Pre-feasibility Study

KITCHEN UTENSILS MANUFACTURING UNIT

April 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

This document on "Kitchen Utensils Manufacturing Unit" provides information about the production of kitchen utensils using high-grade Aluminium. Aluminium is considered eco-friendly as it is a highly sustainable and readily recyclable material and it can be used to make high quality, durable, light weight, non-toxic and easy-to-clean kitchen utensils as compared to plastic utensils, plastic may melt or flake with heat resulting contamination of food by chemicals. Aluminium is a much better conductor than iron or steel and therefore the pots made out of it heat up and cool off much quicker, thereby saving both energy and time. They are lighter in weight yet being durable which makes them easy to handle in the kitchen. From a manufacturer's perspective as well, it is more convenient to manage making, transportation and storage of Aluminium utensils.

The "Kitchen Utensils Manufacturing Unit" is proposed to be located in Gujranwala, Sialkot Faisalabad, Lahore or Karachi. These areas have existing manufacturing clusters, are close to large established markets, have established distribution channels, existing industrial zones and easy availability of skilled labor.

This proposed project will require total investment of PKR 62.75 million. This includes capital investment of PKR 54.8 million and working capital of PKR 7.90 million. This project is financed through 100% equity with a Net Present Value (NPV) of PKR 169.5 million and an Internal Rate of Return (IRR) of 48% and a Payback period of 2.72 years. Further, this project is expected to generate Gross Annual Revenues of PKR 233.28 million during first year, Gross Profit (GP) ratio ranging from 22% to 24% and Net Profit (NP) ratio ranging from 8% to 13% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 28% with annual revenue of PKR 108 million.

The proposed project may also be established using leveraged financing. At 50% debt financing at a cost of KIBOR+3%, the proposed utensils manufacturing unit provides Net Present Value (NPV) of PKR 228.04 million, Internal Rate of Return (IRR) of 47% and Payback period of 2.84 years. Further, this project is expected to generate Net Profit (NP) ratio ranging from 7% to 14% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 32.23% with annual revenue of PKR 125.30 million.

The proposed project will provide employment opportunities to around 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 Private Limited Company. Further, the proposed project may also be established as "Sole Proprietorship" or 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 establishing of "Kitchen Utensils 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

This document provides details for setting up "Kitchen Utensils Manufacturing Unit". It involves manufacturing of Eco-friendly utensils by using Aluminium metal. Aluminium is highly versatile, recyclable and sustainable metal. It is amongst the most eco-friendly metals on the planet. Out of more than 1 billion tons of Aluminium ever produced, around 75% of this metal is still in use because of the reason that it can be recycled indefinitely. It transmits conducted heat and reflects radiant heat, making it an excellent metal to produce cooking utensils. Aluminium is one of the toughest metals, yet it is lighter than most of the metals. It is also highly malleable and corrosion resistant.

Aluminium utensils manufacturing business offers entrepreneurs an attractive opportunity to invest in this business. Growing market, easy access to Aluminium raw material, easy availability of skilled labour force provides a strong rationale to invest in this business.

The proposed project will operate for 8 hours a day for 270 days a year to produce cooking sets, frying pan, Sauce Pan, Baking Pan, Wok, Tawa, Milk Pan and Pressure Cooker. Figure 1 shows Aluminium kitchen utensils.

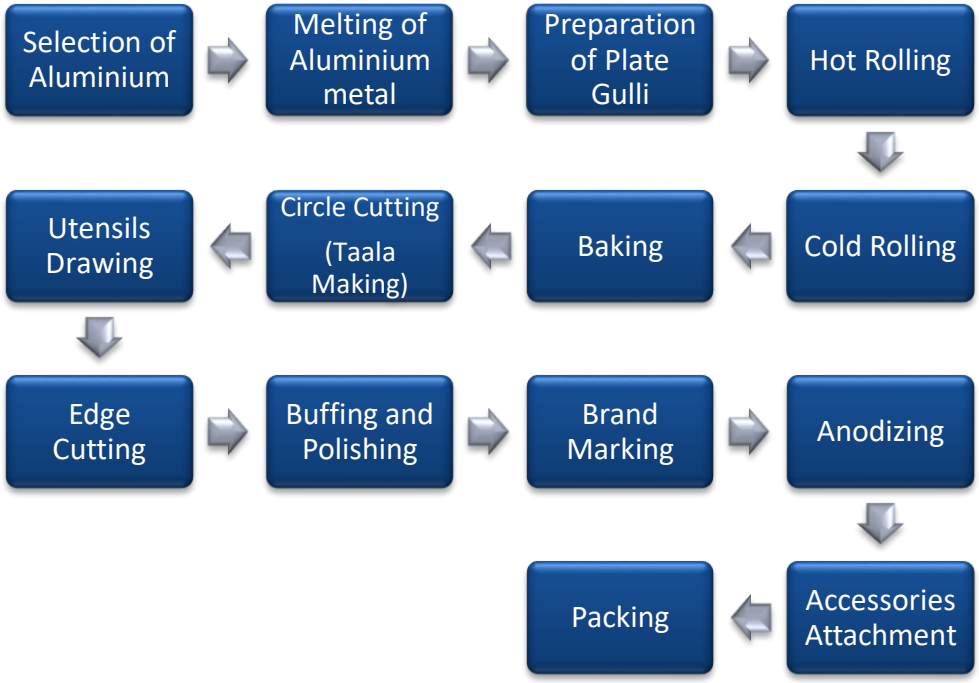
Figure 1: Aluminium Kitchen Utensils

The factory will have two kilns (for melting Aluminium), twenty patterns (sancha), one cutter (toki), one circular cutter, one lathe machine (kharaad), two hydraulic presses, three rectifiers, four buffing machines, two punchers (one hole and one rivet fixer), twenty dies and one oven trolly. Total land area required for the unit would be approximately 2 Kanals that would be purchased. Total employment required for this project is 53 persons.

