balochistan	45,047
Islamabad	3,452
Total	**487,802**

9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Fabrication of Architectural and Ornamental Metal Work. Various costs and revenue related assumptions, along with results of the analysis are outlined in this section.

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

All the figures in this financial model have been calculated after carefully taking into account the relevant assumptions and target market.

9.1 Initial Project Cost Estimates

Table 4 provides fixed and working capital requirements for establishment and operations.

Table 4: Initial Project Cost

Cost Item	Cost (PKR)	Details Reference
Land	-	9.1.1
Building / Infrastructure	248,780	9.1.2
Machinery & equipment	1,462,000	9.1.3
Office equipment	558,000	9.1.4
Furniture & fixtures	245,000	9.1.5
Office vehicles	333,300	9.1.6
Pre-operating costs	265,829	9.1.7
Advance against Building Rent	450,000	9.1.8
Total Capital Cost	**3,562,909**	
Working Capital	1,096,976	9.1.9
Total Project Cost	**4,659,885**	

9.1.1. Land

The proposed unit for fabrication of Architectural and Ornamental Metal work will be established in a rented building to avoid the high cost of land. Suitable location for setting up of the unit like this can be easily found on rent. Therefore, no land cost has been added to the project cost. Total space requirement for the proposed manufacturing unit has been estimated as 1,410 sq. ft. (6.3 Marla). The breakup of space requirement is provided in Table 5.

Table 5 Breakup of the Space Requirement

Description	% Break-Up	Number	Area (Sq. Ft.)
Office	9%	1	120
Workshop	43%	1	600
Store	16%	1	220
Washroom	9%	3	120
Pavement/driveway	14%	1	200
Grounds	11%	1	150
Total	**100%**		**1,410**

9.1.2. Building

There will be no cost of building since the proposed fabrication unit of architectural and ornamental metal work will be started in the rented premises. However, there will be a renovation cost, required to make the building usable for the business. The proposed manufacturing unit requires estimated electricity load of 8-9 KW for which an electricity connection under the industrial supply tariff, three phase will be required. Cost of such electricity connection has not been considered in this document since electricity connection is generally available in such rented premises. Building rent of PKR 150,000 per month has been included in the operating cost. Table 6 provides details of building renovation cost.

Table 6 Renovation Cost

Cost Item	Unit of Measurement	Total Units	Cost/Unit/ Sq.feet	Total Cost
Paint Cost	Liter	45	500	22,260
Labour Cost	Sq. Feet	4,452	10	44,520
Wall Racks	Units	10	15,000	150,000
Curtains	Units	4	3,000	12,000
Blinds	Units	4	5,000	20,000
Total Renovation Cost (PKR)				**248,780**

9.1.3. Machinery and Equipment Requirement

Table 7 provides details of machinery and equipment required for the project.

Table 7 Machinery and Equipment Requirement

Cost Item	Unit(s)	Unit Cost (PKR)	Total Cost (PKR)
Pillar Drill Machine (1.5 HP Motor , 38 mm Drilling Capacity)	2	50,000	100,000
Drill Machine- Manual (600 w, 13mm drilling Capacity)	2	6,000	12,000
Cut off Saw Machine (355 mm) (Power 2000 Watt)	2	30,000	60,000
Angle Grinder	2	10,000	20,000
Welding Plant TIG 250 P (AC/DC) (220-240V)	2	150,000	300,000
Degree Pipe Bending Machine- Manual (Maximum Bending Radius 100 mm)	2	150,000	300,000
Degree Pipe Bending Machine- Automated (Maximum Bending Radius 300 mm)	1	250,000	250,000
Hydraulic Angle cutting Machine (Max Force 90 ton) (Semi automated)	1	250,000	250,000
Air compressor (1 hp, 50 Liter)	2	30,000	60,000
General Tool Kit	1	15,000	30,000
Working Tables (Adda)	4	20,000	80,000
Total Cost			**1,462,000**

9.1.4. Office Equipment Requirement

Table 8 presents the office equipment requirement proposed for the unit.

