

# Pre-Feasibility Study

## GOLD CHAIN & STOPPERS, CATCHERS ETC. MANUFACTURING BUSINESS



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<b>1</b>	<b>PURPOSE OF THE DOCUMENT .....</b>	<b>4</b>
<b>2</b>	<b>CRUCIAL FACTORS &amp; STEPS IN DECISION MAKING FOR INVESTMENT.....</b>	<b>4</b>
2.1	SWOT ANALYSIS .....	4
2.2	KEY SUCCESS FACTORS .....	5
2.2.1	<i>Attractive Design and Quality Finishing.....</i>	6
2.2.2	<i>Build Customer Confidence.....</i>	6
2.2.3	<i>Responding to Market Demand.....</i>	6
2.2.4	<i>Other Success Factors .....</i>	6
<b>3</b>	<b>PROJECT PROFILE.....</b>	<b>7</b>
3.1	OPPORTUNITY RATIONALE .....	7
3.2	PROJECT BRIEF .....	7
3.3	PROPOSED BUSINESS LEGAL STATUS .....	8
3.4	MARKET ENTRY TIME .....	8
3.5	PROPOSED LOCATION .....	9
3.6	PROJECT CAPACITY.....	9
3.7	PROJECT INVESTMENT .....	9
3.8	RECOMMENDED PROJECT PARAMETERS .....	9
3.9	TARGET MARKET.....	10
<b>4</b>	<b>TECHNOLOGY AND PROCESSES.....</b>	<b>10</b>
4.1	HISTORY OF GOLD CHAINS .....	11
4.2	GOLD CHAIN MAKING PROCESS (TRADITIONAL) .....	12
4.2.1	<i>Rainee (Rod) Making .....</i>	13
4.2.2	<i>Wire/Patri Making.....</i>	13
4.2.3	<i>Dye Punching.....</i>	13
4.2.4	<i>Assembly &amp; Shape Making.....</i>	14
4.2.5	<i>Finishing .....</i>	14
4.2.6	<i>Polishing .....</i>	14
4.3	TOOLS AND EQUIPMENTS.....	14
4.4	MACHINE BASED GOLD CHAIN MANUFACTURING .....	15
<b>5</b>	<b>SECTOR CHARACTERICTICS .....</b>	<b>16</b>
5.1	MACHINERY REQUIREMENT .....	17
5.2	FURNITURE & FIXTURES .....	18
<b>6</b>	<b>LAND &amp; BUILDING REQUIREMENT .....</b>	<b>18</b>
6.1	LAND REQUIREMENT .....	18
<b>7</b>	<b>HUMAN RESOURCE REQUIREMENT.....</b>	<b>19</b>
<b>8</b>	<b>FINANCIAL ANALYSIS.....</b>	<b>20</b>
8.1	PROJECT COST .....	20
8.2	PROJECTED INCOME STATEMENT .....	21
8.3	PROJECTED CASH-FLOW STATEMENT .....	22
8.4	PROJECTED BALANCE SHEET .....	23
<b>9</b>	<b>KEY ASSUMPTIONS.....</b>	<b>24</b>
9.1	PRODUCT MIX .....	24
9.2	PROJECT ASSUMPTIONS.....	25
9.3	OPERATING ASSUMPTIONS .....	25
9.4	DEPRECIATION RATE ASSUMPTIONS .....	25
9.5	WORKING CAPITAL TURNOVER ASSUMPTIONS.....	25

9.6 OTHERS ..... 25  
9.7 REVENUE ASSUMPTIONS ..... 26  
9.8 MISCELLANEOUS ..... 27



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## DOCUMENT CONTROL

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## 1 PURPOSE OF THE DOCUMENT

The objective of this proposed Pre-feasibility study is primarily to facilitate potential entrepreneurs with the Investment information and provide an overview about the "**Gold Chain & Stoppers, Catchers etc Manufacturing Business**". The proposed Pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document covers various aspects of Gold Chain & Stoppers, Catchers etc Manufacturing Business Concept Development, Start-up, Production, Marketing, Finance and Business Management. This document also provides Sectoral Information, brief on Government Policies and International Scenario, which have some bearing on the Project itself.

