



Pre-feasibility Study

Trading House for Industrial Machinery and Equipment-Textile and Allied Sector

November 2021

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

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

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1. DISCLAIMER

This information memorandum is to introduce the subject matter and provide a general idea and information on the said matter. Although, the material included in this document is based on data / information gathered from various reliable sources; however, it is based upon certain assumptions, which may differ from case to case. The information has been provided on, as is where is basis without any warranties or assertions as to the correctness or soundness thereof. Although, due care and diligence has been taken to compile this document, the contained information may vary due to any change in any of the concerned factors, and the actual results may differ substantially from the presented information. SMEDA, its employees or agents do not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. The contained information does not preclude any further professional advice to be obtained by the user. The prospective user of this memorandum is encouraged to carry out additional diligence and gather any information which is necessary for making an informed decision, including taking professional advice from a qualified consultant / technical expert before taking any decision to act upon the information.

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2. EXECUTIVE SUMMARY

Textile and clothing industry is the backbone of Pakistan's economy. Pakistan is one of the world leading cotton producers which provides the basis for the local textile and clothing industry. Pakistan's textile sector contributes more than 67% to the country's total export earnings, and accounts for 46% of total manufacturing.¹ The sector employs over 40% of the manufacturing labor force.² Textile value chain comprises of various subsectors; including ginning, spinning, weaving, knitting, processing and stitching.

The weaving segment exported cloth worth PKR 288 billion in FY20, representing 15% of textile sector's total exports. The fabric exports showed a CAGR of 6% in last 5 years in value term. The local sales of cloth were estimated to be around PKR 550 billion in FY20. Total estimated market size of the sector is PKR 850 billion. The weaving sector contributed an estimated 2% in the overall GDP of the country.³ There are 1,221 ginning units, 442 spinning units, 124 large spinning units and 425 small units which produce textile products.⁴ There are 9,000 looms installed in the organized mill segment of Pakistan.⁵

The proposed business provides information about establishment of "Trading House for Industrial Machinery and Equipment for Textile and Allied Sector. (herein after referred to as the proposed business). The proposed business covers weaving machinery and its spare parts. For establishing a business like this, it is required to obtain dealerships of international reputable manufacturers of weaving machinery. The business model is based on importing the textile machinery as per the market demand and selling it to the local textile manufacturing units. These imports may be done either directly from the manufacturers or through dealers/agents; which work on commission basis, agreed with principal manufacturer of the machinery.

Weaving machinery is widely used in textile industry to produce fabric to meet demand in the local as well as export market. A loom is a machine used for converting yarn into fabric. There are different types of looms. Some common types are Gripper loom, Rapier loom, Air jet loom and Water Jet loom. The proposed business covers Air-Jet Loom and Water Jet Looms. These two types of looms are based on modern technology and are used for producing high quality fabrics throughout the world.

The proposed business of "Trading House for Industrial Machinery and Equipment-Textile and Allied Sector" may be established in any large city of Pakistan and near to current industrial zones which are located in Karachi, Lahore, Faisalabad, Gujranwala, Multan, etc.

As per the assumptions considered in this pre-feasibility document, the proposed business, at maximum capacity utilization of 100%, will sell 265 looms and 10,653

¹<https://nation.com.pk>.

² <https://invest.gov.pk/textile>

³ https://www.pacra.com/sector_research/Weaving_Sector%20Study_Final_Updated_1600274271.pdf

⁴ <https://tribune.com.pk/story/522292/statistics-on-textile-industry-in-pakistan>

⁵ https://www.pacra.com/sector_research/Weaving_Sector%20Study_Final_Updated_1600274271.pdf

spare parts of the looms covered under this study. The initial capacity utilization in year one is assumed to be 50% of the total operational capacity, which translates into sale of 133 looms and 5,327 spare parts. The operational capacity of the unit is expected to grow by 5% per annum to achieve the maximum capacity of 90% in the 9th year of operations.

The proposed Trading House for Industrial Machinery and Equipment-Textile and Allied Sector will be established in a rented building. There will be a head office and three branch offices. The project requires a total investment of PKR 35.94 million. This includes a capital investment of PKR 32.39 million and working capital of PKR 3.56 million. The project is financed through 100% equity. The Net Present Value (NPV) of the project is PKR 200.25 million with an Internal Rate of Return (IRR) of 70% and a Payback period of 2.03 years. Further, this project is expected to generate Gross Annual Revenues of PKR 78.63 million during 1st year of operation. The proposed project will achieve its estimated breakeven point at 27% capacity (72 orders of machines and 2,883 orders of spare parts) with breakeven revenue of PKR 42.55 million.

The proposed project will provide employment opportunities to 46 people. Links with textile unit owners, executive management of textile units will result in high return on investment and steady growth of business. The legal business status of this project is proposed as a "Private Limited Company".

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 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 a “Trading House for Industrial Machinery and Equipment-Textile and Allied Sector”. 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 set-up and its successful management.

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

5. BRIEF DESCRIPTION OF PROJECT & SERVICES

Textile, being the largest export-oriented industry of Pakistan, offers attractive returns to the investors. Keeping its importance in view, federal and provincial governments keep announcing schemes and incentives for Textile industry. The industry also benefits from different industrial upgradation schemes announced by the government from time to time which supports the industrial units to acquire modern machinery. With the exception of locally manufactured traditional shuttle looms (power looms), all other weaving looms being used by the local industry are of imported origins. Some of the leading manufacturers/suppliers of looms are Japanese whereas some others are European. The manufacturers/suppliers of the imported textile machinery do not sell that machinery to the local buyers directly. When investors need to purchase a new textile machinery/spare part, they need to contact the authorized dealers of the relevant manufacturer/supplier for that purpose.

This proposed project provides details for establishing a “Trading House for Industrial Machinery and Equipment for Textile and Allied Sector”. This section provides details of the business model, selected machinery products (looms and spare parts) and the process for establishing and operating the proposed business model.

Dealership

For the proposed business, dealership is adopted as the recommended business operating model. A dealer is a person that has authority to sell a specific brand of goods on behalf of the principal manufacturer. A business is considered a dealership if its owner is authorized to sell a certain item supplied by the manufacturer. The dealer works on commission basis. Commission is charged on the cost of the imported textile machinery. As per the market research, average commission charged for supplying machinery is 3-5% of the cost of machinery. For supplying weaving machinery spare parts, the range of the charged commission is 7-10%.

Weaving

Weaving is a textile production process in which two distinct sets of yarns are interlaced at right angles to form a fabric. Other methods to produce fabric are knitting, crocheting, felting, and braiding. The machine used for weaving is called a loom.

Loom

A loom is a machine used for weaving yarn into fabric. Looms can range from very small hand-held frames, to large free-standing hand looms, to huge automatic mechanical devices. The basic purpose of any loom is to hold the warp threads under tension to facilitate the interweaving of the weft threads. The precise shape of the loom and its mechanics may vary, but the basic function remains the same. There are two main types of looms, looms with shuttle and shuttle-less looms. Shuttle looms represent the older technology. There are four main types of looms which operate without the use of a shuttle. These are air-jet loom, water-jet loom, gripper loom and rapier loom. The machineries covered under the proposed project are air-jet looms and water-jet looms. These two types of looms are based on modern technology and are used for producing high quality fabrics throughout the world.

Characteristics and detailed working mechanism of air-jet looms and water-jet looms are explained in the following paragraphs:

Air-Jet Looms

The air-jet loom was invented in Czechoslovakia in the 20th century and was later refined by Swiss, Dutch, and Japanese companies. An air-jet loom is a shuttle-less loom that uses a jet of air to propel the weft yarn through the warp shed. It is the high-technology-based, loom used to produce modern, fashionable fabrics at high production rates. In the modern times, majority of the fabric volumes are made on looms without shuttles.

Air-jet looms are capable of producing standard household and apparel fabrics for items such as shirts, denim, sheets, towels, sports apparel, as well as industrial products. Heavier yarns are more suitable to be used on air-jet looms than the lighter yarns. Among the basic operations of loom, shedding is very important. Shedding means raising and lowering of the warp yarns by the harnesses to make an opening for the weft yarn to pass through. In an air-jet loom, yarn is pulled from the supply package and the measuring disc removes a length of yarn that is equal to the width of

fabric being woven. At the end of the insertion cycle, the clamp closes, the yarn is beaten in and cut, and the shed is closed. The jets are electronically controlled with an integrated database.

The air jet loom is the one with the highest speed. Due to the reasonable weft insertion method, it has a high latitude rate and is easy and safe to operate. It has the advantages of wide variety adaptability, low material consumption, high efficiency, high speed and low noise. Since the air jet weaving machine adopts the air flow weft mode, the biggest disadvantage is the high energy consumption. Air-jet looms are capable of weaving plaids, as well as dobby and jacquard fabrics. Various types of air-jet looms are dobby air-jet loom, cam/tappet air jet loom and jacquard air-jet loom.

Two large companies producing air-jet looms are Japanese; Toyota Industries and Tsudakoma. Along with these some European brands of looms are also popular; such as Picanol from Belgium, Dornier from Germany and Iteima from Italy. Chinese air jet machines are also available, with RIFA being a popular brand in this regard.

