



Pre-feasibility Study

SMALL ARMS MANUFACTURING UNIT

October 2022

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

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

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1. DISCLAIMER

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2. EXECUTIVE SUMMARY

Arms or armaments are the implements or devices that can be used to inflict physical damage, harm or kill. They are used to increase the efficacy and efficiency of activities such as hunting, law enforcement, self-defense and warfare. Broadly speaking, small arms are defined as weapons designed for individual use. These include handguns (pistols and revolvers) and shoulder arms (rifles, sub-machine guns and light machine guns).

Handguns are the small arms which can be fired one-handed. Pistols and revolvers both can be fired one-handed. They are smaller in size and light-weight as compared to shoulder arms, hence can be easily concealed, which makes them one of the weapon types which is most often used for self-protection. Military use of handguns is limited, as they prefer shoulder arms, but police officers are often armed with handguns. The proposed project will be manufacturing different kinds of pistols.

The arms sector of Pakistan mostly consists of manufacturers that are producing replicas of some of the popular international brands. In the proposed project, the most in-demand three types of 7.62 mm/9 mm replica pistols i.e., Beretta, Zigana and Glock have been selected as the main products to be manufactured. The primary raw material used in the manufacturing of pistols (Beretta, Zigana) is aluminium.

This “Pre-feasibility Document” provides details for setting up a “Small Arms Manufacturing Unit”. Demand for small arms has been increasing over the years due to which manufacturing of these products is seen as a good investment opportunity. The proposed project has a capacity of manufacturing 8,400 guns annually, which include 3,600 Beretta, 3,600 Zigana and 1,200 Glock guns in a year at maximum capacity of 100%. The production capacity in “Year One” is assumed to be 50%, with a production of 4,200 guns annually, which include 1,800 Beretta, 1,800 Zigana and 600 Glock guns.

The unit is proposed to be ideally located in cities where existing clusters of this industry exist. These mainly include Peshawar and Dera Adam Khel (District Kohat). Easy availability of raw materials, access to market, availability of low-cost and skilled labor, in these cities, make these locations suitable to establish this business.

The “Small Arms Manufacturing Unit” will be set up in a rented building with area of 4,500 square feet. The project requires a total investment of PKR 20.50 million. This includes capital investment of PKR 16.69 million and working capital of PKR 3.81 million. This project is financed through 100% equity. The Net Present Value (NPV) of project is PKR 76.22 million with an Internal Rate of Return (IRR) of 68% and a Payback period of 2.32 years. Further, this project is expected to generate Gross Annual Revenues of PKR 99.0 million during 1st year, with Gross Profit (GP) ratio ranging from 24% to 34% and Net Profit (NP) ratio ranging from 6% to 23% during the projection period of ten years. The proposed project will achieve its estimated

breakeven point at capacity of 36% (3,043 Guns) with breakeven revenue of PKR 71.73 million.

The proposed project may also be established using leveraged financing. With 50% debt financing, at a cost of KIBOR+3%, the proposed production unit provides Net Present Value (NPV) of PKR 91.03 million, Internal Rate of Return (IRR) of 66% and Payback period of 2.42 years. Further, this project is expected to generate Net Profit (NP) ratio ranging from 6% to 23% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 37% (3,112 Guns) with breakeven revenue of PKR 73.34 million.

The proposed project will provide employment opportunities to 53 people. 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 legal business status of this project is proposed as "Sole Proprietorship". Further, the proposed 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 is 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 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 "Small Arms Manufacturing Unit". 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

Small arms are portable lethal weapons for individual use that can expel or launch a shot or bullet by action of explosive. They are used to increase the efficacy and efficiency of activities such as hunting, law enforcement, self-defense and warfare. These include both handguns (revolvers and self-loading pistols), long guns, namely rifles, shotguns, sub-machine guns, assault rifles, and light machine guns. They are usually at the lower end of the caliber spectrum (4.6–40 mm). The proposed project will be in the business of manufacturing of handguns. They are small arms which can be fired one-handed. They include pistols and revolvers which can both be fired one-handed. As they are smaller in size and light-weight as compared to shoulder arms, hence can be easily concealed, which makes them one of the weapon types which is most commonly used for self-protection.

The small arms manufacturing sector in Pakistan manufactures a diverse range of products. The sector manufactures replicas of the popular weapons having demand in local market and the markets in other parts of the world. Broadly, the product line of Pakistani arm manufacturers can be classified under three main types of products.

- Pistols
- Shotguns
- Rifles

In the proposed project, only pistols have been selected as the products to be manufactured. This is because pistols constitute the largest share of demand of small arms in the local markets.

Pistols

Pistol is a lightweight, one-hand use firearm consisting of three major parts i.e., a frame or main outer body (frame), a barrel and inner mechanical component.

Outer body or frame is the main chamber which forms the major shape of the weapon, and which houses all other parts. Different types of materials are used to manufacture outer body parts. Previously, only metal was used to make these parts, but with the passage of time, plastic has also emerged as an important material for that purpose.

Barrel is a very crucial part of a gun. It is a straight hollow tube made of rigid high strength metal like carbons steel or stainless steel. The gun barrel must possess the necessary strength to sustain the rapid expansion of high-pressure gases used to

propel the bullet out of the muzzle at a high speed. The hollow interior of the barrel is called the bore and the diameter of the bore is called its caliber, usually measured in inches or millimeters. The raw material for making barrels is the steel rod, which is available in different diameters, depending upon the design of the weapon.

In addition to the outer body parts and barrel, every gun has number of other parts, housed inside the body. These inner parts constitute the operating system of the gun. These include magazine, slide, different types of levers, springs, pins and other similar parts. Common materials for making these parts are cast steel or stainless steel. These parts may be made by sand casting or Metal Injection Molding (MIM). MIM is a newer technology which is not common in Pakistan. In the local industry, machining process, or investment casting (precision casting) is commonly used for making these parts. The cast parts also have to be later machined and polished to attain the required precision and the surface finish needed for effective performance of the weapon. Inner parts may also be made by machining operations.

In Pakistani market, there are several types of pistols with different specifications and attributes, with the two most common pistols being:

- 9 mm pistol
- 7.62 mm pistol

The measurements in 'mm' represent the diameter of the barrel of a pistol. The production of 7.62 mm pistol is higher and constitutes around 60-65% of the total production of pistols.