The pre-feasibility is based on the information obtained from various industry sources as well as discussions with businessmen. For financial model, since the forecast / projections relate to the future periods, actual results are likely to differ because of the events and circumstances that don't occur frequently as expected.

Whilst due care and attention has been taken in performing the exercise, no liability can be inferred for any in-accuracy or omissions reported from the results thereof. It is essential that our report be read in its entirety with financial model in order to fully comprehend the impact of key assumptions on the range of values determined.

This particular Pre-feasibility is regarding "**Gold Chain & Stoppers, Catchers etc. manufacturing Unit**". Before studying the whole document one must consider following critical aspects, which forms basis of any Investment Decision.

## 2 CRUCIAL FACTORS & STEPS IN DECISION MAKING FOR INVESTMENT

Before making the decision, whether to invest in setting up the **Gold Chain & Stoppers, Catchers etc.** manufacturing unit or not, one should carefully analyze the associated risk factors. An industrial sector SWOT analysis is given below that can help in analyzing these factors, which can play important role in making the decision. However, a prospective entrepreneur would have to conduct micro level SWOT analysis on the basis of the intended city/town for his business.

### 2.1 SWOT Analysis

#### STRENGTHS

- Continuous availability & easy access of the raw material, which mainly comprise gold.
- Availability of Labor and skilled craftsmen.
- Latest technology of manufacturing Gold Chain & Stoppers, Catchers etc. with high working efficiency and trouble free operations.
- Easy availability of spare parts.

- Own Research & Development department for new design creations.
- The life style of the people is improving and trends are continuously changing over time and more women are now directed towards using the light weight chains rather than heavy weight jewellery.

### **WEAKNESSES**

- Strict controls over the Labor efficiency need to be observed to reduce the risk at the minimum level.
- Weak design protection.
- High employment turnover rate.
- Seasonal sector especially wedding season i.e October to March.
- Heavy investment in the working capital.

### **OPPORTUNITIES**

- The life style of the people is improving and trends are continuously changing. Thus the demand for gold chain remains alive.
- Increasing preference for the high quality Gold Chains as they are easy to handle.
- Increasing demand for Gold Chain (along with other jewellery made of gold) in the marriage season.
- Gold Chains are popular and used in every class of the society.
- Premium mark – up is accepted in general by customers if they perceive that the chain item they are purchasing is unique or has a designer’s value. Thus there is a greater opportunity for an entrepreneur to charge higher mark – up on exclusively positioned chains.
- Gold price is perceived to be outmatching inflation thus purchase of gold chain is more readily justified in terms of future security.
- Jewellery made of Gold, especially Gold Chains are considered as a status symbol in our society. Thus its demand never falls.
- There is an increasing trend of Gold Chains being used by men. This has broadened our target market.

### **THREATS**

- Quality & design of the Gold Chain needs to be considered very closely.
- Strict internal control and quality control procedures required.
- Established competitors in Gold Chain market.
- Fluctuating prices of Gold due to national and international factors.
- Trends in design of Gold Chains keep changing changes so the business has to keep itself up to new trends of the market. This requires continuous investment and promotional activity.

## **2.2 Key Success Factors**

Some of the factors critical for the success of the project are:

### 2.2.1 *Attractive Design and Quality Finishing*

The life style of the people is improving and they are getting more quality conscious. New tastes and designs are being adopted by the people. Special attention should be given to present latest designs according to local market demands & requirements.

New designs and styles can build brand equity for the business. As there is high competition in market, to make the project commercially viable, creation of new designs and styles, and setting new trends is vital.

Designs must be according to the local trends and traditions. Demands of high class, medium class and lower class are different as there are different traditions and varying cultures. Thus the business must respond to differing needs of the market.

### 2.2.2 *Build Customer Confidence*

It is imperative to the success of a business to build customer confidence. Especially in Gold Chain business, this is a matter of paramount concern. As gold is a precious metal, its quantity percentage in every kind of jewellery must be guaranteed.

### 2.2.3 *Responding to Market Demand*

Market of Gold Chains is diverse. As there are different classes of society with differing requirements and needs, business has to be dynamic enough to respond. For example high class usually likes light weight chains that are relatively simple attractive in design. They are more concerned about the quality finishing and latest trends. While one segment of our society likes heavy weight and old style Chains (sometimes called as “Mala”).