Air jet looms are further divided into two categories according to their width. The looms with the width from 150 cm to 190 cm are categorized as narrow air jet machines and the ones with widths from 190 cm to 360 cm are categorized as large air jet machines.

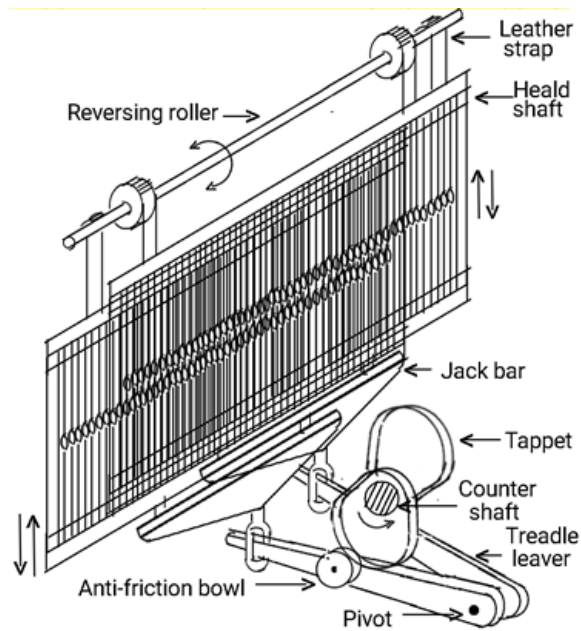
- **Cam/Tappet Air-Jet Loom**

Cam shedding is also known as tappet shedding, because it controls the movement of heald shafts in weaving process by means of cams or tappets. The most commonly used loom is cam/tappet air-jet loom.

In positive cam shedding, the heddle (or heald) shafts are both raised and lowered by the tappets. In negative cam shedding, the heald shafts are either raised or lowered by the tappets but are returned by the action of an external device, usually springs. The maximum number of heald shafts controlled by tappet shedding is 20. Air-jet weaving machine are suitable for the production of fabrics in a leno weave⁶ with performance up to 600 picks⁷ per minute. The machine concept is the result of a completely new view on the process of fabric creation. Figure 1 shows cam/tappet shedding.

⁶ Leno weave (also called gauze weave or cross weave) is a weave in which two warp yarns are woven around the weft yarns to provide a strong yet sheer fabric.

⁷ Pick is a filling yarn that runs crosswise between selvages in woven goods.

Figure 1: Cam/Tappet Shedding

A tappet is a shedding tool placed on the top of a loom in order to produce a pattern by using healds. The tappet shedding is the combination of tappets and cams motion. The types of the shed that are formed in tappet loom is called tappet shedding. In tappet shedding, maximum number of healds shafts is 14. A dobby loom has to be used if the desired design needs to be repeated multiple times.

Based on the width, cam/tapped machines are further divided into two types, which are narrow cam loom machine and large cam loom machine. Figure 2 shows cam/tappet air-jet loom.

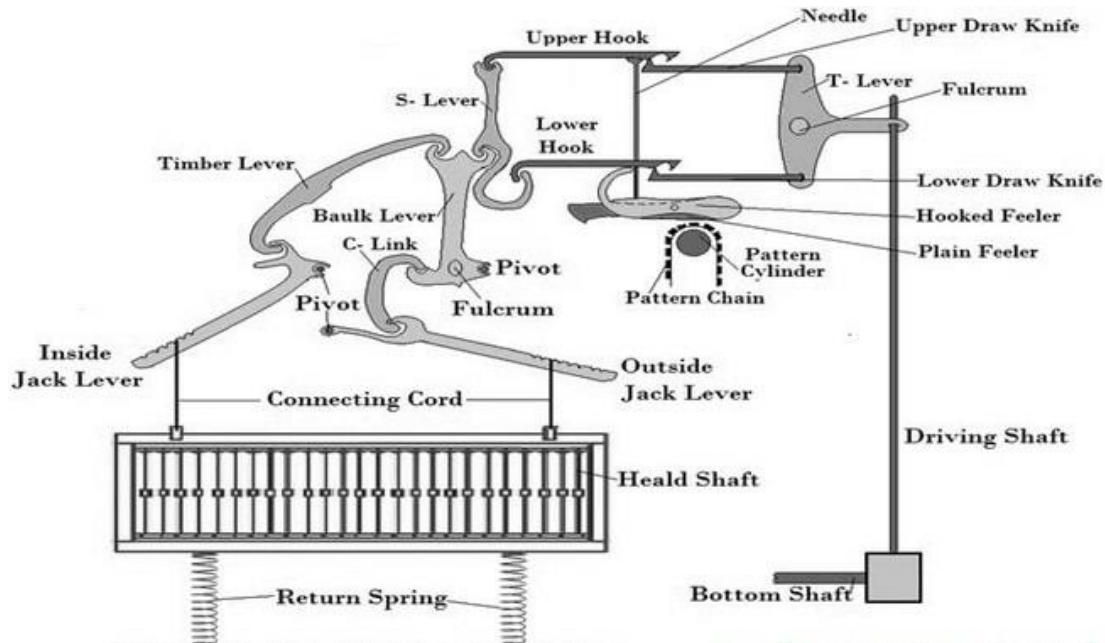
Figure 2: Cam/Tappet Air-Jet Loom

- **Dobby Air-Jet Loom**

Dobby is a shedding mechanism placed on the top of the loom in order to produce figured patterns by using large number of healds. Dobby is also known as a “witch

or “wizard”. It is a relatively complex shedding system and can control up to 30 heald frames. The pick⁸ repeat to dobby system is provided by computer programming, and is virtually unlimited. This system offers more design possibilities as compared to tappet/cam shedding. There are two types of shedding such as positive dobby shedding and negative dobby shedding. The dobby which can raise and lower the heald frame without the use of an additional reversing motion is called positive dobby. Negative dobby is that kind of dobby that only raises the shafts. Lowering is carried out by spring motion. Negative dobbies are used for light to low medium weight fabrics. Figure 3 shows dobby shedding.

Figure 3: Dobby Shedding



A dobby air-jet loom is a type of floor loom that controls all the warp threads using a device called a dobby. The word dobby is a corruption of "draw boy" which refers to the weaver's helpers who used to control the warp thread by pulling on draw threads. A dobby loom is an alternative to a treadle loom. Both are floor looms in which every warp thread on the loom is attached to a single shaft using a device called a heddle. A shaft is sometimes known as a harness. Each shaft controls a set of threads. Raising or lowering several shafts at the same time gives a huge variety of possible sheds (gaps) through which the shuttle containing the weft thread can be thrown.

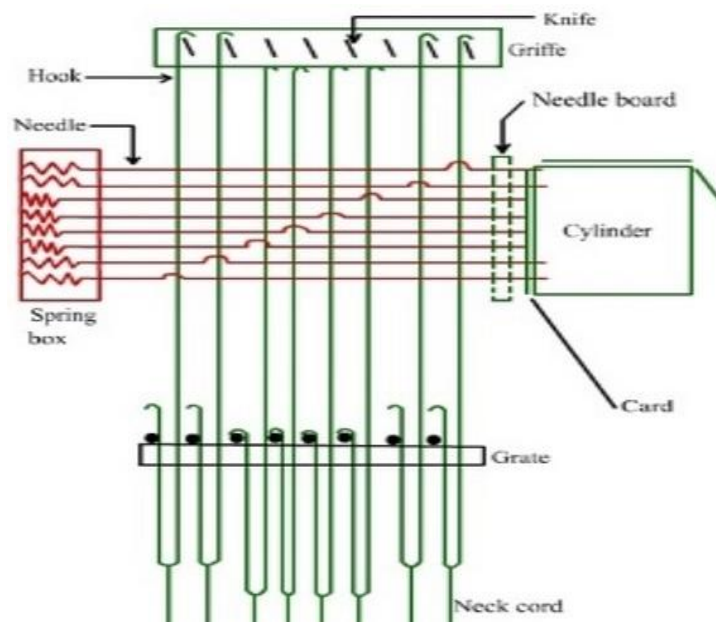
Dobby air-jet loom machines are divided into further two types according to their width, these types are Narrow Dobby Loom Machine and Large Dobby Loom Machine. Figure 4 shows dobby air-jet loom.

⁸ weaving involves using a loom to interlace two sets of threads at right angles to each other: the warp which runs longitudinally and the weft (older woof) that crosses it. One warp thread is called an end and one weft thread is called a pick.

Figure 4: Dobby Air-Jet Loom

- **Jacquard Air-Jet Loom**

The jacquard is a shedding device attached to the top of the hand loom or a power loom and controls a large number of warp threads with a view to produce the maximum variety of sheds (without heald shaft) for ornamenting the fabrics. The jacquard shedding provides unlimited patterning possibilities. The working principle is relatively simple but involves a greater number of parts that make it a complex machine. Jacquard shedding is able to produce complex designs because of its ability to control each yarn individually. The jacquard shedding system can be either mechanical or electronic. Figure 5 shows jacquard shedding.

Figure 5: Jacquard Shedding

The jacquard machine fitted to a loom simplifies the process of manufacturing textiles with complex patterns such as tapestry, brocade, damask matelassé, carpet and bedsheets. It has also been adapted to the production of patterned knitted fabrics. The

resulting combination of the loom and jacquard machine is then called a jacquard loom.