Table 8 Office Equipment Requirement

Cost Item	Units	Unit Cost (PKR)	Total Cost (PKR)
Air Conditioners	2	90,000	180,000
Laptop / Computer	2	80,000	160,000
Printer	1	40,000	40,000
LED/LCD 32 inch	1	40,000	40,000
Water Dispenser	2	20,000	40,000
Ceiling Fan	10	4,500	45,000
Exhaust Fan	4	2,000	8,000
Bracket Fan	3	4,000	12,000
Wi-Fi Router and Connection	1	5,000	5,000
Security System (8 Cams, 1 MP)	8	2,000	16,000
DVR	1	12,000	12,000
Total			**558,000**

9.1.5. Furniture and Fixture Requirement

Table 9 gives details of the furniture and fixture required for the project.

Table 9 Furniture and Fixtures Requirement

Cost Item	Units	Unit Cost(PKR)	Total Cost(PKR)
Executive Tables	1	30,000	30,000
Executive Chairs	1	20,000	20,000
Office Tables	2	25,000	50,000
Reception Counter	1	50,000	50,000
Office Chairs	6	10,000	60,000
Sofa Sets	1	35,000	35,000
Total			**245,000**

9.1.6. Vehicle Requirement

Details of vehicles required for the project is given in Table 10.

Table 10 Vehicle Requirement

Cost Item	Unit(s)	Unit Cost (PKR)	Registration fee @ 1%	Total Cost (PKR)
Loader Rickshaw	1	250,000	2,500	252,500
Motorcycle	1	80,000	800	80,800
Total Cost				**333,300**

9.1.7. Pre-Operating Cost Requirement

Details of pre operating cost required for the project is given in Table 11.

Table 11 Pre-Operating Cost Requirement

Description	No.of Months	Unit Cost (PKR)	Total (PKR)
CEO	2	75,000	150,000
Admin. & Finance Officer	1	45,000	45,000
Security Guard	1	20,000	20,000
Office Boy	1	20,000	20,000
Utilities			30,829
Total (PKR)			**265,829**

9.1.8. Advance against Building Rent

Details of advance against building rent for the project is given in Table 12.

Table 12 Advance against Building Rent

Cost Item	Months	Unit Cost (PKR)	Total Cost (PKR)
Advance	3	150,000	450,000
Total Cost			**450,000**

9.1.9. Working Capital Requirement

Details of working capital required for the project is given in Table 13.

Table 13 Working Capital Requirement

Cost Item	Total Cost (PKR)
Equipment spare part inventory	24,367
Raw material inventory	422,609
Prepaid Building Rent	150,000
Cash	500,000
Total Initial Working Capital Cost	**1,096,976**

9.2 Breakeven Analysis

Table 14 shows calculation of break-even analysis.

Table 14 Break-Even Analysis

Description	Amount First Year (PKR)	Ratios
Sales (PKR) – A	23,825,000	100%
Variable Cost (PKR) – B	17,797,354	75%
Contribution (PKR) (A-B) = C	6,027,646	25%
Fixed Cost (PKR) – D	4,659,933	20%
Contribution Margin	25%	
Breakeven Revenue	18,418,948	
Total Units Sold	762	
Contribution Margin Per Unit	13,161	
Breakeven Units	354	
Breakeven Capacity	46%	

9.3 Revenue Generation

Based on 60% capacity utilization, sales revenue during the first year of operations is shown in Table 15.

Table 15 Revenue Generation

Product	Production / Year (units)	Capacity Utilization @ 60%	Price/ Unit	Total Revenue (PKR)
D-shape Stair Railing (18' length*3' height)	42	25	75,000	1,875,000
Gate (Without Sheet) (12' width* 9' Height)	56	34	150,000	5,100,000
Safety Grill (6' Length *4' height) (Rectangular Pipe)	168	101	45,000	4,545,000
Safety Grill (6' Length*4' height) (Round Pipe)	168	101	30,000	3,030,000
Gate (With Sheet) (12' width *9' height)	48	29	175,000	5,075,000
Window Grill (6' width*4' height)	280	168	25,000	4,200,000
Total	**762**	**458**		**23,825,000**

9.4 Variable Cost Estimate

Variable costs of the project have been provided in Table 16.