5.1 Production Process

Production process of Aluminium kitchen utensils is shown in Figure 2.

Figure 2: Aluminium Kitchen Utensils – Process Flow Diagram



Brief description of production process for Kitchen Utensils Manufacturing is provided hereunder.

Selection of Raw Material

Process for making Aluminium utensils starts with selection of Aluminium metal. Aluminium metal is the main raw material for making Aluminium utensils. It is commonly known as 'Silver' in the local industry. For Production of utensils, manufacturers normally use two sources of raw Aluminium metal. These are:

- Ingots, known as 'Aluminium Silli
- Old Aluminium utensils

Aluminium Silli is made by the ingot makers and is readily available in the market. Aluminium utensils manufacturers procure these ingots as per their need from the market.

Old Aluminium utensils are also available in market separately. They are procured by utensils manufacturers to manufacture new utensils by recycling the old ones.

Normally, a combination of Aluminium Silli and old utensils is used to manufacture new utensils. This document assumes a combination of "Aluminium Silli" and "Old Aluminium Utensils" as the raw material in a ratio of 80% and 20% respectively. Aluminium Silli produces better quality utensils than the ones manufactured from old utensils. It is due to the reason that old utensils contain more impurities than Aluminium

Silli. The ratio of Aluminium Silli and old utensils may, as raw material, be adjusted to meet the required quality parameters of finished product.

In any case the raw material used for making utensils should ideally have Aluminium content of 97-98%.

Figure 3 shows old aluminium utensils and aluminium ingots (Silli).

Figure 3: Raw Material – Aluminium Metal

Old Aluminium Utensils

Aluminium Ingots (Silli)

Other raw materials are also used in finished product, which are attached to the utensils at later stages of production process. These include:

- Bakelite components (Kulsy)
- Wooden handles
- Aluminium rivets

Figure 4 shows Aluminium rivets, wooden handles and Bakelite components.

Figure 4 : Raw Material - Others

Aluminium Rivets

Wooden Handles

Bakelite Components

Aluminium Melting

The selected Aluminium metal is melted in kiln/furnace. This process is carried out by loading the Aluminium Silli or/and old utensils into the furnace, which melts it at temperature around 600-700 degree Celsius. The proposed project is assumed to have two furnaces having melting capacity of 400 kg each.

Preparation of Plates (Gulli)

The molten Aluminium is then poured into molds/patterns (sancha) where it gets solidified and takes the shape of hard pieces of Aluminium called billets (Gulli). The molds are then opened to obtain these Gullis, which are then sent for rolling process.

Figure 5 shows Furnace, molten Aluminium being poured into mold and plates and the Gulli extracted from the molds.

Figure 5: Furnace, Molten Metal Pouring & Cast Aluminium Plates (Gulli)

Furnace / Kiln

Molten Metal Pouring

Plates (Gulli)

Hot Rolling

Gulli is taken to the next process, which is called Hot Rolling. During this process, the Gulli is passed between rollers at high temperature. These rollers decrease the thickness of Aluminium billets and increase its width to make a sheet out of it. The thickness of the Aluminium sheet after hot rolling process is in the range of 8 to 12 millimeters. Figure 6 shows hot rolling machine and hot rolled Aluminium sheets.

Figure 6: Hot Rolling Machine and Hot Rolled Aluminium Sheets

Hot Rolling Machine

Hot Rolled Aluminium Sheet

Cold Rolling

The thickness of hot rolled sheets is more than the thickness required for making utensils. Therefore, these sheets are passed through the second rolling process, known as Cold Rolling. This process is carried out at room temperature without using heating medium. The clearance between the rollers is set to meet the specifications of the particular utensil to be made from it. For example, the sheet to be used for making pressure cookers is kept thicker than the one to be used for making normal cooking pans. The sheets are passed multiple times between the rollers to attain the required thickness. Figure 7 shows cold rolling process.

Figure 7: Cold Rolling Process

This prefeasibility document assumes that rolling process will be outsourced since that the rolling machinery (for both hot & cold rolling) is too expensive to be affordable for a medium size kitchen utensils manufacturing unit. Some large size organizations, which have installed rolling machinery, provide rolling services to other manufacturing unit that do not own hot and cold rollers. So, the outsourcing of rolling process is a market norm also.

Baking

The cold rolled Aluminium sheets are loaded into a furnace/oven using oven trolly where they are baked by heating for specified period of time. This helps develop the mechanical properties in the metal, which are required in the next operations for shaping the sheet into utensils. Batch furnaces are used by the industry for this purpose. This process is called “Tapaaee” in the local language.

Figure 8 shows Aluminium sheets being taken into a furnace for baking.

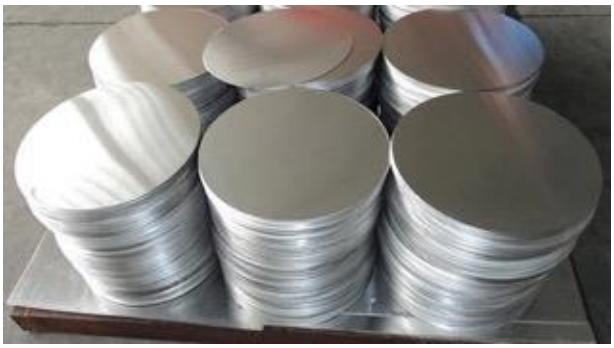
Figure 8: Baking of Aluminium Sheets in Furnace

Circle Cutting (Taala Making)

The next step in the process is cutting circles from rolled and heat-treated Aluminium sheets. The larger Aluminium sheets are first cut in squares according to the required diameter of the circle. Each individual square sheet is then cut in the form of a circular sheet on a Circle-Cutting machine. Figure 9 shows Circular shaped Aluminium and Circle Cutting Process.