Currently there are two different business models of arms manufacturing in Pakistan, these include manufacturing of individual parts of different weapons and the second one is assembling of the individual parts to manufacture a complete weapon.

There are very few industrial units which manufacture all the parts of a weapon by themselves. As per the common practice, different parts are made in small manufacturing units and supplied to the medium to large manufacturers where assembly operations are carried out to make a complete weapon. These assembly units may also manufacture some parts internally, which are usually the larger body parts. Smaller internal parts are very rarely manufactured by the assembly units themselves.

The arms manufacturing sector is a well-regulated sector. The business can only be operated under a license by federal and/or provincial government. Any change in regulations can have an impact on the operations and growth of the business. The proposed business is to be carried out under licenses issued by the competent government authorities. Different types of licenses are required for different types of weapons. The licenses are mainly classified as Prohibited Caliber (PB) and Non-prohibited Caliber (NPB). Provincial governments can only issue licenses for NPB weapons whereas federal government can issue licenses for both PB and NPB licenses.

Products

In the proposed manufacturing unit, following pistols are being manufactured and assembled:

Beretta

Beretta is an Italian brand weapon, widely-popular around the globe for a variety of civilian, law enforcement, and military purposes. It is the most in-demand product among pistols in Pakistan. In the proposed project, frames of Beretta replicas are being manufactured internally while other parts are being procured from the local vendors. The unit is then assembling complete pistols. The primary raw material used for manufacturing of the frame is aluminum. A Beretta pistol is shown in Figure 1.

Figure 1: Beretta Pistol



Zigana

Zigana is a popular Turkish brand of pistols. It also has a high demand in Pakistan in the pistols market. In the proposed project, frames of Zigana replicas are being manufactured while other parts are being procured from the local vendors and complete pistols are then being assembled in the unit. The primary raw material used for manufacturing of the frame is aluminum. A Zigana pistol is shown in Figure 2.

Figure 2: Zigana Pistol



Glock

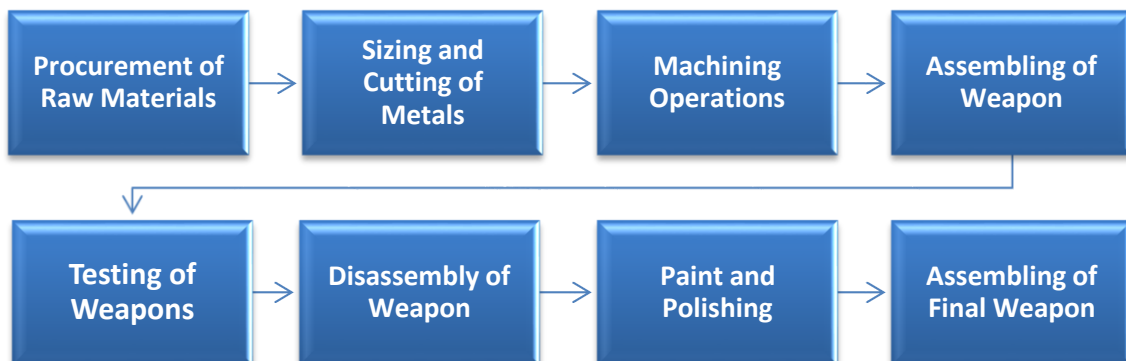
Glock is a popular Austrian brand of light-weight polymer-framed pistols. They have low demand in Pakistan as compared to those of Beretta and Zigana. In the proposed project, all parts of Glock, including the frame, are being procured from the local vendors and assembly of the complete pistol is carried out inhouse. A Glock pistol is shown in Figure 3.

Figure 3: Glock Pistol



5.1. Production Process Flow

Process Flow



Procurement of Raw Materials

The main raw material used for manufacturing the outer body of firearms is procured from the local market. Outer body of the weapon is generally made from 7075 Aluminum alloy, with Zinc as the primary alloying element (5.6-6.1%). Other elements include magnesium, copper, silicon, iron, manganese, titanium and chromium. Aluminum is suitable for making bodies of firearms due to its excellent mechanical properties like good ductility, higher strength, hardness and good corrosion resistance.

Aluminum alloy is purchased from the market in the form of aluminum plates which are available in different thicknesses. Usual thickness used for making pistol frame is around 1.2-1.5 inches.

Other parts, including the barrel and the parts constituting the internal operating system of the weapon, are procured from the market. Following is the list of main parts procured from local vendors:

- Plastic outer body (for Glock)
- Barrel
- Trigger components
- Magazine release
- Operating rods
- Springs
- Hammers
- Triggers
- Bolts, handles, and stops
- Disassembly lever
- Grips
- Back straps
- Safeties, hinges, and locks
- Mounts and chamber
- Front and back sight

Figure 4 shows parts of a pistol other than outer body.

Figure 4: Pistol Parts



Sizing and Cutting of Metals

Aluminum plates for making weapons are initially cut from as per the length of the weapon. Average size of the plate used is 12 inches by 6 inches, weighs around 2 kilograms. Normally, two shapes are cut from one plate for making frames (outer bodies) of two pistols. This is done to optimize the material usage. The aluminum plates are cut in the shape of pistols on lathe machines. Figure 5 shows aluminum plates used for making guns before and after its sizing and cutting.

Figure 5: Aluminum Plates Before and After Cutting



Lathe Machine Operations

Lathes are used primarily for the production of cylindrical or conical exterior and interior surfaces of the weapons, via turning, facing, boring, and drilling. Lathes are also used for the production of screw threads. In a lathe, the weapon is rotated while the cutting tool is moved into the weapon in a direction parallel and/or perpendicular to the axis of rotation of the weapon. Figure 6 shows a lathe machine.

Figure 6: Lathe Machine



Machining Operations

Machining is a process that produces parts of desired size and shape by removing material in the form of small chips from a solid work piece using a single or multiple-edged cutting tool. Following machining operations are carried out for manufacturing the outer bodies (frames) of pistols:

- Vertical milling
- Vertical drilling process
- Grinding

Vertical Milling

Milling machines are very versatile. Most of the work for arms manufacturing is completed using milling machines. These are usually used to machine flat surfaces but can also produce irregular surfaces. These can also be used to drill, bore or cut. The type of milling machine, used most commonly in small arms manufacturing, is a vertical spindle machine. It is used to produce flat, curved, parallel, stepped, square or inclined faces and form a proper shape of the frame with precise curves and edges. Vertical Milling machine operations are shown in Figure 7.