Table 16 Variable Cost Estimate

Description of Costs	Amount (PKR)
Material Cost- Stair Railing	1,000,000
Material Cost- Gates	6,456,020
Material Cost- Safety Grills	2,686,600
Material Cost- Window Grill	2,058,000
Direct Labor	4,320,000
Utilities Cost	266,534
Machinery Maintenance – Cost	146,200
Travelling expense	192,000
Communications expense (phone, mail, internet, etc.)	288,000
Office expenses (stationery, entertainment, janitorial services, etc.)	384,000
Total	**17,797,354**

Table 17 Material Cost

Material	Cost Per unit (PKR)	Units	Total Cost (PKR)
Stair Railing	40,000	25	1,000,000
Gate (Without Iron Sheet)	93,040	34	4,186,800
Gate (With Iron Sheet)	113,540	29.	1,479,650
Safety Grill (Rectangular Pipe)	14,650	101	3,292,660
Safety Grill (Round Pipe)	11,950	101	981,550
Window Grill	12,250	168	2,058,000
Material Cost (PKR)			**16,448,660**

Table 18 Material Cost – D-Shape Stair Railing (18' Length 3' Height)

Cost Item	Unit	Price per kg/Liter/ Unit (PKR)	Consumption per unit	Cost per unit (PKR)
Iron Pipe (Round Shape, 16 Guage)	kg	250	25	6,250
Decorative (Talai)	kg	100	28	2,800
Iron Strips (Solid Patti) (1/2 by 2 inch)	kg	170	35	5,950
Pillars	kg	240	100	24,000
Red Oxide primer	Liter	500	2	1,000
Material Cost (PKR)				**40,000**

Table 19 Material Cost-Gate (12' width 9' Height)

Cost Item	Unit of Measurement	Price per Unit (PKR)	Consumption per unit	Cost per unit (PKR)
Iron pipe-Rectangular(1.5 inch by 3 inch)(16 Gauge)	kg	250	67	16,750
Decoratives (Talai)	kg	200	67	13,400
Saria (4 Soottar - 16mm)	kg	170	267	45,390
Lock	Units	4	3,500	14,000

Joints	Units	6	500	3,000
Red Oxide Primer	Litre	500	1.0	500
Material Cost (PKR)				**93,040**

Table 20 Material Cost – Safety Grill (Rectanguar Pipes) (6' Length 4' Height)

Cost Item	Unit of Measurement	Price per Unit (PKR)	Consumption per unit	Cost per unit (PKR)
Pipe Rectangular(16 Guage, 1.5 By 0.75 inch)	Feet	80	180	14,400
Red Oxide Primer	Litre	500	0.5	250
Material Cost (PKR)				**14,650**

Table 21 Material Cost – Safety Grill (Round Pipes)(6' Length 4' Height)

Cost Item	Unit of Measurement	Price per Unit (PKR)	Consumption per unit	Cost per unit
Round Pipe (16 Guage) (3.5 inch, 101.6 mm	Feet	65	180	11,700
Red Oxide Primer	Litre	500	0.5	250
Material Cost (PKR)				**11,950**

Table 22 Material Cost – Gate (With Sheet)(12' width 9' Height)

Cost Item	Unit of Measurement	Price per Unit (PKR)	Consumption per unit	Cost per unit (PKR)
Iron pipe-Rectangular(1.5 inch by 3 inch)(16 Guage)	kg	250	67	16,750
Decoratives (Talai)	kg	200	67	13,400
Saria (4 Sootar - 16mm)	kg	170	267	45,390
Iron Sheet (16 Guage) (12*9)	kg	250	80	20,000

Lock	Units	3,500	4	14,000
Joints	Units	500	6	3,000
Red Oxide Primer	Litre	500	2.0	1,000
Material Cost (PKR)				**113,540**

Table 23 Material Cost – Window Grill

Cost Item	Unit of Measurement	Price per Unit (PKR)	Consumption per unit	Cost per Unit (PKR)
Iron pipe-Rectangular (1.5 by 3 inch) (16 Guage)	Feet	80	100	8,000
Decoratives (Talai)	kg	200	20	4,000
Red oxide primer		500	0.5	250
Material Cost (PKR)				**12,250**