The machine is controlled by a "chain of cards", a number of punched cards are laced together into a continuous sequence. Multiple rows of holes are punched on each card, with one complete card corresponding to one row of the design. Both the jacquard process and the necessary loom attachment are named after the inventor of this machine. This mechanism is probably one of the most important weaving innovations as jacquard shedding made possible the automatic production of unlimited varieties of complex pattern weaving.

Jacquard air-jet loom machines are further divided into two types, these types are narrow jacquard loom machine and large jacquard loom machine. This bifurcation of machines is according to the width of the machines. Figure 6 shows jacquard air-jet loom.

Figure 6: Jacquard Air-Jet Loom



Advantages of Air Jet Looms

Main advantages of air jet looms are as under:

- Noise level is lower than rapier loom.
- Weft insertion performance is higher than Gripper loom and Rapier loom (normally 600pm).

Disadvantages of Air Jet Loom

Main disadvantages of air jet loom are as under:

- Broken pick or miss pick may occur due to excess air pressure of main nozzle.
- Pile up and buckle tip of yarn may be formed due to air resistance.

- Double pick may occur in air jet loom.
- Loom of weft yarn along weft direction may be formed due to variation of air pressure.

Water Jet Loom

Water jet weaving refers to weaving on a water jet loom. A water jet loom is similar to an air jet loom but uses water instead of air to transport the yarn around the shed. Water jet looms are furthermore less noisy than rapier weaving looms⁹ and use comparatively less power. The water jet loom is mainly suitable for those fabrics which are woven with hydrophobic material in character (mainly synthetic fibers). Hydrophobic materials are known as non-polar materials with a low affinity to water, which makes them water repelling. The mono and multi filament yarns are mostly used on water jet looms because these yarns have very low moisture content. There are two types of water jet looms: dobby water jet loom and cam/tappet water jet loom.

Based on the width of the machine dobby water jet loom and cam/tappet water jet loom are further divided into two categories, which are narrow water jet machines and large water jet machines. The machines having width of 150 cm to 190 cm are called narrow water jet machines and the machines having widths from 190 cm to 260 cm are called large water jet machines.

- **Cam Water-Jet Loom**

The production rate of this loom is very high. The mono and multi filament yarns are mostly used on cam water jet looms. Cam water-jet looms are further divided into two types according to their width, these two types are narrow cam loom and large cam loom. Figure 7 show cam water-jet loom.

Figure 7: Cam Water-Jet Loom



- **Dobby Water-Jet Loom**

This loom/machine is used for weaving upholstery, tapestry, dress material, curtain and interline fabrics. Based on width of machines, two types of dobby water-jet looms are narrow dobby loom and large dobby loom. Figure 8 shows dobby water-jet loom.

⁹ <https://www.britannica.com/technology/rapier-loom>

Figure 8: Dobby Water-Jet Loom**Advantages of Water Jet Looms**

Main advantages of water jet loom are as follows:

- This type of loom is suitable for producing synthetic fabrics.
- Water jet loom machine consumes less power than air jet, rapier and gripper looms.
- The production rate of water jet looms is very high.
- Water jet looms creates less noise than rapier looms.

Disadvantages of Water Jet Looms

Main disadvantages of water jet loom are as under:

- By using hard water, there may be a formation of rust on the yarn.
- It is not appropriate for absorbent fiber such as cotton.

Weaving Machines Covered under the Proposed Business

The project covers multiple types of air jet and water jet looms in both narrow (150 cm to 190 cm) and large (190 cm to 360 cm) widths. Following types of looms (weaving machinery) are covered under this study:

Air Jet Looms

- Air Jet-Narrow Cam Loom Machine
- Air Jet-Large Cam Loom Machine
- Air Jet-Narrow Dobby Loom Machine
- Air Jet-Large Dobby Loom Machine
- Air Jet-Narrow Jacquard Loom Machine

- Air Jet-Large Jacquard Loom Machine

Water Jet looms

- Water Jet-Narrow Cam Loom Machine
- Water Jet-Large Cam Loom Machine
- Water Jet-Narrow Dobby Loom Machine
- Water Jet-Large Dobby Loom Machine

Proposed Spare Parts of Weaving Machinery

For the purpose of the proposed project, only the main and the most important spare parts of weaving machinery have been being considered and included in the proposed product list. On the basis of market research and as per industry norm, the dealers do not commonly maintain any inventory of spare parts, because these spare parts have high cost and thus are imported only on the demand of customers. Some spare parts are supplied by the original machine manufacturer, along with the machine; as part of the sale deal. These include parts like bushes, O-Rings, heald wires, pin bar strainers, heald locks, gears, nozzles, probe sensors, blade bearings, etc. Such parts are relatively less expensive and can be purchased from the local market. Therefore, the dealer/agent does not maintain inventory of such spare parts.

The proposed business will deal with the following spare parts of the weaving machinery:

- **Stainless Steel Reed**

A reed is part of a weaving loom and resembles a comb. It is used to separate and space the warp threads, to guide the motion of the loom and to push the weft threads into place. Figure 9 shows stainless steel reed.

Figure 9: Stainless Steel Reed



- **Steel Aluminum Warp Beam Air Jet Loom**

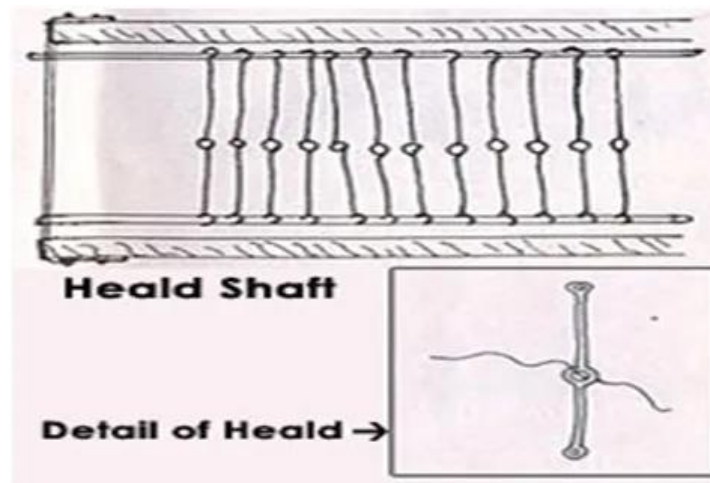
The warp beam, which holds the warp yarns, is located at the back of the machine and is controlled so that it releases warp yarns to the weaving area of the loom as needed.

Figure 10 shows steel aluminum warp beam.

Figure 10: Steel Aluminum Wrap Beam – Air Jet Loom

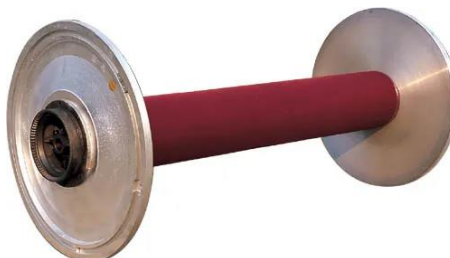
- **Heald Shafts**

It is a frame which contains multiple wires known as healds. Every heald contains a hole or eye in its center through which a warp yarn is threaded. Healds control the warp yarn to produce shed by the tappet, dobby, or jacquard mechanisms. Figure 11 shows healds shaft.

Figure 11: Healds Shaft

- **Cloth Roller**

The cloth roller, which holds the fabric, is located at the front of the machine. The produced fabric is wound on this beam by take up motion. Figure 12 shows cloth roller.

Figure 12: Cloth Roller

- **Pile Motion Servo Motor**

A servomotor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servomotors. Figure 13 shows pile motion servo motor.

Figure 13: Pile Motion Servo Motor



- **Weft Detector**

Weft Detector is an optical device fitted at the end of reed at the receiving side. Its function is to check the arrival of weft at the receiving side. In case of late arrival or miss pick, it senses and automatically stops the loom. Figure 14 shows weft detector.

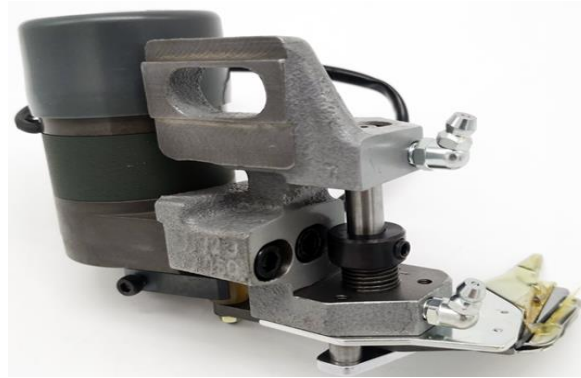
Figure 14: Weft Detector



- **Weft cutter**

It is a cam operated device fitted in the region between the moveable main nozzle and the reed at picking side.¹⁰ Its function is gripping and cutting the weft after every pick at around beat-up. Figure 15 shows weft cutter.

¹⁰ A reed is part of a weaving loom, and resembles a comb. It is used to separate and space the warp threads, to guide the shuttle's motion across the loom, and to push the weft threads into place.

Figure 15: Weft Cutter

- **Weft Accumulator**

Weft Accumulator is a device, which is fitted between weft package and the main nozzle that unwinds a predetermined length of weft from the package and stores it in the form of number of coils on a cylindrical drum. This yarn is then fed into insertion device. Figure 16 shows weft accumulator.