Figure 7: Vertical Milling Machine Operations



Vertical Drilling

Vertical drilling machine is used for drilling and/or enlarging holes, with a boring tool or finishing holes with a reamer. With the aid of a special tapping attachment and a tap, Vertical Drilling machine can also make threads in a hole. It is used to drill holes in certain areas of the frame where other parts of the weapon are to be fitted. The

machine used in the proposed project drills holes of up to 15 mm diameter. Drilling machine used in proposed project is shown in Figure 8.

Figure 8: Vertical Drilling Machine



Grinding

A bench grinder is used in the machining process for shaping and grinding the frame and some other parts of the pistols, procured from vendors. It consists of powerful grinding wheels. Grinding wheels of different sizes are used, ranging from 6 to 10 inches, and with varying grits for doing a variety of functions. This powerful machine is installed on a bench or work table where the work piece is held against the grinding wheel to allow for a varying degree of sharpening shaping or buffing. A bench grinding machine is shown in Figure 9.

Figure 9: Bench Grinding Machine



The leftover/scrap metal from machining process is stored and sold afterwards. The final product of all the machining operation is manufactured as one piece of metal forming the frame of a pistol. Figure 10 shows the aluminum plate cut in the shape of pistol and the pistol body machined out of it.

Figure 10: Aluminum Plate Shape and the Machined Pistol Body

Furthermore, another very essential part of a gun is the barrel. It is a straight hollow tube made of rigid high strength metal like carbons steel or stainless steel. The gun barrel has to possess the necessary strength to sustain the rapid expansion of high-pressure gases used to propel the bullet out of the muzzle at a high speed. The raw material for making barrels is the steel rod, which is available in different diameters, depending upon the design of the weapon. In the proposed project the barrel production will be outsourced as it is a complex procedure there are specialized units for manufacturing of barrel only, hence it will be procured.

Assembling of Weapons

Weapon's frame and other parts are cleaned to remove dust or any fractional metal pieces, using an air blower. Different individual parts are then sent to the assembly section where some final finishing operations are carried out to meet the precision requirements. During the final assembly operation, internal parts are fitted in the body, the assemblers use filing operations on both the external body and the internal parts to fit those within the body. Filing operations include, smoothening or shaping of edges or a surface with the help of filing tools. A Filing Toolkit used in the process is shown in Figure 11.

Figure 11: Filing Toolkit

Filing is necessary due to lack of standardization in the manufactured parts. As many internal parts are procured locally, in most of the situations the internal parts fit

satisfactorily in any specific weapon but some parts might not fit in and hence need filing to fit those in.

All the parts are assembled to complete the weapon and get it ready for testing. The human resource for assembling weapons are usually the most experienced ones. Figure 12 shows the assembling operations for weapons.

Figure 12: Assembling Operations



Quality Testing

Quality testing of the final assembled weapons quality is conducted by firing multiple rounds of bullets at a specified testing area within the manufacturing facility. This testing area usually has a huge pile or multiple pile of sand formed into which the bullets are fired several times for testing of pistols. Although theoretically it is said that 3.5 inches of sand is enough for stopping bullets. But in any case, to avoid any risks huge sufficient enough amount of sand is sand piled in the testing area for testing purpose. The weapons passing the firing test are sent to market. The weapons, not found meeting the required standards, are sent back to assembly for further processing.

Disassembly of Weapon

After successful testing of the pistols, their magazines, slides and triggers are disassembled to paint and polish these parts and the frame. Rest of the procured parts are already polished they are just cleaned by blowing of dust etc.

Polishing and Painting

Finally, the pistols are polished and painted manually to attain the required look and the surface finish. A gas-powered paint baking oven is used to dry the paint and get best results. Figure 13 shows a paint baking oven.

Figure 13: Paint Baking Oven**Assembly of Final Weapon**

After polishing and painting, the weapons are assembled again. After the final assembling the manufacturing process of pistols, is completed. Pistols are transferred to the finished goods store room and are ready to deliver.

5.2. Installed and Operational Capacities

The proposed production unit shall, at maximum capacity of 100%, produce 8,400 guns annually. Which include 3,600 Beretta, 3,600 Zigana and 1,200 Glock guns. The project is assumed to attain 50% capacity utilization during the first year of operations, which translates into production of 4,200 guns annually, this includes 1,800 Beretta, 1,800 Zigana and 600 Glock. The operational capacity utilization is assumed to increase at the rate of 5% per annum to reach a maximum of 90% in the 9th year of operations. The unit operates for 8 hours a day with 7 actual working hours and 1 idle hour, working in one shift per day for 300 days in a year. Table 1 and Table 2 show the production and assembling capacity respectively. Table 3 shows the production proportion for arms.

Table 1: Annual Production Capacity of Beretta and Zigana

Arms	Number of Guns Produced per Milling machine	No. of Milling Machines	Total Number of Guns Produced per day	Production of guns per year at 100% Capacity
	$A=7/1.7$ (Table 4)	B	$C=A*B$	$D=C*300$ (Working Days)
Beretta	4.0	3	12	3,600
Zigana	4.0	3	12	3,600

Table 2: Annual Assembling Capacity of Glock

Arms	No. of Skilled Persons	Total Time Consumption per Gun (hours)	Production of guns per day	Production of guns per year at 100% Capacity
	A	B	$C=7$ (Working Hours)/ B	$D=C*300$ (Working Days)
Glock-(Assembling)	2	1.75	4	1,200

Table 3: Production Proportion

Arms	Percentage Production
Beretta	43%
Zigana	43%
Glock	14%

Table 4: Beretta and Zigana Production Assumption

List of Guns Components	Average Time required on Milling Machine (mins) per Gun	Time Required on Milling Machine (Hours)
	A	$B=A/60$
Beretta Frame (Body)	100	1.7
Zigana Frame (Body)	100	1.7