Table 24 Direct Labor

Post	No. of personnel	Monthly Salary (PKR)	Annual Salary (PKR)
Labor- Cutting – Skilled	2	35,000	840,000
Labor-Cutting – Unskilled	2	20,000	480,000
Labor- Bending - Skilled	2	35,000	840,000
Labor- Welding- Skilled	2	35,000	840,000
Labor- Welding- Unskilled	2	20,000	480,000
Labor- Polishing- Skilled	2	35,000	840,000
Total Direct Labor (PKR)			**4,320,000**

Table 25 Machinery Maintenance Cost

Cost Item	Cost of Machinery (PKR)	Machinery Maintenance Rate	Total Cost (PKR)
Maintenance Cost	1,462,000	10%	146,200
Total Cost (PKR)			**146,200**

Table 26 Variable Cost Assumptions

Particulars	Details
Travelling expense	10% of administration expense
Communications expense (phone, mail, internet)	15% of administration expense
Office expenses (stationery, entertainment, janitorial services, etc.)	20% of administration expense

9.5 Fixed Cost Estimate

Table 27 shows the estimated fixed cost of the project.

Table 27 Fixed Cost Estimate

Description of Costs	Amount (PKR)
Management Staff	1,920,000
Administration benefits expense	249,600
Building rental expense	1,800,000
Utilities	103,419
Promotional expense	59,563
Depreciation expense	414,623
Amortization of pre-operating costs	53,166
Bad debt expense	59,563
Total	**4,659,934**

Table 28 Fixed Cost Assumption-Management Staff Salary

Post	No of personnel	Monthly Salary (PKR)	Annual Salary (PKR)
Owner/ Manager	1	75,000	900,000
Admin. & Finance Officer	1	45,000	540,000
Security	1	20,000	240,000
Office Boy	1	20,000	240,000
Total (PKR)			**1,920,000**

Table 29 Fixed Cost Assumptions

Particulars	Details
Administration benefits expense	4% of administration expense
Promotional expense	0.3% of revenue
Bad Debt expense	0.3%
Depreciation expense	
Building	10% of cost
Machinery, Vehicle & Office Equipment	15% of 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 proposed business, which is shown in Table 30.

Table 30 Financial Feasibility Analysis

Description	Project
IRR	76%
NPV (PKR)	36,126,055
Payback Period (years)	2.12
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 proposed business on the basis of Debt: Equity Model (50:50), which is shown in Table 31.

Table 31 Financial Feasibility Analysis with 50% Debt

Description	Project
IRR	76%
NPV (PKR)	40,739,450
Payback Period (years)	2.12
Projection Years	10
Discount rate used for NPV	13%

9.8 Human Resource Requirement

For the 1st year of operations, the Fabrication of Architectural and Ornamental Metal Work shall require the workforce at a salary cost shown in Table 32.

Table 32 Human Resource Requirement

Post	No of Personnel	Monthly Salary (PKR)	Annual Salary (PKR)
Owner/ Manager	1	75,000	900,000
Labor- Cutting – Skilled	2	35,000	840,000
Labor-Cutting – Unskilled	2	20,000	480,000
Labor- Bending - Skilled	2	35,000	840,000
Labor- Welding- Skilled	2	35,000	840,000
Labor- Welding- Unskilled	2	20,000	480,000
Labor- Polishing- Skilled	2	35,000	840,000
Admin. & Finance Officer	1	45,000	540,000
Security	1	20,000	240,000
Office Boy	1	20,000	240,000
Total (PKR)	**16**		**6,240,000**

10 CONTACT DETAILS

Contact details of some suppliers of the relevant machinery and equipment are provided in Table 33.