Figure 16: Weft Accumulator

- **Weft Insertion**

The weft insertion is carried out into the shed from one selvedge¹¹ to another selvedge with the help of a high-pressure water stream. The water is fed to the fine jet nozzle through a high-pressure water pump. A fine stream of water emerges from the jet. It carries the weft yarn with it. Figure 17 show weft insertion.

Figure 17: Weft Insertion

¹¹ the edge on either side of a woven or flat-knitted fabric so finished as to prevent raveling

- **Rubber Strip**

Natural rubber insertion strip is made of SBR¹² rubber with a strong polyester liner, giving it a better tear strength than ordinary rubber strip. Insertion rubber strip is used in applications such as barriers and edging. Figure 18 shows rubber strip.

Figure 18: Rubber Strip



- **Weft Sensor**

Weft sensor is used for weft detection on weaving looms. During the weft insertion process, the weft yarn is drawn from the thread guide of the sensor. This yarn movement is converted into electrical signal by piezo element inside the sensor. A piezoelectric sensor is a device that uses the piezoelectric effect to detect changes in pressure, acceleration, temperature, strain, or force by converting them to an electrical charge. This electrical signal is amplified and evaluated along with flag position to detect broken weft and stop the machine. Figure 19 shows weft sensor.

Figure 19: Weft Sensor



- **Loom Hard disk**

Hard disk, also called hard disk drive or hard drive is the magnetic storage medium for a computer. Hard disks are flat circular plates made of aluminum or glass and coated with a magnetic material. Hard disks can store terabytes (trillions of bytes) of information. Hard disk is used to store different types of designs to be printed on the textile product.

- **Warp Beam - Water Jet Loom**

A roller, located at the back of a loom, on which the warp ends are wound in preparation for weaving. Figure 20 show warp beam spare part.

¹² Styrene-Butadiene Rubber

Figure 20: Warp Beam – Water Jet Loom

- **Warp Stop Motion Sensor**

The main function of the warp stop motion is to detect breaks of the warp yarns. If a break of any warp yarn is detected, the weaving machine stops immediately. The weaver can repair the warp yarn break before the open end of the broken yarn gets stuck in moving machine parts. Beside this security feature, the warp stop motion redirects the warp yarns. The position of the warp stop motion, therefore influences the appearance of the produced web and the tension in the warp yarns. Figure 21 shows warp stop motion sensor.

Figure 21: Warp Stop Motion Sensor

- **Jacquard Harness Cord**

The jacquard harness is the system of cords, healds and lingoes that transmit the movement of the hooks to the individual warp threads. Figure 22 shows jacquard harness cord.

Figure 22: Jacquard Harness Cord

- **LCD Display Screen Monitor for Jacquard**

The LCD display is used in jacquard machines; it works as an interphase to feed the design to the machine and also to monitor the design in process. Figure 23 shows LCD display screen monitor for jacquard loom.

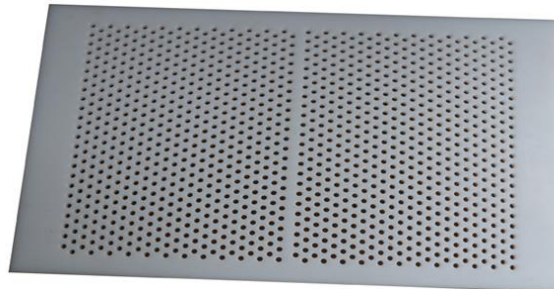
Figure 23: LCD Display Screen Monitor



- **Comber Board**

Comber board is a perforated wooden frame in a loom, through which the lower ends of the harness cords are passed to keep them separate. Figure 24 shows comber board.

Figure 24: Comber Board



- **Harness Shafts**

The shaft or harness is the frame of the loom that holds the warp threads. These shafts can be moved up or down by “treadles” to allow the weft to cross through and create the desired pattern. The more the number of harnesses, the more patterns can be created. The number of harnesses can range anywhere between two and sixteen. For example, a four-harness loom has four shafts that hold heddles through which the warp passes. Four harness weaves may either be plain weave or twills; each machine has 30 harness shafts. Figure 25 shows harness shaft.

Figure 25: Harness Shaft



- **Weft Feeder Accumulator**

A perfect fabric is the result of a combination of different elements in the weaving process, with a key element being the correct setup of the weft feeders. The core function of a weft accumulator in the weaving process is its ability to minimize tension variations in the yarn insertion, from the bobbin¹³ to the weaving machine. The weft feeder accumulator is used as spare part in air-jet looms. Various feeders are available and are matched for the specific application and loom type. The HD X3 is designed for dusty and heavy industrial yarns, in particular for Flat Polypropylene Tape, Nylon Monofilament, roving on Projectile and Rapier weaving machines, jute and other technical yarns. The HD X3 provides unique solutions for the demands of specialized applications. Figure 26 shows weft feeder accumulator.

Figure 26: Weft Feeder Accumulator



- **Weft Accumulator**

The core function of a weft accumulator, as a fundamental necessity in the weaving process, is the ability to minimize tension variations in the yarn insertion, from the bobbin to the weaving machine. The weft accumulator is used as spare part in water-jet loom. Figure 27 shows weft accumulator.

Figure 27 Weft Accumulator



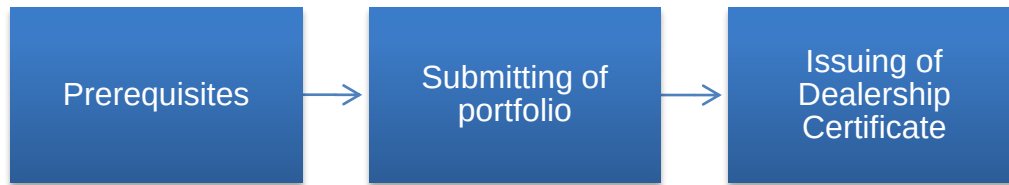
5.1. Service Process Flow

Becoming an Authorized Dealer

¹³ A bobbin is the part of machine on which the lower thread is wound.

Before working as a dealer of textile machinery, the entrepreneur must obtain the dealership from the manufacturer. Figure 28 shows the process flow for obtaining dealership.

Figure 28: Process Flow for Obtaining Dealership



A brief description of process flow is given below:

Prerequisites of Dealership

Some of the prerequisites for an entrepreneur to obtain the dealership for textile machinery are listed below:

- The entrepreneur must be well educated.
- The entrepreneur should be a known and reputable person in the local textile market.
- The entrepreneur should also have good experience of the textile industry.
- The entrepreneur should be financially strong.

Submission of Portfolio

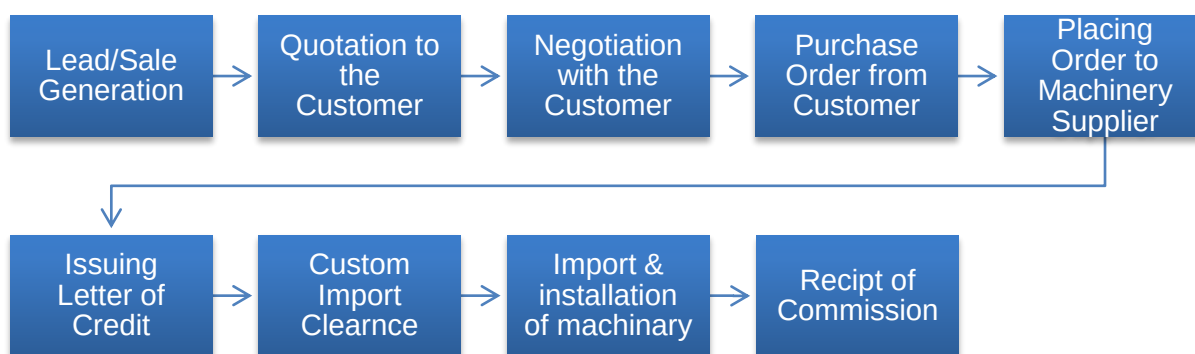
The most creative part for obtaining dealership is the creation of a portfolio. The entrepreneur will mention in the portfolio the complete details of the above-mentioned prerequisites such as experience, education, reputation and his links and service-provision capability with reference to the local textile industry.

Issuing of Dealership Certificate

Certificate of dealership authorizes the dealer to sell the goods of specific brand in a specific region. As the textile machinery manufacturer is satisfied with all the requirements for a dealership, it may issue the dealership certificate to the applicant, after which he becomes an authorized dealer.

Textile Machinery Import

The proposed business will deal in air jet looms and water jet looms. Figure 29 shows a typical cycle for sale of textile machinery.

Figure 29: Process Flow for Import of Textile Machinery

A brief description of the typical sale cycle is described in the following paragraphs:

Lead/Sale Generation

The first step is getting an order. The sale teams make visits of potential markets of looms (weaving units) to keep the customer updated about the available advanced technological options for the weaving sector. The sale teams also use digital marketing tools to generate leads.

Quotation to the Customer

After initial communication, the business gets response form potential customers regarding details of looms or their spare parts. Information about the customer requirements, such as brand, production capacity, unique attributes, price, delivery time, etc. are obtained from the potential customer. Based on the customer's requirements, quotation is provided to him.