Figure 9: Circular Shaped Aluminium and Circle Cutting Machine

Circular shaped Aluminium



Circle Cutting Process

Utensils Drawing

The circle made out of the Aluminium sheet is given the shape of the utensil as per the required design parameters. Two methods are commonly used for this purpose, Pressing and Spinning. Both the methods require the use of a metallic die to give the required shape to the circular Aluminium sheet.

Drawing by Hydraulic Press

This is the commonly used method in the industry. In this method, hydraulic pressure is applied on the circular Aluminium sheet, placed over a metallic die, which causes

the sheet to take the shape of the utensil. This is a quicker method compared to the spinning method and the involvement of human skill is lower. Hydraulic press is an expensive machine and thus cannot be acquired by very small units. Therefore, such manufacturers have to rely on spinning method. This prefeasibility document assumes that utensils drawing will be performed using hydraulic press. Two hydraulic presses have been assumed to be part of machinery. Figure 10 shows pictures of Aluminium utensils drawing using hydraulic press machine.

Figure 10: Aluminium Utensils Drawing by Hydraulic Press

Drawing by Spinning

In this method, the metallic die and the circular Aluminium sheet are fitted on a spinning machine and pressure is applied manually, using tools, along the walls of the die to create the shape of the utensil. The method requires a higher degree of skill to produce a high-quality product. Per worker production capacity of this method is lower than that of the hydraulic press method. Figure 11 shows utensils drawing using Spinning machine.

Figure 11: Aluminium Utensils Drawing by Spinning

Edge Cutting

The utensils, produced after the drawing step, have sharp edges, which are rounded on a spinning machine, using appropriate tools. Figure 12 shows Edge cutting process.

Figure 12: Edge Cutting Operations

Buffing and Polishing

The utensils are buffed and polished to clean and bring shine in the Aluminium surface. This is done on high-speed spinning machines. Figure 13 shows buffing and polishing process.

Figure 13: Buffing and Polishing

Anodizing

Anodizing is an electrochemical process that converts the metal surface into a decorative, durable, corrosion-resistant, anodic oxide finish. Immersing the Aluminium into an acid electrolyte bath and passing an electric current through the medium accomplish anodizing. Figure 14 shows anodized utensils.

Figure 14: Anodized Utensils

Accessories Attachment

The buffed/polished utensils are sent to the assembly section where accessories are attached to make them usable. These include utensil handles, Bakelite components, Aluminium rivets, etc. These are fitted by first drilling holes at the required places and then fixing the accessories.Figure 15 shows accessories fitting process.

Figure 15: Accessories Attached Kitchen Utensils

Brand Marking

After the accessories are fitted, the utensils are marked with the name of the brand/manufacturer.Figure 16 shows a marked sauce pan.

Figure 16: Marked Sauce pan

Packing

The utensils are packed in polythene bags and corrugated cardboard cartons and stored in the warehouse for shipment to the customers. Cooking sets are normally packed in corrugated cardboards whereas individual utensils are packed in polythene bags. Figure 17 shows packing material for Aluminium utensils.

Figure 17: Packing Material

Aluminium Utensils Packed in Polythene Bags

Corrugated Cardboard Cartons

5.2 The ISO 9001 Standard

The concept of quality varies from one user to another with a company producing goods of different degrees of quality. Quality is defined as the fitness for a purpose.

Companies voluntarily register for these standards and are issued certificates. ISO 9001 standard is not a product certification. It is a quality process certification. Quality for of Aluminium utensils can be improved by adapting quality parameters prescribed by ISO 9001:2015.

The new ISO 9001:2015 management system standard helps ensure that consumers get reliable, desired quality goods and services. This further increases benefits for a business.

5.3 Installed and Operational Capacities

The proposed manufacturing unit will have a maximum capacity of processing 648,000 kg Aluminium metal per year. This capacity has been calculated on the basis kilns/furnaces since this process has the lowest capacity and is thus the bottleneck. The facility shall start from 60% capacity utilization in the first year of operation and will gradually increase by 10% per annum to reach a maximum of 85% in the fourth year. The projection period has been assumed to be 10 years.

The unit would operate for 8 hours per day, working in one shift per day for 270 working days in a year.

Table 1 shows the installed and operational capacities of the proposed unit.

Table 1: Installed and Operational Capacity

Machinery	Number of Kilns	Capacity per Batch (kg)	Number of Batches per day	Annual Working Days	Annual Capacity (kg)
Kiln	2	400	3	270	648,000

6. CRITICAL FACTORS

Before making the decision to invest in Kitchen Utensils Manufacturing Unit, it is important to carefully analyse the associated risk factors. Important factors to be considered are as follows:

- Technical know-how and basic knowledge of the entrepreneur
- Production of a quality product, specific to user need and satisfaction
- Availability of specialized workforce
- Strict checks on quality standards
- Up-to-date knowledge of market needs and new technology
- Selection of appropriate machinery, technology and human resources
- Rigorous supervision of the production process at every level
- Ability to generate work orders through industrial networking (B2B and B2C)
- Quality products and customer satisfaction and;
- Attractive labeling and packaging

7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Gujranwala is the largest producer of Aluminium kitchen utensils in Pakistan. It has the largest potential for investment in the business of kitchen utensils due to the easy availability of raw materials, skilled labour and ease in establishing a manufacturing unit.