Table 5: Glock Assembly Assumptions

Particulars	Required Minutes for assembling per Gun	Required Hours for assembling per Gun
	A	$B=A/60$
Assembling Time per person	105	1.75

6. CRITICAL FACTORS

Following factors should be considered while making the decision to invest in small arms manufacturing business:

- Sound technical knowhow and knowledge of the industry
- Availability of specialized workforce
- Up-to-date knowledge of market needs
- Selection of appropriate machinery and human resources
- Rigorous supervision of production
- Ability to generate work orders through networking
- Assurance of timely order fulfillment

7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The unit is proposed to be ideally located in cities where existing clusters of this industry exist. These mainly include Peshawar and Dera Adam Khel (District Kohat). Easy availability of raw materials, access to market, availability of low-cost and skilled labor, in these cities make these locations suitable to establish this business. Easy availability of raw materials, access to market, availability of low-cost, professional and skilled labor, and presence of good manufacturing cluster in these cities make these locations suitable to establish this business. Availability of skilled and cheap labor is vital while selecting a location. All the above-mentioned cities have good availability of skilled labor, raw materials and other support infrastructure. In addition, there is a high demand for small arms all over the country for protection from criminal and terrorist activities.

8. POTENTIAL TARGET MARKETS

Small arms are mostly used for security purposes. Over the years, with an increasing perception of insecurity, there has been an increasing trend to own weapons for self-protection. Furthermore, owning arms is a part of the culture of the provinces of Khyber Pakhtunkhwa and Balochistan, and some tribal areas. This social factor acts as an important driver for sustainable growth of the small arms sector.

According to the Small Arms Survey of 2017, an estimated 44 million firearms were owned by the public. The rate of private gun ownership is 22.3 firearms per 100 people. In a comparison of the number of privately-owned guns in 230 countries, Pakistan ranked 24th in the world in 2017.¹

¹ https://en.wikipedia.org/wiki/Gun_law_in_Pakistan

Pakistan was among the biggest importers of major arms in Asia and Oceania from 2016-2020 while globally it ranked 10th, accounting for 2.7 per cent of major arms imports, a report published by the Stockholm International Peace Research Institute (SIPRI). These include all kinds of arms i.e., military arms as well as small arms.

Pakistan imports different types of arms products. Developing the arms locally offers the opportunity of substituting the imported products by the locally manufactured products. There is the opportunity to develop a local gun and launch it as a Pakistani brand. The arms manufacturers are making high end replicas of different international gun brands. With targeted marketing, the acceptability of the new brand can be established which can form the basis to start increasing the country's arms exports.

Pakistan has been constantly making efforts to regularize its local arms and weapons market. The state-run Pakistan Hunting and Sporting Arms Development Company has proposed setting up an "industrial estate" or a gun town, for which over 200 acres of land near Darra Adam Khel will be acquired. Initially, 500 shops will be set up to control production and the quality of the weapons.

Majority of the manufacturing units are engaged in the manufacturing of arms used for hunting and sporting and safety and security purposes. Some larger units in this subsector also manufacture more sophisticated products for the country's defense industry, while acting as its subcontractors. The number of arms and armory manufacturing units, as per the data of Small Industrial Development Board (SIDB), is 34. However, as per the local industry sources, the number of units engaged in manufacturing arms is actually more than 40. The number of units reported by Pakistan Hunting & Sporting Arms Development Company (PHSDAC) is also more than 40.

A large share of the locally manufactured hunting and sporting arms are sold in Peshawar market. There is a large market in Dara Adam Khel as well where people can buy the arms made by the local manufacturers. Customers from all around Pakistan travel to those places to buy arms since the prices in those markets are lower than those in other cities of the country. As per PHSDAC, there are 150 retail arms and ammunition shops in Peshawar. The arms produced in Peshawar and Dara Adam Khel are sold on retail shops in major cities of Pakistan; with Karachi and Lahore as the two big markets.

9. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of a Small Arms Manufacturing Unit. Various costs and revenue related assumptions along with results of the analysis are outlined in this section.

The projected Income Statement, Cost of Goods Sold, Cash Flow Statement and Balance Sheet are attached as Annexure.

9.1. Project Economics

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

9.2. Project Cost

Total cost of the project has been calculated to be PKR 20.50 million. The project will be financed through 100% Equity. Table 6 provides the details of the costs calculated for the proposed production unit.

Table 6: Project Cost

Description	Amount (PKR)	Reference
Land	-	9.2.1
Building Renovation Cost	409,965	9.2.2
Machinery & Equipment	12,110,000	9.2.3
Allied Equipment	183,000	9.2.4
Furniture & Fixtures	840,000	9.2.5
Office Equipment	788,500	9.2.6
IT Equipment	409,000	9.2.8
Office Vehicles	439,000	9.2.9
Pre-operating Costs	702,420	9.2.9
Security against building	810,000	9.2.10
Total Capital Cost	16,691,885	
Working capital		
Machinery spare parts inventory	201,833	
Raw material inventory	2,212,500	
Upfront building rent	270,000	
Upfront insurance payment	127,685	
Cash	1,000,000	
Total Working capital	3,812,018	
Total Project Cost (PKR)	20,503,903	

9.2.1. Land

The proposed small arms manufacturing unit will be established in a rented building to avoid the high cost of land. Suitable locations for setting up a manufacturing business 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 unit has been estimated as 4,500 sq. ft. The breakup of the space requirement is provided in Table 7.

Table 7: Breakup of Space Requirement

Break-up of Land Area	Number	% Break-up	Area (Sq. Ft.)
Executive Office	1	5%	225
Production Area	1	50%	2,250
Raw Material Store room	1	7%	315
Finished Goods Store room	1	5%	225
Internal Parts Store room	1	5%	225
Guns Testing Area	1	5%	225
Admin and Accounts Department	1	10%	450
Parking and Gate area	1	8%	360
Washroom	6	5%	225
Total Area		100%	4,500

9.2.2. Building

There will be no cost of building since the unit will be started in a rented premises. However, there will be a renovation cost; required to make the building usable for the business. The proposed project requires electricity load of 47 KW for which an electricity connection under the General Supply Tariff-Industrial three phase will be required. Building rent of PKR 270,000 per month has been included in the operating cost. Building renovation cost is shown in Table 8.