Negotiations with the Customer

After issue of quotation to the potential customer, the dealer contacts the supplier of looms and creates indirect communication between supplier and potential customer. A representative of the proposed business (sales person) acts as a negotiator between customer and the supplier. In the negotiation process, the customer and the supplier negotiate on matted related to product, pricing, discount, warranty, delivery mode, lead time, etc.

Purchase Order from Customer

When both parties agree on terms, the customer issues a purchase order to the dealer to supply the selected weaving machinery or its spare parts.

Placing Order to the Supplier

After receiving of purchase order from customer, the dealer sends the purchase order to the supplier of the weaving machinery to provide the specified machinery or spare parts, at the specified time at the specified location as per the agreed price other terms and conditions.

Issuing Letter of Credit (LC)

The supplier of weaving machinery requires letter of credit¹⁴ before the machinery may be shipped to Pakistan. The buyer/customer opens a letter of credit after paying 100% or any other amount that is agreed with the supplier against delivery of the ordered machinery or spare parts. The issuing bank (customer bank) contacts the advising bank (seller/supplier bank) on buyer's behalf and sends the letter of credit (LC) to the advising bank. After receiving the LC, the advising bank informs the supplier/seller about opening of the LC. After confirmation of LC, the supplier dispatches the specified machinery to the buyer's location. After issuing of dispatched notes, the supplier provides necessary documents including dispatch notes to the advising bank. The advising bank sends these documents to the issuing bank. Issuing bank provides these documents to the buyer.

Import Custom Clearance

Once the machinery reaches the customs port, the port authorities issue the Import General Manifest (IGM) to the shipment.¹⁵ Once the IGM is updated, the shipment is offloaded and sent to the terminal warehouse.

In case of land custom stations, i.e., dry ports, etc. the IGM is issued not at the time the goods reach the land customs station, but at the time the goods are offloaded at the sea or airport. Upon arrival of the offloaded goods, the clearance process starts. Normally at this point, a clearing agent is engaged by the importer to facilitate the process of customs clearance.

1. Required Custom Clearance Documents

The clearing agent needs following documents for custom clearance process.¹⁶

- Invoice for shipment
- Packing list
- Bill of lading
- A copy of the Letter of Credit or Contract
- A copy of the Sales Tax Registration Certificate as an importer
- A copy of the National Tax Number
- Copy of the most recent sales tax return

Installation of Machinery

After custom clearance of machinery/spare parts from port, the goods are transferred to the buyer's destination. The installation service may or may not be provided by the machinery supplier depending upon the terms of the contract.

Receipt of Commission

¹⁴ A letter of credit is essentially a financial contract. It is issued by customer's bank, the letter of credit guarantees the supplier/manufacturer will be paid once the conditions of the letter of credit have been met.

¹⁵ It is a number demonstrating the serial of the shipment arrived during the year.

¹⁶ <https://www.fbr.gov.pk/>

After installation of machinery, the dealer is entitled to get its commission against the services provided by him (supply of textile machinery/spare parts). The agent will obtain commission charges from the bank on the release of LC or directly from supplier (the commission amount is agreed between dealer and supplier).

5.2. Installed and Operational Capacities

The business operates in a single shift of 8 hours per day. The proposed business has maximum capacity of processing 265 orders of textile machinery and 10,653 orders of spare parts in a year. The orders of textile machinery include 53 orders of Air Jet-Narrow Cam Looms, 53 orders of Air Jet-Large Cam Looms, 40 orders of Air Jet-Narrow Dobby Looms, 27 orders of Air Jet-Large Dobby Looms, 27 orders of Air Jet-Narrow Jacquard looms, 13 orders of Air Jet-Large Jacquard Looms, 13 orders of Water Jet-Narrow Cam Looms, 13 orders of Water Jet-Large Cam Loom, 13 orders of Water Jet-Narrow Dobby Looms and 13 orders of Water Jet-Large Dobby Looms.

During the 1st year of its operation, the proposed business will operate at 50% capacity and will receive 133 orders of textile machinery and 5,327 orders of spare parts in a year. The orders of textile machinery include, 27 orders of Air Jet-Narrow Cam Looms, 27 orders of Air Jet-Large Cam Looms, 20 orders of Air Jet-Narrow Dobby Looms, 13 orders of Air Jet-Large Dobby Looms, 13 orders of Air Jet-Narrow Jacquard looms, 7 orders of Air Jet-Large Jacquard Looms, 7 orders of Water Jet-Narrow Cam Looms, 7 orders of Water Jet-Large Cam Looms, 7 orders of Water Jet-Narrow Dobby Looms and 7 orders of Water Jet-Large Dobby Looms.

The operational capacity utilization is assumed to increase at the rate of 5% per annum to reach a maximum of 90% in the ninth year of operations. Table 1 shows Service / Operational Capacity.

Table 2 and Table 3 depict the revenue and operational assumptions of textile machinery and spare parts respectively.

Table 1: Service/ Operational Capacity

Office	No. of Sales Managers	Time (year)	Sales Target per Manager (machines)
Head Office	4	1	100
Branch 1			80
Branch 2			50
Branch 3			35
			265

Table 2: Revenue Assumption- Textile Machinery

Machinery Description	Ratio of Sale	Commision Percentage	Number of Units at 100% Capacity	Number of Units at 50% Capacity
Air Jet-Narrow Cam Loom Machine	20%	4%	53	27
Air Jet-Large Cam Loom Machine	20%		53	27
Air Jet-Narrow Dobby Loom Machine	15%		40	20
Air Jet-Large Dobby Loom Machine	10%		27	13
Air Jet-Narrow Jacquard loom Machine	10%		27	13
Air Jet-Large Jacquard Loom Machine	5%		13	7
Water Jet-Narrow Cam Loom Machine	5%		13	7
Water Jet-Large Cam Loom Machine	5%		13	7
Water Jet-Narrow Dobby Loom Machine	5%		13	7
Water Jet-Large Dobby Loom Machine	5%		13	7
Total	100%		265	133

Table 3: Revenue Assumption-Spare Parts

Spare Part Description	Loom Type	Commision Percentage	Number of Units at 100% Capacity	Number of Units at 50% Capacity
Stainless Steel Reed	Air jet	10%	639	319
Steel Aluminium Wrap Beam	Air jet		639	320
Cloth Roller	Air jet		639	319
Weft Cutter	Air jet		639	320
Weft Accumulator	Air jet		639	319

Pile Motion Servo Motor	Air jet		639	320
Weft Feelers/detector	Air jet		639	320
Jacquard Weft Sensor	Jacquard loom		120	60
Jacquard machine weaving loom bearing	Jacquard loom		120	60
Harness cord	Jacquard loom		120	60
Jacquard loom hard disk	Jacquard loom		120	60
LCD display screen monitor for jacquard loom machine	Jacquard loom		120	60
Comber board/guiding board white color for jacquard	Jacquard loom		120	60
weft inserton	Water jet		156	78
Rubber strip	Water jet		156	78
Weft Feeder Accumulator	Water jet		156	78
Weft beam	Water jet		156	78
Harness Shafts/ Heald Frames	Water jet		4,680	2,340
Water jet loom stop motion sensor	Water jet		156	78
Total			10,653	5,327

6. CRITICAL FACTORS

Following factors should be taken into account while making investment decision:

- The entrepreneur should possess good knowhow of the sector.
- The entrepreneur should have rich experience of the textile industry.
- The entrepreneur should have good reputation in the market.
- The entrepreneur should have financial stability.
- The entrepreneur should possess good connections in the textile market.
- The entrepreneur should be able to provide high service quality.

- The entrepreneur should possess good communication skills.
- The entrepreneur should possess good negotiation and conflict resolution skills.
- Sale and marketing staff must be experienced and sharp.

7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Pakistan is the 8th largest exporter of textile products in Asia. It is the 4th largest producer and 3rd largest consumer of cotton.¹⁷ There are 423 textile industries working across Pakistan, there are 1,221 ginning units, 442 spinning units, 124 large spinning units and 425 small units which produce textile products.¹⁸ There are 9,000 looms installed in the organized mill segment of Pakistan¹⁹. Punjab has the biggest share in the textile sector accounting for around 70% of total textile industry. Faisalabad city is the biggest hub of textile industry. Pakistan Textile City, located in Karachi, is an industrial zone, established in 2009 and dedicated for textile processing and related industries. The proposed business may be established in the large cities of Pakistan and near to industrial zones located in Faisalabad, Karachi, Lahore, Gujranwala or Multan.

8. POTENTIAL TARGET MARKETS/ CUSTOMERS

The weaving sector is a very mature sector and has a very long operational history in Pakistan. The weaving sector is divided into two segments, which include organized mill segment and unorganized segment. Unorganized segment roughly accounts for 90% of total weaving capacity.²⁰ Overall, the structure of the sector is competitive, represented by many players of different sizes making similar products.

The weaving segment exported cloth of PKR 288 billion in FY20, representing 15% of textile sector's total exports. The fabric exports showed a CAGR of 6% in last 5 years in value terms. The local sales of cloth were estimated to be around PKR 550 billion in FY20. Total estimated market size of the sector is PKR 850 billion. The weaving sector contributed an estimated 2% to the country's GDP.