Investment opportunities in cities like Sialkot, Karachi and Faisalabad are high as well because of existence of economic zones, ease of doing business and large existing markets for kitchen utensils.

8. POTENTIAL TARGET MARKETS

Potential target markets include the metropolitan cities of Lahore, Karachi, Islamabad, Multan, Quetta, and Peshawar due to the proximity of utensils, easy access of cheap labours and existing market for the products. With increase in population of these cities demand for the utensils has increased further middle/elite, educated and modern class in Pakistan prefers unique utensils, which includes environment friendly products. Having good quality utensils is a matter of pride for them.

The Pakistani Aluminium Kitchen Utensils hold a significant place in the world. Pakistan exports Aluminium utensils to different countries in the world, with UAE being the largest export market followed by Saudi Arabia, UK and USA. Pakistan has small imports of Aluminium utensils, which are mostly supplied by China. According to the UN Comtrade Data, Pakistan exported USD 110 million worth of Aluminium utensils under HS code 7615 over a period of last five years[1]. Table 2 shows Pakistan's Aluminium utensils imports and exports during the last five years.

Table 2: Imports and Exports of Aluminium Kitchen and Household Articles

Years	Quantity (kg)	Trade Value (US$)	Quantity (kg)	Trade Value (US$)
	Imports of Aluminium Kitchen and household articles		Exports of Aluminium Kitchen Utensils	
2016	245,390	862,873	7,082,725	23,661,370
2017	403,435	1,209,940	6,702,446	22,487,037
2018	1,212,005	1,567,641	5,716,856	19,996,589
2019	552,670	1,909,342	6,579,535	21,810,499
2020	426,462	1,338,545	6,640,597	22,163,929
Total	**2,839,962**	**6,888,341**	**32,722,159**	**110,119,424**

9. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of Kitchen Utensils 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.

[1] https://comtrade.un.org/data/

The financial feasibility analysis given in Table 3 provides the information regarding projected IRR, NPV and payback period of the study based on 100% equity.

Table 3: Financial Feasibility Analysis

Description	Values
IRR	48%
NPV (PKR)	169,461,228
Payback Period (years)	2.72
Projection Years	10
Discount Rate used for NPV	15%

9.2. Financial Feasibility Debt Financing

Table 4 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 4: Financial Feasibility Debt Financing

Description	Project
IRR	47%
NPV (PKR)	228,040,994
Payback Period (years)	2.84
Projection Years	10
Discount Rate used for NPV	12%

9.3. Project Cost

Total cost of the project has been estimated to be PKR 62.75 million. The project will be financed through 100% Equity. Table 5 provides the detail of the project cost of the proposed manufacturing unit.

Table 5: Project Cost

Description of Costs	Amount (PKR)
Capital Cost	
Land (2 Kanal)	20,000,000
Building / Infrastructure	15,977,000
Machinery and Tools	9,925,000
Office Equipment	1,314,000
Furniture & Fixtures	865,000
Vehicles	2,201,600
Pre-Operating Cost	4,567,229
Total Capital Cost	**54,849,829**
Working Capital Cost	
Equipment spare part inventory	99,250
Raw material inventory	6,606,609
Upfront insurance payment	192,907
Cash	1,000,000
Total Working Capital	**7,898,766**
Total Project Cost	**62,748,595**

Details of the listed items of the project cost are discussed in the following paragraphs:

9.3.1. Land

The manufacturing unit will be set up on owned land of 2 Kanals (9,000 sq. feet) as shown in Table 6 and Table 7.

Table 6: Land Cost

Cost Item	Area (Kanal)	Rate per Kanal	Total Cost (PKR)
Land	2	10,000,000	20,000,000

Table 7: Breakup of Space Requirement

Area Description	Area (sq. ft.)
Covered Area	
Management Building	1,000
Factory Area	6,650
Store	500
Washrooms	180
Total Covered Area (Sq. ft.)	**8,330**
Uncovered Area	
Pavement/Driveway	260
Grounds	410
Total Uncovered Area (Sq. ft)	**670**
Total Area (Sq. ft)	**9,000**

9.3.2. Building

Factory buildings will be built over the purchased land area of 9,000 sq. feet. Industrial electricity connection of 30-40 KW load (B2a) will be required for the proposed project. Details of the required space, structures and covered areas are provided in Table 7. Table 8 provides details for cost building or civil works.

Table 8: Building Cost

Cost Item	Area (Sq. Feet)	Rate per Seq. Feet	Total Cost (PKR)
Admin. Building	1,000	2,100	2,100,000
Factory	6,650	1,800	11,970,000
Store	500	2,000	1,000,000
Washroom	180	2,000	360,000
Pavement/driveway	260	1,000	260,000
Grounds	410	700	287,000
Total			**15,977,000**

9.3.3. Machinery and Tools

Table 9 provides details of machinery and tools required for the project and their costs.

Table 9: Machinery and Tools

Cost Item	Unit(s)	Unit Cost (PKR)	Total Cost (PKR)
Kiln-(Kathaali)	2	300,000	600,000
Pattern – Sancha	20	15,000	300,000
Cutter (Tokki)	1	200,000	200,000
Circle Cutter	1	175,000	175,000
Lathe (Kharaad)	1	450,000	450,000
Hydraulic Press	2	1,700,000	3,400,000
Rectifier (Machining)	3	300,000	900,000
Buffing machines	4	550,000	2,200,000
Puncher (Hole and Rivet Fixer)	2	150,000	300,000
Dies	20	50,000	1,000,000
Oven Trolley	1	400,000	400,000

Total Cost	**9,925,000**

9.3.4. Office Equipment

Table 10 provides details of the furniture and fixture requirement of the project.