Table 33 Contact Details

Supplier Name	Origin	Nature of Supplier	Contact Number	Email/Website
Almaco Machine Tool Co. Ltd	China	Machinery and Equipment	86 0513 81105907	sale1@almaco.com
Buttar Enterprises	Lahore	Machinery and Equipment	0321 2220325	
Waqas Group	Lahore	Machinery and Equipment	0308 4444787	www.waqasgroupbiz
Shaan Trading Co	Karachi	Machinery and raw material		info@shandongtaigang.com
Khurasan Engineering Private Ltd	Quetta	Raw material	0324 4300024	
Praise House Tool Store	China	Machinery and tools	86 1371 4205716	
FF Steel Mill	Peshawar	Raw material	091-111888999	www.ff.com.pk/

11 USEFUL WEB LINKS

Table 34 Useful Web Links

Name of the Organization	Email/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
Federal Ministry of Industries & Production	www.moip.gov.pk/
State Bank of Pakistan	www.sbp.org.pk
Trade Development Authority of Pakistan	www.tdap.gov.pk
Punjab Small Industries Corporation (PSIC)	www.psic.org.pk
Sindh Small Industries Corporation (SSIC)	www.ssic.gos.pk
Small Industries Development Board KPK	www.small_industries_de.kp.gov.pk
Industries and Commerce Department Balochistan	www.dgicd.gob.pk/
Federal Board of Revenue	www.fbr.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.kp.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of Azad Jammu and Kashmir	www.ajk.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Small Industries Development Board Khyber Pakhtunkhwa	www.small_industries_de.kp.gov.pk
Pakistan Steel Melter Association (PSMA)	www.steelmelters.com

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 - Stair Railing	1,875,000	2,418,600	3,153,187	3,918,855	4,587,123	5,100,881	5,672,180	6,307,464	7,013,900	7,799,456
Revenue-Gate	10,175,000	13,121,600	16,569,690	20,659,930	24,464,657	27,204,699	30,251,625	33,639,807	37,407,465	41,597,101
Revenue - Safety Grill	7,575,000	9,841,200	12,427,267	15,572,293	18,348,493	20,403,524	22,688,719	25,229,855	28,055,599	31,197,826
Revenue-Window Grill	4,200,000	5,448,800	6,924,646	8,662,733	10,168,123	11,306,953	12,573,332	13,981,545	15,547,478	17,288,795
Revenue	**23,825,000**	**30,830,200**	**39,074,790**	**48,813,811**	**57,568,396**	**64,016,056**	**71,185,855**	**79,158,670**	**88,024,442**	**97,883,179**
Cost of sales										
Material Cost- Stair Railing	1,000,000	1,276,773	1,647,595	2,026,801	2,348,244	2,584,634	2,844,820	3,131,199	3,446,406	3,793,345
Material Cost- Gates	6,456,020	8,242,805	10,299,070	12,713,134	14,902,485	16,402,669	18,053,871	19,871,294	21,871,671	24,073,419
Material Cost- Safety Grills	2,686,600	3,454,773	4,318,153	5,355,821	6,246,329	6,875,126	7,567,223	8,328,990	9,167,441	10,090,297
Material Cost- Window Grill	2,058,000	2,642,701	3,324,266	4,116,272	4,782,346	5,263,769	5,793,655	6,376,883	7,018,822	7,725,384
Utilities Cost	266,534	290,620	316,882	345,518	376,741	410,786	447,908	488,384	532,517	580,639
Direct Labor	4,320,000	4,739,040	5,198,727	5,703,003	6,256,195	6,863,046	7,528,761	8,259,051	9,060,179	9,939,016
Machinery Maintenance - Cost	146,200	160,917	177,116	194,946	214,571	236,171	259,945	286,113	314,915	346,617
Total cost of sales	16,933,354	20,807,629	25,281,810	30,455,495	35,126,912	38,636,201	42,496,183	46,741,913	51,411,952	56,548,716
Gross Profit	6,891,646	10,022,571	13,792,981	18,358,316	22,441,484	25,379,856	28,689,672	32,416,757	36,612,490	41,334,463
	29%	33%	35%	38%	39%	40%	40%	41%	42%	42%
General administration & selling expenses										
Management Staff	1,920,000	2,106,240	2,310,545	2,534,668	2,780,531	3,050,242	3,346,116	3,670,689	4,026,746	4,417,340
Administration benefits expense	249,600	273,811	300,371	329,507	361,469	396,532	434,995	477,190	523,477	574,254
Building rental expense	1,800,000	1,980,000	2,178,000	2,395,800	2,635,380	2,898,918	3,188,810	3,507,691	3,858,460	4,244,306
Utilities	103,419	112,764	122,954	134,065	146,180	159,390	173,794	189,499	206,623	225,295
Travelling expense	192,000	210,624	231,055	253,467	278,053	305,024	334,612	367,069	402,675	441,734
Communications expense (phone, fax, mail, internet, etc.)	288,000	315,936	346,582	380,200	417,080	457,536	501,917	550,603	604,012	662,601
Office expenses (stationery, entertainment, janitorial serv	384,000	421,248	462,109	506,934	556,106	610,048	669,223	734,138	805,349	883,468
Promotional expense	59,563	77,076	97,687	122,035	143,921	160,040	177,965	197,897	220,061	244,708
Depreciation expense	414,623	414,623	414,623	414,623	414,623	414,623	284,708	745,084	745,084	745,084
Amortization of pre-operating costs	53,166	53,166	53,166	53,166	53,166	-	-	-	-	-
Bad debt expense	59,563	77,076	97,687	122,035	143,921	160,040	177,965	197,897	220,061	244,708
Subtotal	5,523,933	6,042,563	6,614,779	7,246,499	7,930,430	8,612,395	9,290,104	10,637,756	11,612,549	12,683,499
Operating Income	1,367,713	3,980,008	7,178,202	11,111,817	14,511,054	16,767,461	19,399,568	21,779,001	24,999,941	28,650,964
Gain / (loss) on sale of machinery & equipment	-	-	-	-	-	-	365,500	-	-	
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	139,500	-	-	
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	83,325	-	-	
Earnings Before Interest & Taxes	1,367,713	3,980,008	7,178,202	11,111,817	14,511,054	16,767,461	19,987,893	21,779,001	24,999,941	28,650,964
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	1,367,713	3,980,008	7,178,202	11,111,817	14,511,054	16,767,461	19,987,893	21,779,001	24,999,941	28,650,964
Tax	297,813	615,002	1,632,370	3,009,135	4,198,868	4,988,611	6,115,762	6,742,650	7,869,979	9,147,837
NET PROFIT/(LOSS) AFTER TAX	**1,069,901**	**3,365,006**	**5,545,832**	**8,102,682**	**10,312,186**	**11,778,850**	**13,872,131**	**15,036,351**	**17,129,962**	**19,503,127**