The major export destinations for weaving sector's products are South East Asian and South Asian countries which use fabric as an input to manufacture finished products; to be exported to European & North American markets. Hence, the demand for sector's products is highly dependent on demand from these markets. There are 30 players in the organized weaving mill segment. Nishat Mills has the largest weaving facility in Pakistan with 794 modern Air Jet Looms.²¹

¹⁷ http://www.pbit.gop.pk/textile_ind

¹⁸ <http://admin.ugt.edu.pk/Media/Site/STD1/FileManager/OsamaArticle/january/jan23/research.pdf>

¹⁹ https://www.pacra.com/sector_research/Weaving_Sector%20Study_Final_Updated_1600274271.pdf

²⁰ https://www.pacra.com/sector_research/Weaving_Sector%20Study_Final_Updated_1600274271.pdf

²¹ https://www.pacra.com/sector_research/Weaving_Sector%20Study_Final_Updated_1600274271.pdf

Currently there over 10,000 shuttle less/air jet looms operating in Pakistan.²² After the COVID-19 pandemic, Pakistan's textile exports have been following an increasing trend. Industry experts believe that margins of most of the textile companies are expected to increase in the coming years. The export-oriented textile manufacturers also avail the form long term finance facility. Considering the aforementioned reasons, the investment in the shuttle-less looms both in integrated and independent weaving sector has been increasing and this trend is likely to continue in the coming years. This provides the opportunity for the textile machinery trading houses; like the one proposed in this study.

Pakistan imported weaving machines of USD 64 million in 2019 which increased to USD 72 million in 2020 under the HS code 8446.²³

The potential target market/customers for the proposed business are given as under:

- Existing textile units that are planning to expand their current production capacities
- Existing weaving units which are interested in replacing their old looms with the latest air jet and water jet looms
- Potential investors planning for setting up new weaving units in Pakistan
- Existing weaving unit owners, which require spare parts for their existing weaving machinery

Currently there are around 20 dealers working in Pakistan who import textile machine directly from the principal manufacturers. Top manufacturers like Toyota Industries, Tsudakoma, Picanol, Dornier and Iteima hire only one dealer per region. Chinese air jet and water jet machines manufacturers also hire dealers for selling their products, with RIFA being a popular brand in this regard.

9. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of the proposed "Trading House for Industrial Machinery and Equipment-Textile and Allied Sector" business. 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 the target market.

²² <https://fp.brecorder.com/2019/10/20191003523367/>

²³ <https://comtrade.un.org/data/>

9.2. Project Cost

Total investment cost of the project has been calculated to be PKR 35.95 million. The project will be financed through 100% Equity. Table 4 provides the detail of estimated cost for the proposed manufacturing unit.

Table 4: Project Cost

Description	Cost (PKR)
Land	-
Building / Infrastructure	1,562,610
Furniture & fixtures	2,165,000
Office vehicles	20,046,250
Office equipment	6,298,000
Security against building	1,157,760
Pre-operating costs	1,161,011
Total Capital Costs	32,390,631
Working Capital	
Upfront building rent	1,157,760
Upfront insurance payment	400,925
Cash	2,000,000
Total	3,558,685
Total Investment	35,949,316

9.2.1. Land

The proposed business of “Trading House for Industrial Machinery and Equipment-Textile and Allied Sector” will be established in a rented building to avoid the high cost of land. Therefore, no land cost has been added to the project cost. The required space breakup of head office, branch office-1, branch office-2 and branch office-3 is shown in Table 5, Table 6 respectively.

Table 5: Head Office Space Breakup

Break Up of Land Area	% Break-Up	No.	Area (Sq. Ft.)
Executive Office	18%	1	225
Textile Expert Office	4%	1	48
Admin and HR Office	7%	1	80
Accounts Office	18%	1	225
Sales Office	20%	1	240
Marketing Office	8%	1	100

Client Meeting Room	8%	1	100
Kitchen	7%	1	80
Washroom	10%	2	128
Total	100%		1,226

Table 6: Branch Office Space Requirement

Break Up of Land Area	% Break-Up	No.	Area (Sq. Ft.)
Accounts Office	13%	1	100
Admin and HR Office	6%	1	48
Sales Office	30%	1	240
Marketing Office	13%	1	100
Client Meeting Room	13%	1	100
Kitchen	10%	1	80
Washroom	16%	2	128
Total	100%		796
Number of Branch offices		3	
Total Area			2,388

9.2.2. Building

There will be no cost of building construction as the proposed business will be started in a rented facility. However, there will be a renovation cost; required to make the building usable for the business. The proposed project requires electricity load of around 0.6 KW for each office for which an electricity connection under the commercial supply tariff will be required. Building rent of PKR 147,120, PKR 79,600, PKR 79,600 and PKR 79,600 per month for head office, branch office-1, branch office-2 and branch office-3 respectively. The rent has been included in the operating cost. Building renovation cost is shown in Table 7.

Table 7: Renovation Cost Details

Cost Item	Unit of Measurement	Total Units	Cost/Unit (PKR)	Total Cost (PKR)
Paint Cost	Liter	147	500	73,330
Labour Cost	Square Feet	14,666	10	146,660
Curtains	No.	20	5,000	100,000
Blinds	No.	25	2,000	50,000
Tiles	Square Feet	3,614	300	1,084,200

Labour Cost	Square Feet	3,614	30	108,420
Total				1,562,610

9.2.3. Furniture & Fixtures

Table 8 provides details of the furniture and fixture requirements of the project.

Table 8: Furniture and Fixtures

Cost Item	Number of Items	Unit Cost (PKR)	Total Cost (PKR)
Executive Tables	2	30,000	30,000
Executive Chairs	2	20,000	20,000
Managerial Tables	8	25,000	200,000
Managerial Chairs	8	10,000	80,000
Office Staff Tables	12	25,000	300,000
Office Staff chairs	20	10,000	200,000
Office Chairs	20	10,000	200,000
Client Meeting Room Furniture	4	200,000	800,000
Visitor Chairs	10	10,000	100,000
Sofa Set	5	35,000	175,000
Reception Desk	4	15,000	60,000
Total			2,165,000

9.2.4. Office Equipment

Detail of office equipment required for the proposed project is provided in Table 9.

Table 9: Office Equipment

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
1.5 ton Inverter AC	23	90,000	2,070,000
Laptop	12	90,000	1,080,000
Desktop	20	50,000	1,000,000
Printer	4	40,000	160,000
LED/TV	4	40,000	160,000
Water Dispenser	4	20,000	80,000
Ceiling Fan	40	4,500	180,000
Wi-Fi Router and Connection	4	5,000	20,000

CC TV Cams 2 mp	22	2,000	44,000
DVR	4	12,000	48,000
UPS - Inverter (2KW)	4	40,000	160,000
UPS - Dry Batteries	8	45,000	360,000
Tablets	8	42,000	336,000
Multimedia Projector	4	150,000	600,000
Total			6,298,000

9.2.5. Office Vehicle

Detail of office vehicle required for the project is provided in Table 10.

Table 10: Office Vehicles

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Car 1,800 CC	1	4,500,000	4,500,000
Car 1,300 CC	4	3,500,000	14,000,000
Carry Van	1	1,025,000	1,025,000
Registration		1%	195,250
Motorcycle	4	80,000	320,000
Registration	4	1,500	6,000
Total			20,046,250

9.2.6. Pre-Operating Cost

Details of pre-operating cost for the project are provided in Table 11.

Table 11: Pre-Operating Cost

Description	No.	Hiring Before Year 0 Month(s)	Monthly Salary (PKR)	Total Cost (PKR)
Utilities expenses				97,011
Head of Sales & Marketing	1	1	200,000	200,000
Textile Expert	1	1	200,000	200,000
Sales & Marketing Manager	4	1	130,000	520,000
Accounts Manager	1	1	100,000	100,000
Office Boy	1	1	22,000	22,000

Security Guard	1	1	22,000	22,000
Total				1,161,011

9.2.7. Security against Building

Detail of security against building is given in Table 12.

Table 12: Security Against Building

Description	Months	Per month rent (PKR)	Total Cost (PKR)
Head Office	3	147,120	441,360
Branch 1	3	79,600	238,800
Branch 2	3	79,600	238,800
Branch 3	3	79,600	238,800
Total			1,157,760

9.3. Financial Feasibility Analysis

The financial feasibility analysis given in Table 13 provides the information regarding projected IRR, NPV and payback period of the study based on 100% equity.

Table 13: Financial Feasibility Analysis

Description	Values
IRR	70%
NPV (PKR)	200,248,417
Payback Period (years)	2.03
Projection Years	10
Discount Rate used for NPV	15%

9.4. Financial Feasibility Debt Financing

The financial feasibility analysis given is shown in Table 14 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 14: Financial Feasibility Debt Financing

Description	Project
IRR	71%
NPV (PKR)	235,196,701
Payback Period (years)	1.99

Projection Years	10
Discount Rate used for NPV	13%

9.5. Breakeven Analysis

Breakeven analysis of machine and spare parts is provided in Table 15.