Table 10: Office Equipment

Cost Item	Units	Unit Cost (PKR)	Total Cost (PKR)
Air Conditioners	5	90,000	450,000
Laptop Computer	5	80,000	400,000
Printer	4	40,000	160,000
LED TV 32”	1	40,000	40,000
Water Dispenser	2	20,000	40,000
Ceiling Fan	16	4,500	72,000
Exhaust Fan	15	2,000	30,000
Bracket Fan	14	4,000	56,000
WIFI Router and Connection	2	5,000	10,000
Security System (16 Cams, 2 MP, 1 DVR)	1		56,000
Total Cost			**1,314,000**

9.3.5. Furniture and Fixtures

Details of furniture and fixtures required for the project is provided in Table 11.

Table 11: Furniture and Fixtures

Cost Item	Units	Unit Cost (PKR)	Total Cost (PKR)
Office Tables	10	25,000	250,000
Executive Chairs	3	20,000	60,000
Executive Tables	3	30,000	90,000
Office Chairs	16	10,000	160,000

Sofa Sets	3	35,000	105,000
Visitor's Chairs	20	10,000	200,000
Total Cost			**865,000**

9.3.6. Vehicles

Detail of office vehicle required for the project is provided in Table 12.

Table 12: Office Vehicle

Cost Item	Unit(s)	Unit Cost (PKR)	Total Cost (PKR)
Vehicles - Saloon Car	1	2,000,000	2,000,000
Motorcycle	2	80,000	160,000
Registration Fee			41,600[2]
Total Cost			**2,201,600**

9.3.7. Pre-Operating Cost

Detail of pre-operating costs for the project is provided in Table 13.

Table 13: Pre-Operating Costs

Cost Item	Total (PKR)
Administration Cost	4,3555,000
Utilities[3]	212,229
Total Cost	**4,567,229**

[2] Registration fee has been calculated at 1% of cost of Motorcycles and 2% of cost of Saloon car. These percentages are based on engine capacity of vehicles as per Excise and Taxation Department, Govt. of Punjab.
[3] Utilities include connection charges for 3-phase connection and electricity running charges.

9.4. Breakeven Analysis

Breakeven analysis is provided in Table 14.

Table 14: Breakeven Analysis

Particulars	Amount First Year (PKR)	Ratios
Sales	233,280,000	100%
Variable Cost	185,611,907	80%
Contribution	47,668,093	20%
Fixed Cost	22,058,595	9%
Breakeven		
Breakeven Units (Kg)	179,919	
Breakeven Revenue	107,951,223	
Breakeven Capacity	27.8%	

9.4.1 Revenue Generation

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

Table 15: Revenue Generation

Estimated Sale Units (Kgs) (A)	Sale Price per Kg (PKR) (B)	Annual Revenue (PKR) (A*B)
388,800	600	233,280,000

9.4.2 Variable Cost Estimate

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

Table 16: Variable Cost Estimate

Description of Costs	Total Cost (PKR)
Material Cost	158,558,622
Rolling Cost	4,665,600
Direct Labor	9,600,000
Machinery Maintenance Cost	198,500
Direct Electricity Cost	1,948,440
Furnace Oil	4,756,759
Direct Gas	1,585,586
Travelling expense	1,032,000
Communications expense (phone, fax, mail, internet, etc.)	1,032,000
Office vehicles running expense	996,000
Office expenses (stationery, entertainment, janitors, etc.)	1,238,400
Total Variable Cost (PKR)	**185,611,907**

9.4.3 Raw Material Cost

Per unit cost of goods sold related to major components used in manufacturing and total cost of goods sold based on estimated annual sales of units is provided in Table 17.

Table 17: Raw Material Cost

Description of Costs	Raw material consumption per kg of finished goods (KGs)	Cost of Raw material / KG	Cost Per unit of Finished Goods / KG
Aluminium	0.8	400[4]	320

[4] It is weighted average cost of raw material after considering 80% Aluminium silli at the rate of PKR 425 per kg and 20% old scrap utensils at the rate of PKR 300 per kg.

Utensils Handle	0.15	400	60
Holder Kulsy	0.05	200	10
Rivets	0.03	380	9.50
Packing cost			8.32[5]
Total	**1**		**407.82**
Total Production (kg)			**388,800**
Material Cost			**158,558,622[6]**

9.4.4 Rolling Cost

Rolling cost for proposed project is PKR 12 per finished product, which is outsourced. Details of the cost are provided in Table 18.

Table 18: Rolling Cost

Description of Costs	Total Production (Kgs)	Rolling Cost Per Finished Product	Total Cost (PKR)
Rolling Cost	388,800	12[7]	5,832,000

9.4.5 Fixed Cost Estimate

Detail of fixed cost for the project is provided in Table 19.

Table 19: Fixed Cost Estimate

Description of Costs	Amount (PKR)
Administration expense	10,320,000
Administration benefits expense	1,992,000

[5] Packing cost per kg is weighted average cost per kg of finished product. It is calculated by taking Polythene at the rate of PKR 270 per kg and cardboards at the rate of PKR 200 per Piece.
[6] The figure does not multiply exactly because of rounding off.
[7] Rolling cost per Kg is charged at PKR 15 of Aluminium processed, however for 1Kg of finished product 800 grams of Aluminium is consumed so cost of rolling per finished product has been calculated as (15*800/1000).

Utilities	231,102
Promotional Expenses	2,332,800
Insurance expense	192,907
Professional fees (legal, audit, consultants, etc.)	1,166,400
Depreciation expense	3,743,540
Amortization of pre-operating costs	913,446
Bad Debt	1,166,400
Total Fixed Cost	**22,058,595**

9.5. Human Resource Requirement

For the 1st year of operations, the environmental friendly Aluminium Kitchen Utensils Manufacturing Unit shall require the workforce at a salary cost as projected in Table 20.