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	500,000	907,523	2,274,471	3,800,683	5,632,740	7,429,606	8,889,243	17,492,170	32,396,710	49,248,341	68,834,832
Accounts receivable		1,958,219	2,246,104	2,872,808	3,611,860	4,371,872	4,996,621	5,556,243	6,178,542	6,870,539	7,640,039
Raw material inventory	422,609	422,609	595,018	821,012	1,116,505	1,436,897	1,740,753	2,108,865	2,554,821	3,095,081	3,749,589
Equipment spare part inventory	24,367	29,385	35,438	42,736	51,539	62,154	74,955	90,393	109,011	131,463	-
Pre-paid building rent	150,000	165,000	181,500	199,650	219,615	241,577	265,734	292,308	321,538	353,692	-
Total Current Assets	1,096,976	3,482,737	5,332,531	7,736,890	10,632,259	13,542,104	15,967,307	25,539,979	41,560,622	59,699,117	80,224,460
Fixed assets											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	248,780	223,902	199,024	174,146	149,268	124,390	99,512	74,634	49,756	24,878	-
Machinery & equipment	1,462,000	1,242,700	1,023,400	804,100	584,800	365,500	146,200	2,771,383	2,355,675	1,939,968	1,524,261
Furniture & fixtures	245,000	208,250	171,500	134,750	98,000	61,250	24,500	464,425	394,761	325,097	255,434
Office vehicles	333,300	283,305	233,310	183,315	133,320	83,325	33,330	507,817	431,644	355,472	279,299
Office equipment	558,000	474,300	390,600	306,900	223,200	139,500	55,800	1,057,751	899,088	740,426	581,763
Advance Against Building Rent	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000
Total Fixed Assets	3,297,080	2,882,457	2,467,834	2,053,211	1,638,588	1,223,965	809,342	5,326,009	4,580,925	3,835,840	3,090,756
Intangible assets											
Pre-operation costs	265,829	212,664	159,498	106,332	53,166	-	-	-	-	-	-
Total Intangible Assets	265,829	212,664	159,498	106,332	53,166	-	-	-	-	-	-
TOTAL ASSETS	**4,659,885**	**6,577,858**	**7,959,862**	**9,896,432**	**12,324,012**	**14,766,069**	**16,776,649**	**30,865,988**	**46,141,546**	**63,534,957**	**83,315,217**
Liabilities & Shareholders' Equity											
Current liabilities											
Accounts payable		848,072	1,082,524	1,354,904	1,671,965	1,954,010	2,151,251	2,368,459	2,607,666	2,871,115	3,148,247
Total Current Liabilities	-	848,072	1,082,524	1,354,904	1,671,965	1,954,010	2,151,251	2,368,459	2,607,666	2,871,115	3,148,247
Shareholders' equity											
Paid-up capital	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885	4,659,885
Retained earnings		1,069,901	2,217,453	3,881,643	5,992,162	8,152,174	9,965,512	23,837,643	38,873,995	56,003,957	75,507,084
Total Equity	4,659,885	5,729,786	6,877,339	8,541,528	10,652,048	12,812,059	14,625,397	28,497,528	43,533,880	60,663,842	80,166,969
TOTAL CAPITAL AND LIABILITIES	4,659,885	**6,577,858**	**7,959,862**	**9,896,432**	**12,324,012**	**14,766,069**	**16,776,649**	**30,865,988**	**46,141,546**	**63,534,957**	**83,315,217**