Table 15: Breakeven Analysis

Particulars	Amount First Year (PKR)	Ratios
Sales (PKR) – A	78,633,290	100%
Variable Cost (PKR) – B	35,957,192	46%
Contribution (PKR) (A-B) = C	42,676,098	54%
Fixed Cost (PKR) – D	23,093,027	29%
Breakeven		
Breakeven orders-Machines		72
Breakeven orders-Spare Parts		2,883
Breakeven Revenue (PKR)		42,550,298
Breakeven Capacity		27%

9.6. Revenue Generation

Based on the assumption of the first-year capacity utilization of 50%, sales revenue during the first year of operations is shown in Table 16 and complete package details are shown in Table 17.

Table 16: Revenue Generation – Textile Machine

Machinery Description	Proportion of Orders	Commission Percentage	Number of Units at 100% Capacity	Number of Units at 50% Capacity	Price Per Machine(PKR)	Revenue (PKR)
Air Jet-Narrow Cam Loom	20%	4%	53	27	6,000,000	6,480,000
Air Jet-Large Cam Loom	20%		53	27	11,000,000	11,880,000
Air Jet-Narrow Dobby Loom	15%		40	20	7,500,000	6,000,000
Air Jet-Large Dobby Loom	10%		27	13	12,500,000	6,500,000
Air Jet-Narrow Jacquard loom	10%		27	13	9,000,000	4,680,000
Air Jet-Large Jacquard Loom	5%		13	7	14,000,000	3,920,000
Water Jet-Narrow Cam Loom	5%		13	7	3,000,000	840,000
Water Jet-Large Cam Loom	5%		13	7	5,500,000	1,540,000
Water Jet-Narrow Dobby Loom	5%		13	7	4,000,000	1,120,000
Water Jet-Large Dobby Loom	5%		13	7	6,500,000	1,820,000
Total	100%		265	133		44,780,000

Table 17: Revenue Assumptions-Spare Parts

Spare Parts Description	Loom Type	Commission Percentage	Number of Units at 100% Capacity	Number of Units at 50% Capacity	Price Per Unit/Part (PKR)	Revenue (PKR)
Stainless Steel Reed	Air jet	10%	639	319	36,000	1,148,400
Steel Aluminium wrap beam	Air jet		639	320	116,000	3,712,000
Cloth roller	Air jet		639	319	19,000	606,100
Weft cutter	Air jet		639	320	197,000	6,304,000
Weft accumulator	Air jet		639	319	40,900	1,304,710
Pile Motion Servo Moter	Air jet		639	320	267,000	8,544,000
Weft Feelers/detector	Air jet		639	320	89,500	2,864,000
Jacquard Weft Sensor	Jacquard loom		120	60	50,000	300,000
Jacuqard machine weaving loom bearing	Jacquard loom		120	60	63,000	378,000
Harness cord	Jacquard loom		120	60	18,000	108,000
Jacquard loom hard disk	Jacquard loom		120	60	20,000	120,000
LCD display screen monitor for jacquard loom machine	Jacquard loom		120	60	17,600	105,600
Comber board/guiding board white color for jacquard	Jacquard loom		120	60	143,000	858,000
weft inserton	Water jet		156	78	438,600	3,421,080

Rubber strip	Water jet		156	78	22,000	171,600
Weft Feeder Accumulator	Water jet		156	78	107,000	834,600
Weft beam	Water jet		156	78	218,000	1,700,400
Harness Shafts/ Heald Frames	Water jet		4,680	2340	3,500	819,000
Water jet loom stop motion sensor	Water jet		156	78	71,000	553,800
Total			10,653	5,327		33,853,290

9.7. Variable Cost

Detail of Variable costs of textile machine and spare parts have been provided in Table 18.

Table 18: Variable Cost

Description	Cost
Utilities	1,164,128
Direct Staff	18,960,000
Communications expense (phone, internet etc.)	1,896,000
Vehicles running expense	1,896,000
Travelling Expense	1,516,800
Client Visiting Expense	2,358,999
TA/DA Expense	3,931,665
Office expenses (stationery, entertainment, janitorial services, etc.)	4,233,600
Total Variable Cost (PKR)	35,957,192

9.8. Fixed Costs

Details of fixed costs of textile machine and spare parts for the project are provided in Table 19.

Table 19: Fixed Costs

Description	Amount per annum
Management Staff	12,096,000
Administration benefits expense	1,242,240
Building rental expense	1,543,680
Promotional expense	3,145,332
Insurance expense	400,925
Depreciation expense	4,432,649
Amortization of pre-operating costs	232,202
Total Fixed Cost (PKR)	23,093,027

9.9. Human Resource

For the first year of operations, the human resource requirements are projected in table 20.

Table 20: Human Resource Requirement

Description	Number of Employees	Monthly Salary per employee (PKR)	Total Annual Salary (PKR)
Head of Sales and Marketing Department	1	200,000	2,400,000
Textile Expert	1	200,000	2,400,000
Sales & Marketing Manager	4	130,000	6,240,000
Sales Officer	4	75,000	3,600,000
Marketing Associate	8	45,000	4,320,000
Finance and Accounts Manager	1	100,000	1,200,000
Accountant	4	50,000	2,400,000
Admin and HR Manager - Head Office	1	80,000	960,000
Admin & HR Officer	4	40,000	1,920,000
Receptionist	4	40,000	1,920,000
Driver	4	22,000	1,056,000
Office Boy	5	22,000	1,320,000
Security Guard	5	22,000	1,320,000
Total	46		31,056,000

10. CONTACT DETAILS

Details of Textile Machinery Suppliers providers are provided in Table 21.

Table 21: Service Providers

Service Providers	Location	Contact Number	Email/ Website
Tsudakoma (Changshu) Co., Ltd.	Japan	https://tsudakoma.contact	https://www.tsudakoma
Itema	China	Tel +86 (0)21 6774 2618 Fax +86 21 6774 2608	http://www.itemagroup.com/en/
Picanol	Belgium	+32 57 222 111	https://www.picanol.be/

Sino Textile	China	+86-0571-56071596	merlin@sinotextilemachinery.com
Rifa	China	0571-87633688	https://en.rifagroup.com/
Toyota Industries Corporation	Japan	https://www.toyota-industries.com/contact/index.html	https://www.toyota-industries.com/

11. USEFUL LINKS

Table 22: Useful Links

Name of Organization	Website
Small and Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
National Business Development Program (NBDP)	www.nbdp.org.pk
Textile Industry Pakistan	http://www.textile.gov.pk/
Pakistan Weaving Mills Association	http://pwma.com.pk/
Pakistan Textile Exporters Association	https://ptea.org.pk/
All Pakistan Textile Mills Association	https://aptma.org.pk/
Government of Pakistan	www.pakistan.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	sindh.gov.pk/
Government of Balochistan	balochistan.gov.pk/
Government of Khyber Pakhtunkhwa	kp.gov.pk/
Government of Gilgit Baltistan	gilgitbaltistan.gov.pk/
Government of Azad Jammu & Kashmir	ajk.gov.pk/
Trade Development Authority of Pakistan	www.tdap.gov.pk
Securities and Exchange Commission of Pakistan	www.secp.gov.pk
State Bank of Pakistan	www.sbp.gov.pk
Federal Board of Revenue	www.fbr.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
Pakistan Stock Exchange (PSX)	www.psx.com.pk
Pakistan Standards and Quality Control Authority	http://www.psqca.com.pk
Punjab Small Industries Corporation	https://www.psicc.gov.pk/
Sindh Small Industries Corporation	https://ssicc.gos.pk/

Small Industries Development Board Government of Khyber Pakhtunkhwa	https://small_industries_de.kp.gov.pk/
Government of Balochistan Industries and Commerce	https://balochistan.gov.pk/departments-download/industries-and-commerce/