Table 8: Building Renovation Cost

Cost Item	Unit of Measurement	Total Units	Cost/ Unit (PKR)	Total Cost (PKR)
Paint Cost	Litre	119	800	95,220
Labour Cost	Sq. Feet	11,903	18	214,245
Curtains	Number	3	6,000	18,000
Blinds	Number	6	7,000	42,000
Carpet	Sq. Feet	675	60	40,500
Total				409,965

9.2.3. Machinery and Equipment

Table 9 provides details of machinery and equipment required for the project.

Table 9: Machinery and Equipment

Cost Item	Number	Unit Cost (PKR)	Total Cost (PKR)
Milling Machine 3KW	6	800,000	4,800,000
Lathe Machine	2	1,600,000	3,200,000
Vertical Drilling Machine	3	250,000	750,000
Bench Grinder	2	150,000	300,000
Gas Heating Oven	4	200,000	800,000
Dust Remover Machine (Blower)	4	10,000	40,000
Buff Machine	10	50,000	500,000
Iron Work Tables	6	20,000	120,000
Generator 60 KVA	1	1,600,000	1,600,000
Total	38		12,110,000

9.2.4. Allied Equipment

Table 10 provides details of allied equipment required for the project.

Table 10: Electrical and Mechanical Tool Kit

Cost Item	Number of Items	Unit Cost (PKR)	Total Cost (PKR)
Mechanical Tool Kit	4	12,000	48,000
Electrical Tool Kit	2	15,000	30,000
Filing Tool Kit	15	7,000	105,000
Total			183,000

9.2.5. Furniture & Fixtures

Table 11 provides details of the furniture and fixture requirement of the project.

Table 11: Furniture and Fixtures

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Executive Tables	1	60,000	60,000
Executive Chairs	1	30,000	30,000
Office Table	5	20,000	100,000

Office/Visitors Chairs	20	13,000	260,000
Sofa Set	2	45,000	90,000
Racks	20	15,000	300,000
Total Cost (PKR)			840,000

9.2.6. Office Equipment

Details of office equipment required for the project are provided in Table 12.

Table 12: Office Equipment

Cost Item	Units	Unit Cost(PKR)	Total Cost (PKR)
Air Conditioners-1.5 ton	2	105,000	210,000
Exhaust Fan	15	4,500	67,500
Bracket Fan	13	10,500	136,500
Ceiling Fan	7	8,000	56,000
Pedastal Fan	11	11,000	121,000
Water Dispenser	3	24,000	72,000
Wi-Fi / Internet Router	2	3,500	7,000
LED Bulbs	113	300	33,900
Tube Light (s)	8	1200	9,600
Flood Light (s)	5	15,000	75,000
Total Cost (PKR)			788,500

9.2.7. IT Equipment

Details of IT equipment required for the project are provided in Table 13.

Table 13: IT Equipment

Cost Item	Number of Items	Unit Cost (PKR)	Total Cost (PKR)
Laptops	2	100,000	200,000
Desktop Computers	1	60,000	60,000
Office Printer	1	40,000	40,000
CCTV Cameras (2MP)	18	3,000	54,000
DVR	1	15,000	15,000
LED TV (32")	1	40,000	40,000
Total Cost (PKR)			409,000

9.2.8. Office Vehicle

Details of office vehicle required for the project are provided in Table 14.

Table 14: Office Vehicles

Cost Item	Number of Vehicles	Unit Cost (PKR)	Registration Charges (PKR)	Total Cost (PKR)
Loader Rickshaw	1	300,000	13,000	313,000
Motorcycle	1	120,000	6,000	126,000
Total Cost (PKR)	2			439,000

9.2.9. Pre-Operating Cost

Details of pre-operating cost for the project are provided in Table 15.

Table 15: Pre-Operating Cost

Cost Item	Total Cost (PKR)
Administration exp.	435,000
Utilities exp.	67,420
Registration and license fee	200,000
Total	702,420

9.2.10. Security against Building

Details of security against building for the project are provided in Table 16.

Table 16: Security against Building

Cost Item	Months	Unit Cost / Month (PKR)	Total Cost (PKR)
Security against Building	3	270,000	810,000

9.3. Financial Feasibility Analysis

The financial feasibility analysis given in Table 17 provides the information regarding projected IRR, NPV and payback period of the study based on 100% equity.

Table 17: Financial Feasibility Analysis

Description	Project
IRR	68%
NPV (PKR)	76,215,632
Payback Period (years)	2.32

Projection Years	10
Discount Rate used for NPV	25%

9.4. Financial Feasibility Debt Financing

Table 18 provides the information regarding projected IRR, NPV and payback period of the study based on combination of equity (50%) and debt (50%) financing for the proposed project.

Table 18: Financial Feasibility Debt Financing

Description	Project
IRR	66%
NPV (PKR)	91,033,597
Payback Period (years)	2.42
Projection Years	10
Discount Rate used for NPV	22%

9.5. Breakeven Analysis

Breakeven analysis is provided in Table 19.

Table 19: Breakeven Analysis

Particulars	Amount First Year (PKR)	Ratio
Sales (PKR) – A	99,000,000	100%
Variable Cost (PKR) – B	76,298,297	77%
Contribution (PKR) (A-B) = C	22,701,703	23%
Fixed Cost (PKR) – D	16,447,990	17%
Break Even Revenue (PKR) (D/CM) =E	71,728,146	
Breakeven Units (Guns)		3,043
Breakeven Capacity		36%

9.6. Revenue Generation

Based on the 50% capacity utilization of the unit, sales revenues during the first year of operations is estimated in Table 20.

Table 20: Revenue Generation

Product	Quantity Sold (Units)(A)	Sale Price Per Unit (PKR) (B)	Total Revenue (PKR) (A*B)
Beretta	1,800	24,000	43,200,000
Zigana	1,800	22,000	39,600,000
Glock	600	27,000	16,200,000
Total	4,200		99,000,000

9.7. Variable Cost Estimate

Variable costs of the project have been provided in detail in Table 21.