Table 20: Human Resource Requirement

Post	No.of Employees	Monthly Salary (PKR)	Annual Salary (PKR)
CEO	1	200,000	2,400,000
Senior Manager	1	125,000	1,500,000
Senior Production Operator	1	60,000	720,000
Melting -Skilled Staff	1	25,000	300,000
Melting -Unskilled Staff	2	20,000	480,000
Cutting -Skilled Staff	2	25,000	600,000
Cutting-Unskilled Staff	3	20,000	720,000
Pressing -Skilled Staff	2	25,000	600,000
Pressing -Unskilled Staff	4	20,000	960,000
Machining -Skilled Staff	3	25,000	900,000

Machining -Unskilled Staff	3	20,000	720,000
Finishing -Skilled Staff	6	25,000	1,800,000
Finishing -Unskilled Staff	6	20,000	1,440,000
Packing -Skilled Staff	2	25,000	600,000
Packing -Unskilled Staff	2	20,000	480,000
Procurement Officer	1	45,000	540,000
Store Supervisor	1	35,000	420,000
Accounts Manager	1	65,000	780,000
Accounts Assistant	1	45,000	540,000
Admin Officer	1	45,000	540,000
Marketing Officer	2	45,000	1,080,000
Security In charge	1	30,000	360,000
Security Guard	4	20,000	960,000
Office Boy	2	20,000	480,000
Total Human Resource Cost			**19,920,000**

10. CONTACT DETAILS

Contact details of suppliers of machinery and equipment are provided in Table 21.

Table 21: Contact Details of Suppliers

Cost Item	Type of Supplies	Contact Number	E-mail	Web Address
Reliance Corporation, Karachi	Raw Material Aluminium	+92-021-32420423	info@reliancecorp.com.pk	www.reliancecorp.com.pk
Bismillah Metals Impex (Pvt.) Ltd., Gujranwala	Raw Material Aluminium	0321 7475002	contact@bismillahmetals.com	http://www.bismillahmetals.com
Ittehad Aluminium Industry, Islamabad	Raw Material Aluminium	+92-51-2227683-4	info@ittehadaluminium.com.pk	www.ittehadaluminium.com.pk
Pakistan Machine Tool Factory, Karachi	Machinery and Equipment	021 35082451-54	sales@pmtfl.com	www.pmtfl.com
Javed Iqbal and Sons Machinery Store, Lahore	Machinery and Equipment	0300 4430048		
Silver Corporation, Karachi	Raw Material Aluminium	021 3230300	naveed@silvercorporation.com	www.silvercorporation.com

11. USEFUL LINKS

Table 22: Useful Links

Organization	Website/Email/Contact Number
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
Government of Sindh	https://sindh.gov.pk
Government of Balochistan	https://balochistan.gov.pk
Government of Khyber Pakhtunkhwa	http://kp.gov.pk
Government of Gilgit Baltistan	https://gilgitbaltistan.gov.pk
Government of Azad Jammu & Kashmir	https://ajk.gov.pk
Trade Development Authority of Pakistan	www.tdap.gov.pk
Security 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
All Pakistan Aluminium Utensils Manufacturer's Association (APAUMA)	(055) 9200900
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Punjab Small Industries Corporation (PSIC)	www.psic.gop.pk
Small Industries Development Board Government of Khyber Pakhtunkhwa	www.small_industries_de.kp.gov.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Industries and commerce- Government of Balochistan	www.balochistan.gov.pk/departments/industries-and-commerce