12. ANNEXURES

12.1. Income Statement

Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue form Machines	44,780,000	53,338,306	64,546,967	76,565,061	90,671,574	107,585,392	125,776,625	146,970,659	172,148,001	189,477,569
Revenue from Spare Parts	33,853,290	40,967,871	49,191,305	58,551,807	69,441,091	81,979,947	96,228,111	112,489,600	131,179,600	144,385,038
Total	78,633,290	94,306,177	113,738,273	135,116,868	160,112,666	189,565,339	222,004,736	259,460,259	303,327,601	333,862,606
<i>Cost of sales</i>										
Utilities	1,164,128	1,269,327	1,384,032	1,509,102	1,645,475	1,794,171	1,956,304	2,133,088	2,325,849	2,536,028
Direct Staff	18,960,000	20,799,120	22,816,635	25,029,848	27,457,743	30,121,145	33,042,896	36,248,056	39,764,118	43,621,237
Communications expense (phone, internet etc.)	1,896,000	2,079,912	2,281,663	2,502,985	2,745,774	3,012,114	3,304,290	3,624,806	3,976,412	4,362,124
Vehicles running expense	1,896,000	2,086,864	2,296,942	2,528,167	2,782,669	3,062,791	3,371,112	3,624,806	3,989,703	4,391,333
Travelling Expense	1,516,800	1,663,930	1,825,331	2,002,388	2,196,619	2,409,692	2,643,432	2,899,845	3,181,129	3,489,699
Client Visiting Expense	2,358,999	2,829,185	3,412,148	4,053,506	4,803,380	5,686,960	6,660,142	7,783,808	9,099,828	10,015,878
TA/DA Expense	3,931,665	4,715,309	5,686,914	6,755,843	8,005,633	9,478,267	11,100,237	12,973,013	15,166,380	16,693,130
Total cost of sales	31,723,592	35,443,647	39,703,664	44,381,839	49,637,294	55,565,140	62,078,412	69,287,422	77,503,419	85,109,429
Gross Profit	46,909,698	58,862,530	74,034,609	90,735,028	110,475,371	134,000,199	159,926,325	190,172,838	225,824,182	248,753,177
<i>General administration & selling expenses</i>										
Management Staff	12,096,000	13,269,312	14,556,435	15,968,409	17,517,345	19,216,528	21,080,531	23,125,342	25,368,501	27,829,245
Administration benefits expense	1,242,240	1,362,737	1,494,923	1,639,930	1,799,004	1,973,507	2,164,937	2,374,936	2,605,305	2,858,019
Building rental expense	1,543,680	1,698,048	1,867,853	2,054,638	2,260,102	2,486,112	2,734,723	3,008,196	3,309,015	3,639,917
Office expenses (stationery, entertainment, janitorial services, etc.)	4,233,600	4,644,259	5,094,752	5,588,943	6,131,071	6,725,785	7,378,186	8,093,870	8,878,975	9,740,236
Promotional expense	3,145,332	3,772,247	4,549,531	5,404,675	6,404,507	7,582,614	8,880,189	10,378,410	12,133,104	13,354,504
Insurance expense	400,925	340,786	280,648	220,509	160,370	100,231	40,093	610,850	519,223	427,595
Depreciation expense	4,432,649	4,432,649	4,432,649	4,432,649	4,432,649	4,432,649	3,007,186	6,736,425	6,736,425	6,736,425
Amortization of pre-operating costs	232,202	232,202	232,202	232,202	232,202	-	-	-	-	-
Subtotal	27,326,627	29,752,240	32,508,992	35,541,955	38,937,249	42,517,425	45,285,845	54,328,029	59,550,547	64,585,941
Operating Income	19,583,071	29,110,290	41,525,616	55,193,073	71,538,123	91,482,774	114,640,480	135,844,808	166,273,635	184,167,236
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	1,574,500	-	-	-
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	5,011,563	-	-	-
Earnings Before Interest & Taxes	19,583,071	29,110,290	41,525,616	55,193,073	71,538,123	91,482,774	121,226,542	135,844,808	166,273,635	184,167,236
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	19,583,071	29,110,290	41,525,616	55,193,073	71,538,123	91,482,774	121,226,542	135,844,808	166,273,635	184,167,236
Tax	5,974,074	9,308,601	13,653,965	18,437,575	24,158,342	31,138,970	41,549,289	46,665,682	57,315,771	63,578,532
NET PROFIT/(LOSS) AFTER TAX	13,608,997	19,801,689	27,871,651	36,755,498	47,379,780	60,343,804	79,677,253	89,179,126	108,957,863	120,588,704

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											
<i>Current assets</i>											
Cash & Bank	2,000,000	7,004,966	16,804,559	26,959,031	37,777,859	49,525,283	62,387,795	97,631,935	190,146,922	301,791,869	435,959,953
Accounts receivable	-	7,196,786	8,572,228	10,373,620	12,305,099	14,572,217	17,290,509	20,214,101	23,620,284	27,666,643	22,291,987
Pre-paid building rent	1,157,760	485,496	534,046	587,450	646,195	710,815	781,896	860,086	946,094	1,040,704	-
Pre-paid insurance	400,925	340,786	280,648	220,509	160,370	100,231	40,093	610,850	519,223	427,595	-
Total Current Assets	3,558,685	15,028,034	26,191,480	38,140,609	50,889,523	64,908,546	80,500,293	119,316,972	215,232,523	330,926,811	458,251,940
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building Renovation Cost	1,562,610	1,406,349	1,250,088	1,093,827	937,566	781,305	625,044	468,783	312,522	156,261	-
Furniture & fixtures	2,165,000	1,840,250	1,515,500	1,190,750	866,000	541,250	216,500	3,408,857	2,897,529	2,386,200	1,874,872
Office vehicles	20,046,250	17,039,313	14,032,375	11,025,438	8,018,500	5,011,563	2,004,625	30,542,512	25,961,136	21,379,759	16,798,382
Office equipment	6,298,000	5,353,300	4,408,600	3,463,900	2,519,200	1,574,500	629,800	9,916,390	8,428,931	6,941,473	5,454,014
Security against building	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760	1,157,760
Total Fixed Assets	31,229,620	26,796,972	22,364,323	17,931,675	13,499,026	9,066,378	4,633,729	45,494,303	38,757,878	32,021,453	25,285,028
<i>Intangible assets</i>											
Pre-operation costs	1,161,011	928,809	696,606	464,404	232,202	-	-	-	-	-	-
Total Intangible Assets	1,161,011	928,809	696,606	464,404	232,202	-	-	-	-	-	-
TOTAL ASSETS	35,949,316	42,753,814	49,252,409	56,536,688	64,620,751	73,974,924	85,134,022	164,811,275	253,990,401	362,948,264	483,536,968
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
<i>Shareholders' equity</i>											
Paid-up capital	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316	35,949,316
Retained earnings	-	6,804,498	13,303,094	20,587,373	28,671,435	38,025,608	49,184,706	128,861,959	218,041,085	326,998,948	447,587,652
Total Equity	35,949,316	42,753,814	49,252,409	56,536,688	64,620,751	73,974,924	85,134,022	164,811,275	253,990,401	362,948,264	483,536,968
TOTAL CAPITAL AND LIABILITIES	35,949,316	42,753,814	49,252,409	56,536,688	64,620,751	73,974,924	85,134,022	164,811,275	253,990,401	362,948,264	483,536,968

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
<i>Operating activities</i>											
Net profit		13,608,997	19,801,689	27,871,651	36,755,498	47,379,780	60,343,804	79,677,253	89,179,126	108,957,863	120,588,704
Add: depreciation expense		4,432,649	4,432,649	4,432,649	4,432,649	4,432,649	4,432,649	3,007,186	6,736,425	6,736,425	6,736,425
amortization of pre-operating costs		232,202	232,202	232,202	232,202	232,202	-	-	-	-	-
Accounts receivable		(7,196,786)	(1,375,442)	(1,801,392)	(1,931,479)	(2,267,118)	(2,718,292)	(2,923,591)	(3,406,184)	(4,046,359)	5,374,656
Pre-paid building rent	(1,157,760)	672,264	(48,550)	(53,405)	(58,745)	(64,620)	(71,081)	(78,190)	(86,009)	(94,609)	1,040,704
Advance insurance premium	(400,925)	60,139	60,139	60,139	60,139	60,139	60,139	(570,758)	91,628	91,628	427,595
	(1,558,685)	11,809,465	23,102,687	30,741,844	39,490,263	49,773,032	62,047,218	79,111,901	92,514,986	111,644,948	134,168,084
<i>Financing activities</i>											
Issuance of shares	35,949,316	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing	35,949,316	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(32,390,631)	-	-	-	-	-	-	(43,867,760)	-	-	-
Acquisitions											
Cash (used for) / provided by investing	(32,390,631)	-	-	-	-	-	-	(43,867,760)	-	-	-
NET CASH	2,000,000	11,809,465	23,102,687	30,741,844	39,490,263	49,773,032	62,047,218	35,244,141	92,514,986	111,644,948	134,168,084

13. KEY ASSUMPTIONS

13.1. Operating Cost Assumptions

Table 23: Operating Cost Assumptions

Description	Rate/ Percentage/ Details
Furniture and fixture depreciation	15%
Machinery & equipment depreciation	15%
Building & infrastructure depreciation	10%
Vehicle depreciation	15%
Office equipment depreciation	15%
Inflation rate	10.1%
Wage growth rate	9.7%
Electricity price growth rate	9.0%
Office equipment price growth rate	6.7%
Office vehicle price growth rate	6.2%

13.2. Variable Cost Assumptions

Table 24: Variable Cost Assumptions

Description	Details
Office expenses (stationery, entertainment, janitorial services, etc.)	35% of administration expense
Administration benefits expense	4% of HR Salaries
TA/DA Expense	5% of Revenue
Travelling expense	8% of Direct Staff expense
Communication expense	10% of Direct staff expense
Office vehicles running expense	10% of Direct staff expense
Marketing Cost	4% of revenue
Client Visiting expense	3% of revenue

13.3. Fixed Cost Assumptions

Table 25: Fixed Cost Assumptions

Description	Details
Office vehicles insurance rate	2% of Cost

13.4. Revenue Assumptions**Table 26: Revenue Assumptions**

Description	Details
Sale price growth rate	10.1%
Initial capacity utilization	50%
Capacity growth rate	5%
Maximum capacity utilization	90%

13.5. Financial Assumptions**Table 27: Financial Assumptions**

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

13.6. Debt Related Assumptions**Table 28: Debt Related Assumptions**

Description of Cost	Details
Project Life (Years)	10
Debt: Equity	50:50
Discount Rate	13%
Debt Tenure	5 years
Grace Period	1 Year
Interest Rate (KIBOR+3%)	10.3%

13.7. Cash Flow Assumptions**Table 29: Cash Flow Assumptions**

Description of Cost	Details
Accounts Receivable (in days)	45
Accounts Payable (in days)	Zero

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
3 rd 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	5 TH 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