Table 21: Variable Cost Estimate

Variable Cost	Cost (PKR)
Material Cost	53,100,000
Direct Electricity	637,420
Direct Labour	19,500,000
Factory Vehicle Running and Maintenance Cost	243,200
Machinery Maintenance Cost	1,211,000
Communications expense (phone, internet etc.)	300,000
Office vehicles running and maintenance expense	136,029
Indirect Electricity	809,035
Generator Fuel Cost	361,614
Total Variable Cost (PKR)	76,298,297

9.8. Material Cost

Table 22 provides detail of total material cost used.

Table 22: Material Cost

Particulars	Total Production	Cost per Unit (PKR)	Total Cost (PKR)
		<i>Table 23</i>	
Beretta	1,800	13,000	23,400,000
Zigana	1,800	12,000	21,600,000
Glock	600	13,500	8,100,000
Total	4,200		53,100,000

Table 23: Cost per Unit

Arms	Weapons's Frame Cost (PKR)	Barrel Cost	Procured Parts Cost (PKR)	Total Cost (PKR)
Beretta	4,500	1,000	7,500	13,000
Zigana	3,500	1,000	7,500	12,000
Glock	4,500	1,000	8,000	13,500

Table 24: Material Rates

Materials	Standard	Price (PKR)
Aluminum 7075 Plates	2Kg (12x6 Inch)	3,000

Table 25: Manufactured Parts Cost

Arms	Aluminum Used per Unit (Kg)	Aluminum Used per unit (PKR)
Beretta	1	1,500
Zigana	1	1,500

9.9. Fixed Cost Estimate

Table 26 provides details of fixed cost for the project.

Table 26: Fixed Cost Estimate

Fixed Cost	Cost (PKR)
Administration expense	6,000,000
Administration benefits expense	1,275,000
Building rental expense	3,240,000
Office expenses (stationery, entertainment, janitorial services, etc.)	300,000
Promotional expense	1,980,000
Insurance expense	127,685
Depreciation expense	2,374,822
Professional fees (legal, audit, consultants, etc.)	20,000
Amortization of pre operating cost	140,484
Bad debt expense	990,000
Total Cost (PKR)	16,447,990

9.10. Human Resource Requirement

For the 1st year of operations, the production unit shall require the workforce at a salary cost as projected in Table 27.

Table 27: Human Resource Requirement

Designation	No of Persons	Average Monthly Salary (PKR)	Total Salary (PKR)
Production Manager	1	100,000	1,200,000
Production Supervisor	1	60,000	720,000
Procurement			
Procurement Officer	1	60,000	720,000
Sizing and Cutting			
Skilled	1	45,000	540,000
Unskilled	1	30,000	360,000
Milling			
Skilled	6	50,000	3,600,000
Unskilled	6	30,000	2,160,000
Lathe Operations			

Skilled	2	50,000	1,200,000
Unskilled	1	30,000	360,000
Vertical Drilling			
Skilled	2	45,000	1,080,000
Grinding			
Skilled	2	40,000	960,000
Gas Heating			
Unskilled	2	30,000	720,000
Dust Removing			
Unskilled	2	30,000	720,000
Polishing Painting and Buffing			
Skilled	2	40,000	960,000
Unskilled	1	30,000	360,000
Assembling			
Skilled	8	45,000	4,320,000
Unskilled	2	30,000	720,000
Quality Control			
Officer	1	60,000	720,000
Assistant	1	40,000	480,000
Indirect Staff			
Accounts and Admin Incharge	1	40,000	480,000
Sales and Marketing Officer	1	50,000	600,000
Store Incharge	2	30,000	720,000
Security Guard	4	25,000	1,200,000
Office Boy	2	25,000	600,000
Total	53		25,500,000

10. CONTACT DETAILS

Details of suppliers of machinery and raw material are provided in Table 28.

Table 28: Suppliers of Raw Material

Name of Supplier	Supplies	City	Contact	Website
Metalife Aluminum Factory	Aluminum	Lahore	0322 6655522	https://www.metalife.com.pk/
Chaudhary Metal House	Aluminum	Lahore	0333 4456110	http://www.chmetalhouse.com/
Ittehad Aluminium Lahore	Aluminum Alloy	Islamabad	+92 51 2227683-4	info@ittehadaluminium.com.pk
Reliance Corporation	Aluminum Alloy	Karachi	(021) 32414364	info@reliancecorp.com.pk
Arsalan Chaudhary Enterprises	Aluminum & Steel Alloy	Lahore	+92 332 437-5857	www.arsalance.com
Pakistan Steel Mills Corporation (pvt) Ltd	Steel Alloy	Karachi	+92 - 21 -9 9264222	http://www.paksteel.com.pk/contact.html
Buksh Elahi & Co Pvt Ltd	Guns	Lahore	(042) 37324827	
Kashif & Company- Licensed Guns/ Arms	Arms	Peshawar	(091) 5851234	
Haider Arms Dealer	Arms	Peshawar	0333 9200802	
Mughal Aluminium Company	Aluminum supplies	Quetta	0333 7819995	
Khan Steel Industries	Steel suppliers	Quetta	0335 2389370	

11. USEFUL LINKS

Table 29: Useful Links

Organization	Link
Small and Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
National Business Development Program (NBDP)	www.nbdp.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries and Production	www.moip.gov.pk
Government of Punjab	www.punjab.gov.pk
Trade Development Authority of Pakistan	www.tdap.gov.pk
Ministry of Defence	https://mod.gov.pk
Pakistan Hunting and Sporting Arms Development Company (PAHSDC)	http://www.phsadc.org
Ministry of Defence Production	https://modp.gov.pk
Securities and Exchange Commission of Pakistan	www.secp.gov.pk
State Bank of Pakistan	www.sbp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.qos.pk/
Khyber Pakhtunkhwa Small Industries Corporation	www.small_industries_de.kp.gov.pk/
Azad Kashmir Small Industries Corporation	www.sic.ajk.gov.pk/
Industries and Commerce Department Balochistan	www.dgicd.gob.pk/
Pakistan Industrial Development Corporation	https://pidc.com.pk/