12. ANNEXURES

12.1. Income Statement

Calculation Income Statement										SMEDA
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	233,280,000	294,749,280	364,815,395	419,788,514	454,630,961	492,365,331	533,231,653	577,489,880	625,421,541	677,331,528
Cost of sales										
Cost of goods sold 1 - Material cost	158,558,622	200,338,818	247,962,217	285,327,024	309,009,167	334,656,928	362,433,453	392,515,430	425,094,210	460,377,030
Cost of goods sold 2 - Rolling cost	4,665,600	5,894,986	7,296,308	8,395,770	9,092,619	9,847,307	10,664,633	11,549,798	12,508,431	13,546,631
Operation costs 1 (direct labor)	9,600,000	10,304,000	11,059,627	11,870,666	12,741,181	13,675,535	14,678,407	15,754,824	16,910,178	18,150,257
Operating costs 2 (Machinery Maintenance)	198,500	214,976	232,818	252,142	273,070	295,735	320,281	346,864	375,654	406,833
Operating costs 3 (direct electricity)	1,948,440	2,119,059	2,304,618	2,506,425	2,725,905	2,964,603	3,224,204	3,506,536	3,813,592	4,147,536
Operating costs 4 (Furnace Oil)	4,756,759	6,536,455	8,798,701	11,011,128	12,969,289	15,275,679	17,992,224	21,191,866	24,960,515	29,399,361
Operating costs 5 (direct gas)	1,585,586	4,933	6,132	7,085	7,706	8,381	9,114	9,913	10,781	11,725
Total cost of sales	181,313,507	225,413,226	277,660,420	319,370,242	346,818,938	376,724,167	409,322,317	444,875,230	483,673,361	526,039,372
Gross Profit	51,966,493	69,336,054	87,154,974	100,418,273	107,812,023	115,641,164	123,909,336	132,614,650	141,748,180	151,292,156
General administration & selling expenses										
Administration expense	10,320,000	11,076,800	11,889,099	12,760,966	13,696,770	14,701,200	15,779,288	16,936,436	18,178,441	19,511,527
Administration benefits expense	1,992,000	2,138,080	2,294,873	2,463,163	2,643,795	2,837,673	3,045,770	3,269,126	3,508,862	3,766,178
Indirect cost of Utilities	231,102	251,339	273,348	297,284	323,316	351,628	382,419	415,906	452,325	491,934
Travelling expense	1,032,000	1,107,680	1,188,910	1,276,097	1,369,677	1,470,120	1,577,929	1,693,644	1,817,844	1,951,153
Communications expense (phone, fax, mail, internet, etc.	1,032,000	1,107,680	1,188,910	1,276,097	1,369,677	1,470,120	1,577,929	1,693,644	1,817,844	1,951,153
Office vehicles running expense	996,000	1,078,668	1,168,197	1,265,158	1,370,166	1,483,890	1,607,053	1,634,563	1,770,232	1,917,161
Office expenses (stationery, entertainment, janitorial serv	1,238,400	1,329,216	1,426,692	1,531,316	1,643,612	1,764,144	1,893,515	2,032,372	2,181,413	2,341,383
Promotional expense	2,332,800	2,947,493	3,648,154	4,197,885	4,546,310	4,923,653	5,332,317	5,774,899	6,254,215	6,773,315
Insurance expense	192,907	163,971	135,035	106,099	77,163	48,227	19,291	344,564	292,880	241,195
Professional fees (legal, audit, consultants, etc.)	1,166,400	1,473,746	1,824,077	2,098,943	2,273,155	2,461,827	2,666,158	2,887,449	3,127,108	3,386,658
Depreciation expense	3,743,540	3,743,540	3,743,540	3,743,540	3,743,540	3,743,540	3,028,260	5,157,591	5,157,591	5,157,591
Amortization of pre-operating costs	913,446	913,446	913,446	913,446	913,446	-	-	-	-	-
Bad debt expense	1,166,400	1,473,746	1,824,077	2,098,943	2,273,155	2,461,827	2,666,158	2,887,449	3,127,108	3,386,658
Subtotal	26,356,995	28,805,405	31,518,356	34,028,935	36,243,781	37,717,848	39,576,084	44,727,642	47,685,862	50,875,905
Operating Income	25,609,499	40,530,649	55,636,618	66,389,338	71,568,242	77,923,316	84,333,252	87,887,008	94,062,318	100,416,252
Other income (interest on cash)	314,768	1,020,198	1,953,999	2,822,948	3,658,074	4,459,109	7,101,905	13,265,377	21,642,306	33,529,248
Gain / (loss) on sale of machinery & equipment	-	-	-	-	-	-	2,481,250	-	-	
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	328,500	-	-	
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	550,400	-	-	
Earnings Before Interest & Taxes	25,924,266	41,550,847	57,590,616	69,212,286	75,226,316	82,382,425	94,795,307	101,152,385	115,704,624	133,945,499
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	25,924,266	41,550,847	57,590,616	69,212,286	75,226,316	82,382,425	94,795,307	101,152,385	115,704,624	133,945,499
Tax	8,193,493	13,662,796	19,276,715	23,344,299	25,449,210	27,953,848	32,298,357	34,523,334	39,616,618	46,000,924
NET PROFIT/(LOSS) AFTER TAX	**17,730,774**	**27,888,051**	**38,313,901**	**45,867,986**	**49,777,106**	**54,428,577**	**62,496,951**	**66,629,051**	**76,088,006**	**87,944,575**

12.2. Balance Sheet

Balance Sheet

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
Current assets											
Cash & Bank	1,000,000	4,571,112	13,485,498	21,098,549	28,865,130	35,879,537	43,042,750	82,654,689	152,130,750	230,918,922	362,519,090
Accounts receivable		38,347,397	43,399,667	54,210,795	64,487,993	71,870,094	77,835,312	84,295,643	91,292,181	98,869,432	107,075,595
Finished goods inventory		-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	99,250	116,087	135,780	158,813	185,755	217,266	254,123	297,232	347,655	406,631	-
Raw material inventory	6,606,609	9,040,289	12,118,007	15,101,394	17,712,259	20,774,513	24,366,198	28,578,846	33,519,814	39,315,021	-
Pre-paid insurance	192,907	163,971	135,035	106,099	77,163	48,227	19,291	344,564	292,880	241,195	-
Total Current Assets	7,898,766	52,238,856	69,273,986	90,675,650	111,328,299	128,789,637	145,517,674	196,170,974	277,583,279	369,751,201	469,594,684
Fixed assets											
Land	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000
Building/Infrastructure	15,977,000	14,379,300	12,781,600	11,183,900	9,586,200	7,988,500	6,390,800	4,793,100	3,195,400	1,597,700	-
Machinery & equipment	9,925,000	8,436,250	6,947,500	5,458,750	3,970,000	2,481,250	992,500	17,009,706	14,458,250	11,906,794	9,355,338
Furniture & fixtures	865,000	735,250	605,500	475,750	346,000	216,250	86,500	-	-	-	-
Office vehicles	2,201,600	1,871,360	1,541,120	1,210,880	880,640	550,400	220,160	4,470,935	3,800,295	3,129,654	2,459,014
Office equipment	1,314,000	1,116,900	919,800	722,700	525,600	328,500	131,400	2,251,965	1,914,170	1,576,376	1,238,581
Total Fixed Assets	50,282,600	46,539,060	42,795,520	39,051,980	35,308,440	31,564,900	27,821,360	48,525,706	43,368,115	38,210,524	33,052,933
TOTAL ASSETS	**62,748,595**	**102,431,699**	**114,809,843**	**131,554,522**	**147,550,184**	**160,354,537**	**173,339,034**	**244,696,680**	**320,951,394**	**407,961,725**	**502,647,617**
Liabilities & Shareholders' Equity											
Current liabilities											
Accounts payable		21,276,875	26,963,330	33,380,328	38,450,090	41,839,722	45,544,967	49,597,945	54,034,466	58,894,514	58,479,102
Total Current Liabilities	-	21,276,875	26,963,330	33,380,328	38,450,090	41,839,722	45,544,967	49,597,945	54,034,466	58,894,514	58,479,102
Other liabilities											
Long term debt (Project Loan)	-	-	-	-	-	-	-	-	-	-	-
Long term debt (Working Capital Loan)	-	-	-	-	-	-	-	-	-	-	-
Total Long Term Liabilities	-	675,455	2,288,505	4,863,942	8,136,678	11,770,256	15,833,201	20,640,919	25,830,061	31,892,338	39,049,067
Shareholders' equity											
Paid-up capital	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595	62,748,595
Retained earnings		17,730,774	22,809,413	30,561,657	38,214,822	43,995,964	49,212,270	111,709,221	178,338,272	254,426,278	342,370,853
Total Equity	62,748,595	80,479,369	85,558,007	93,310,252	100,963,416	106,744,559	111,960,865	174,457,816	241,086,867	317,174,873	405,119,448
TOTAL CAPITAL AND LIABILITIES	**62,748,595**	**102,431,699**	**114,809,843**	**131,554,522**	**147,550,184**	**160,354,537**	**173,339,034**	**244,696,680**	**320,951,394**	**407,961,725**	**502,647,617**