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		1,069,901	3,365,006	5,545,832	8,102,682	10,312,186	11,778,850	13,872,131	15,036,351	17,129,962	19,503,127
Add: depreciation expense		414,623	414,623	414,623	414,623	414,623	414,623	284,708	745,084	745,084	745,084
amortization of pre-operating costs		53,166	53,166	53,166	53,166	53,166	-	-	-	-	-
Accounts receivable		(1,958,219)	(287,885)	(626,704)	(739,053)	(760,011)	(624,750)	(559,622)	(622,299)	(691,997)	(769,500)
Finished goods inventory		-	(172,409)	(225,994)	(295,492)	(320,392)	(303,856)	(368,112)	(445,956)	(540,261)	(654,508)
Equipment inventory	(24,367)	(5,019)	(6,052)	(7,299)	(8,802)	(10,615)	(12,801)	(15,438)	(18,618)	(22,452)	131,463
Raw Material Iventory	(422,609)	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	(150,000)	(15,000)	(16,500)	(18,150)	(19,965)	(21,962)	(24,158)	(26,573)	(29,231)	(32,154)	353,692
Accounts payable		848,072	234,452	272,381	317,060	282,045	197,242	217,208	239,207	263,449	277,133
Cash provided by operations	(596,976)	407,523	3,584,401	5,407,855	7,824,219	9,949,040	11,425,150	13,404,302	14,904,540	16,851,632	19,586,491
Financing activities											
Issuance of shares	4,659,885	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activ	4,659,885	-	-	-	-	-	-	-	-	-	-
Investing activities											
Capital expenditure	(3,562,909)	-	-	-	-	-	-	(4,801,375)	-	-	-
Cash (used for) / provided by investing activ	(3,562,909)	-	-	-	-	-	-	(4,801,375)	-	-	-
NET CASH	500,000	407,523	3,584,401	5,407,855	7,824,219	9,949,040	11,425,150	8,602,927	14,904,540	16,851,632	19,586,491

13 KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Table 35 Operating Cost Assumptions

Description	Details
Building rent growth rate	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	9.6%
Office vehicle price growth rate	6.2%

13.2 Revenue Assumptions

Table 36 Revenue Assumptions

Description	Details
Sale price growth rate	11.2%
Initial year capacity utilization	60%
Capacity growth rate	10%
Maximum capacity utilization	95%

13.3 Financial Assumptions

Table 37 Financial Assumptions

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

Small and Medium Enterprises Development Authority

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