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										
Beretta	43,200,000	52,414,560	63,069,011	75,362,212	89,518,714	105,791,937	124,467,740	145,868,412	170,357,144	187,903,930
Zigana	39,600,000	48,046,680	57,813,260	69,082,028	82,058,821	96,975,942	114,095,428	133,712,711	156,160,716	172,245,269
Glock	16,200,000	19,655,460	23,650,879	28,260,829	33,569,518	39,671,976	46,675,403	54,700,655	63,883,929	70,463,974
Total Revenue	99,000,000	120,116,700	144,533,149	172,705,069	205,147,052	242,439,855	285,238,571	334,281,778	390,401,789	430,613,173
Cost of sales										
Material Cost	53,100,000	64,426,230	77,522,325	92,632,719	110,033,419	130,035,922	152,991,597	179,296,590	209,397,323	230,965,248
Direct Electricity	637,420	826,437	1,054,623	1,327,998	1,653,376	2,038,452	2,491,913	3,023,550	3,644,383	3,932,289
Direct Labour	19,500,000	21,391,500	23,466,476	25,742,724	28,239,768	30,979,025	33,983,991	37,280,438	40,896,640	44,863,614
Factory Vehicle Running and Maintenance Cost	243,200	418,290	461,373	508,895	561,311	619,126	682,896	753,234	830,818	916,392
Machinery Maintenance Cost	1,211,000	1,335,733	1,473,313	1,625,065	1,792,446	1,977,068	2,180,706	2,405,319	2,653,067	2,926,333
Generator Fuel Cost	361,614	423,333	496,045	581,340	681,012	797,088	931,847	1,087,859	1,268,007	1,368,180
Total cost of sales	75,053,234	88,821,522	104,474,156	122,418,740	142,961,332	166,446,682	193,262,951	223,846,990	258,690,238	284,972,055
Gross Profit	23,946,766	31,295,178	40,058,993	50,286,329	62,185,720	75,993,174	91,975,620	110,434,788	131,711,551	145,641,118
General administration & selling expenses										
Administration expense	6,000,000	6,582,000	7,220,454	7,920,838	8,689,159	9,532,008	10,456,613	11,470,904	12,583,582	13,804,189
Administration benefits expense	1,275,000	1,398,675	1,534,346	1,683,178	1,846,446	2,025,552	2,222,030	2,437,567	2,674,011	2,933,390
Building rental expense	3,240,000	3,564,000	3,920,400	4,312,440	4,743,684	5,218,052	5,739,858	6,313,843	6,945,228	7,639,751
Indirect Electricity	809,035	866,894	929,557	997,361	1,070,673	1,149,898	1,235,477	1,327,886	1,427,646	1,540,430
Communications expense (phone, internet etc.)	300,000	329,100	361,023	396,042	434,458	476,600	522,831	573,545	629,179	690,209
Office vehicles running and maintenance expense	136,029	150,040	165,494	182,539	201,341	222,079	244,953	270,183	298,012	328,708
Office expenses (stationery, entertainment, janitorial services, etc.)	300,000	329,100	361,023	396,042	434,458	476,600	522,831	573,545	629,179	690,209
Promotional expense	1,980,000	2,402,334	2,890,663	3,454,101	4,102,941	4,848,797	5,704,771	6,685,636	7,808,036	8,612,263
Insurance expense	127,685	108,532	89,380	70,227	51,074	31,921	12,769	243,719	207,161	170,603
Professional fees (licensing, legal, audit, consultants, etc.)	20,000	50,000	55,150	60,830	67,096	74,007	81,630	90,037	99,311	109,540
Depreciation expense	2,374,822	2,374,822	2,345,222	2,447,722	2,447,722	2,407,707	1,837,512	4,471,231	4,417,121	4,604,804
Amortization of pre-operating costs	140,484	140,484	140,484	140,484	140,484	-	-	-	-	-
Amortization of legal, licensing, and training costs	-	-	-	-	-	-	-	-	-	-
Bad debt expense	990,000	1,201,167	1,445,331	1,727,051	2,051,471	2,424,399	2,852,386	3,342,818	3,904,018	4,306,132
Subtotal	17,693,054	19,497,147	21,458,526	23,788,855	26,281,007	28,887,621	31,433,658	37,800,915	41,622,484	45,430,229
Operating Income	6,253,712	11,798,031	18,600,467	26,497,474	35,904,713	47,105,552	60,541,962	72,633,873	90,089,067	100,210,889
Other income (Scrap Sale)	813,600	987,141	1,187,800	1,419,322	1,685,936	1,992,415	2,344,142	2,747,188	3,208,393	3,538,857
Gain / (loss) on sale of machinery & equipment	-	-	-	-	-	-	3,027,500	-	-	-
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	197,125	-	-	-
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	109,750	-	-	-
Earnings Before Interest & Taxes	7,067,312	12,785,172	19,788,267	27,916,795	37,590,649	49,097,967	66,220,479	75,381,061	93,297,460	103,749,747
Tax	1,237,500	1,501,459	1,806,664	2,158,813	2,564,338	3,030,498	3,565,482	4,178,522	4,880,022	5,382,665
NET PROFIT/(LOSS) AFTER TAX	5,829,812	11,283,713	17,981,602	25,757,982	35,026,310	46,067,469	62,654,997	71,202,539	88,417,437	98,367,082