12.3. Cash Flow Statement

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		17,730,774	27,888,051	38,313,901	45,867,986	49,777,106	54,428,577	62,496,951	66,629,051	76,088,006	87,944,575
Add: depreciation expense		3,743,540	3,743,540	3,743,540	3,743,540	3,743,540	3,743,540	3,028,260	5,157,591	5,157,591	5,157,591
amortization of pre-operating costs		913,446	913,446	913,446	913,446	913,446	-	-	-	-	-
amortization of training costs		-	-	-	-	-	-	-	-	-	-
Deferred income tax		675,455	1,613,050	2,575,436	3,272,736	3,633,578	4,062,945	4,807,718	5,189,142	6,062,277	7,156,729
Accounts receivable		(38,347,397)	(5,052,270)	(10,811,128)	(10,277,197)	(7,382,101)	(5,965,218)	(6,460,331)	(6,996,538)	(7,577,251)	(8,206,163)
Finished goods inventory		-	-	-	-	-	-	-	-	-	-
Equipment inventory	(99,250)	(16,837)	(19,693)	(23,034)	(26,941)	(31,511)	(36,857)	(43,109)	(50,422)	(58,976)	406,631
Raw material inventory	(6,606,609)	(2,433,680)	(3,077,717)	(2,983,387)	(2,610,865)	(3,062,255)	(3,591,685)	(4,212,648)	(4,940,968)	(5,795,207)	39,315,021
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid machinery & equipment lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid office equipment lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid office vehicles lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(192,907)	28,936	28,936	28,936	28,936	28,936	28,936	(325,274)	51,685	51,685	241,195
Accounts payable		21,276,875	5,686,455	6,416,998	5,069,762	3,389,633	3,705,245	4,052,978	4,436,521	4,860,048	(415,412)
Other liabilities		-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(6,898,766)	3,571,112	31,723,798	38,174,708	45,981,403	51,010,371	56,375,483	63,344,545	69,476,061	78,788,172	131,600,168
Financing activities											
Issuance of shares	62,748,595	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	62,748,595	-	-	-	-	-	-	-	-	-	-
Investing activities											
Capital expenditure	(54,849,829)	-	-	-	-	-	-	(23,732,606)	-	-	-
Acquisitions											
Cash (used for) / provided by investing activities	(54,849,829)	-	-	-	-	-	-	(23,732,606)	-	-	-
NET CASH	1,000,000	3,571,112	31,723,798	38,174,708	45,981,403	51,010,371	56,375,483	39,611,939	69,476,061	78,788,172	131,600,168

13. KEY ASSUMPTIONS

13.1. Operating Cost Assumptions

Table 23: Operating Cost Assumptions

Description	Details
Building/Infrastructure depreciation	10%
Machinery and equipment depreciation	15%
Furniture and fixture depreciation	15%
Vehicle depreciation	15%
Office equipment depreciation	15%
Inflation rate	8.3%
Wage growth rate	7.3%
Electricity price growth rate	8.8%
Office equipment price growth rate	8.3%
Office vehicle price growth rate	10.7%

13.2. Production Cost Assumptions

Table 24: Production Cost Assumptions

Description	Details
Cost of goods sold 1-Material Cost (PKR)	408
Cost of goods sold 2 - Rolling cost (PKR)	12
Cost of goods sold growth rate	8.3%
Operating costs 2 (Machinery Maintenance)	2% of cost/ WDV[8]

13.3. Revenue Assumptions

Table 25: Revenue Assumptions

Description	Details
Sale price growth rate	8.3%
Initial capacity utilization	60%

[8] Written-down value is the value of an asset after accounting for depreciation or amortization.

Capacity growth rate	10%
Maximum capacity utilization	85%

13.4. Financial Assumptions

Table 26: Financial Assumptions

Description	Details
Project life (Years)	10
Debt: Equity	0:100
Discount Rate used for NPV	15%

13.5. Debt Related Assumptions

Table 27: Debt Related Assumptions

Description of Cost	Details
Project Life (Years)	10
Debt: Equity	50:50
Discount Rate	12%

13.6. Cash Flow Assumptions

Table 28: Cash Flow Assumptions

Description	Details
Accounts receivable cycle (in days)	60
Accounts payable cycle (in days)	45

Small and Medium Enterprises Development Authority

HEAD OFFICE

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

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

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