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											
<i>Current assets</i>											
Cash & Bank	1,000,000	3,524,972	7,454,165	11,333,365	17,090,521	23,680,121	29,819,207	61,451,118	130,298,124	214,556,758	338,792,886
Accounts receivable		8,136,986	9,004,796	10,876,021	13,037,187	15,528,169	18,393,982	21,685,415	25,459,740	29,781,516	33,740,341
Finished goods inventory		-	-	-	-	-	-	-	-	-	-
Machinery Spare Parts	201,833	243,994	294,961	356,575	431,059	521,103	629,955	761,545	920,622	1,112,929	-
Raw material inventory	2,212,500	2,960,922	3,929,765	5,179,403	6,786,024	8,845,648	11,479,142	14,838,479	19,114,546	23,254,928	-
Pre-paid building rent	270,000	297,000	326,700	359,370	395,307	434,838	478,321	526,154	578,769	636,646	-
Pre-paid insurance	127,685	108,532	89,380	70,227	51,074	31,921	12,769	243,719	207,161	170,603	-
Total Current Assets	3,812,018	15,272,407	21,099,767	28,174,961	37,791,173	49,041,800	60,813,375	99,506,429	176,578,963	269,513,381	372,533,227
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building / Infrastructure- Renovation Cost	409,965	368,969	327,972	286,976	245,979	204,983	163,986	122,990	81,993	40,997	-
Machinery & equipment	12,110,000	10,293,500	8,477,000	6,660,500	4,844,000	3,027,500	1,211,000	23,004,777	19,554,060	16,103,344	12,652,627
Allied Equipment	183,000	118,950	54,900	240,925	156,602	72,278	317,186	206,171	95,156	417,586	271,431
Furniture & fixtures	840,000	714,000	588,000	462,000	336,000	210,000	84,000	1,595,707	1,356,351	1,116,995	877,639
Office vehicles	439,000	373,150	307,300	241,450	175,600	109,750	43,900	911,434	774,719	638,004	501,289
IT Equipment	409,000	265,850	122,700	559,361	363,585	167,808	765,000	497,250	229,500	1,046,237	680,054
Office equipment	788,500	670,225	551,950	433,675	315,400	197,125	78,850	1,497,875	1,273,194	1,048,513	823,831
Security Against Building	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000
Total Fixed Assets	15,989,465	13,614,644	11,239,822	9,694,887	7,247,165	4,799,443	3,473,922	28,646,203	24,174,973	21,221,675	16,616,871
<i>Intangible assets</i>											
Pre-operation costs	702,420	561,936	421,452	280,968	140,484	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	702,420	561,936	421,452	280,968	140,484	-	-	-	-	-	-
TOTAL ASSETS	20,503,903	29,448,986	32,761,040	38,150,816	45,178,822	53,841,244	64,287,297	128,152,632	200,753,935	290,735,056	389,150,098
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable		3,115,271	3,700,375	4,377,731	5,161,337	6,067,395	7,114,687	8,325,025	9,723,789	11,287,472	11,335,433
Other liabilities		-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	-	3,115,271	3,700,375	4,377,731	5,161,337	6,067,395	7,114,687	8,325,025	9,723,789	11,287,472	11,335,433
<i>Other liabilities</i>											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903	20,503,903
Retained earnings		5,829,812	8,556,763	13,269,183	19,513,582	27,269,946	36,668,708	99,323,704	170,526,244	258,943,681	357,310,763
Total Equity	20,503,903	26,333,715	29,060,666	33,773,085	40,017,485	47,773,849	57,172,610	119,827,607	191,030,147	279,447,584	377,814,666
TOTAL CAPITAL AND LIABILITIES	20,503,903	29,448,986	32,761,040	38,150,816	45,178,822	53,841,244	64,287,297	128,152,632	200,753,935	290,735,056	389,150,098

12.3. Cash Flow Statement

Calculations	SMEDA										
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit		5,829,812	11,283,713	17,981,602	25,757,982	35,026,310	46,067,469	62,654,997	71,202,539	88,417,437	98,367,082
Add: depreciation expense		2,374,822	2,374,822	2,345,222	2,447,722	2,447,722	2,407,707	1,837,512	4,471,231	4,417,121	4,604,804
amortization of pre-operating costs		140,484	140,484	140,484	140,484	140,484	-	-	-	-	-
Accounts receivable		(8,136,986)	(867,810)	(1,871,225)	(2,161,166)	(2,490,982)	(2,865,813)	(3,291,432)	(3,774,326)	(4,321,776)	(3,958,824)
Finished goods inventory		-	-	-	-	-	-	-	-	-	-
Raw material inventory	(2,212,500)	(748,422)	(968,843)	(1,249,638)	(1,606,621)	(2,059,624)	(2,633,493)	(3,359,337)	(4,276,067)	(4,140,383)	23,254,928
Pre-paid building rent	(270,000)	(27,000)	(29,700)	(32,670)	(35,937)	(39,531)	(43,484)	(47,832)	(52,615)	(57,877)	636,646
Advance insurance premium	(127,685)	19,153	19,153	19,153	19,153	19,153	19,153	(230,951)	36,558	36,558	170,603
Accounts payable		3,115,271	585,104	677,356	783,606	906,058	1,047,292	1,210,338	1,398,764	1,563,683	47,961
Other liabilities		-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(2,812,018)	2,524,972	12,485,956	17,948,669	25,270,738	33,859,547	43,889,979	58,641,705	68,847,006	85,722,457	124,236,129
Cash provided by / (used for) financing activities	20,503,903	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(16,691,885)	-	-	(800,287)	-	-	(1,082,186)	(27,009,793)	-	(1,463,823)	-
Cash (used for) / provided by investing activities	(16,691,885)	-	-	(800,287)	-	-	(1,082,186)	(27,009,793)	-	(1,463,823)	-
NET CASH	1,000,000	2,524,972	12,485,956	17,148,383	25,270,738	33,859,547	42,807,793	31,631,911	68,847,006	84,258,634	124,236,129

13. KEY ASSUMPTIONS

13.1. Operating Cost Assumptions

Table 30: Operating Cost Assumptions

Description	Details
Building rent growth rate	10%
Furniture and fixture depreciation	15%
Vehicle depreciation	15%
Office equipment depreciation	15%
Inflation rate	10.3%
Wage growth rate	9.7%
Electricity price growth rate	7.9%
Office equipment price growth rate	9.6%
Office vehicle price growth rate	11%

13.2. Revenue Assumptions

Table 31: Revenue Assumptions

Description	Details
Sale price growth rate	10.3%
Initial capacity utilization	50%
Capacity growth rate	5%
Maximum capacity utilization	90%

13.3. Financial Assumptions

Table 32: Financial Assumptions

Description	Details
Project life (Years)	10
Debt: Equity	0:100
Discount Rate used for NPV	25%

13.4. Debt related Assumptions

Table 33: Debt Related Assumptions

Description	Details
Project life (Years)	10

Debt: Equity	0:100
Discount Rate used for NPV	25%
Debt Tenure	5 years
Grace Period	1 Year
Interest Rate (KIBOR+3%)	19%

13.5. Cash Flow Assumptions

Table 34: Cash Flow Assumptions

Description	Details
Accounts receivable cycle (in days)	30
Accounts payable cycle (in days)	15

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