Thus it is very important for the success of the business to respond to differing market trends.

### 2.2.4 *Other Success Factors*

Some other factors critical to the success of this proposed project include;

- i-** Advance Orders for sale can ensure the success of the Business.
- ii-** Strict quality control procedures.
- iii-** Good internal control system to avoid theft/loss.
- iv-** Responsiveness to Customers' demands and requirements.
- v-** Timely completion of orders.
- vi-** Reliability in delivery.



### 3 PROJECT PROFILE

#### 3.1 Opportunity Rationale

Gold Chains are considered as a symbol of status. There is an increasing market of Gold Chains as these are attractive and easy to handle. Men along with women are using gold chains. This trend started because many celebrities in Cricket and Music have been wearing gold chains. Another reason for the vitality of the gold chain market is that all domestic gold chains are priced by weight which results in the fact that people perceive gold chains as a means of security for future because gold alone has an internationally agreed price.

On the supply side gold chain manufacturing (by traditional way) is labor intensive. The skill of most of the craftsmen is passed on from generation to generation or through a process of intense apprenticeship. Gold Chain Manufacturing unit tend to specialize in terms of process, thus they all tend to form a cluster of independent units that utilize each other's service to complete gold Chains. This makes it easier for a new entrant to identify craftsmen in terms of skill, reliability and quality.

#### 3.2 Project Brief

The subject enterprise of this pre-feasibility study is an integrated business Gold Chain & Stoppers, Catchers manufacturing unit. The project will be producing Gold Chains, Catchers & Stoppers both in traditional way and through latest imported machines. The project will be producing Gold Chains, Catchers & Stoppers etc. in 21 karats ranging from 6 grams to 30 grams with the length ranging from 16" to 24". The proposed project will be manufacturing the Gold Chains in such mix and types as have been mentioned below. Total Production of different chains by the project are expected to be 25,000/-

**Table 1: Types of Chains**

Type of Chain	Manufacturing Process	Production Lead Time of Chain per day per person	Product Mix	Product Weight in grams	Total Production in numbers
<b>1 - Ball Chain</b>					
Light Weight	Conventional & Machine made Chain	1	8.00%	8.00	2,000
Medium Weight			10.00%	14.00	2,500
Heavy Weight			5.00%	20.00	1,250
<b>2 - Karri Chain</b>					
Medium Weight	Conventional & Machine made Chain	1	2.00%	12.00	500
Heavy Weight			3.00%	20.00	750
<b>3 - Chitai Chain</b>					
Light Weight	Conventional & Machine made Chain	1	2.00%	8.00	500
Medium Weight			3.00%	12.00	750

Heavy Weight			2.00%	20.00	500
<b>4 - Patt Chain</b>					
Light Weight	Conventional & Machine made Chain	1	3.00%	8.00	750
Medium Weight			3.00%	12.00	750
Heavy Weight			2.00%	20.00	500
<b>5 - Rassa Chain</b>					
Light Weight	Conventional & Machine made Chain	3	9.00%	14.00	2,250
Medium Weight			15.00%	18.00	3,750
Heavy Weight			8.00%	24.00	2,000
<b>6 - Madarassi Chain</b>					
Light Weight	Conventional & Machine made Chain	1	2.00%	8.00	500
Medium Weight			3.00%	12.00	750
Heavy Weight			2.00%	18.00	500
<b>7 - Leaf Chain</b>					
Light Weight	Conventional & Machine made Chain	1	2.00%	8.00	500
Medium Weight			3.00%	12.00	750
Heavy Weight			3.00%	18.00	750
<b>8 - Curb Chain</b>					
Light Weight	Machine made Chain	0	2.00%	6.00	500
Medium Weight			4.00%	10.00	1,000
Heavy Weight			4.00%	20.00	1,000

### 3.3 Proposed Business Legal Status

The said project can be a sole proprietorship or a partnership and even it can be registered under the Companies Ordinance, 1984 with the Securities & Exchange Commission of Pakistan. The selection totally depends upon the choice of the entrepreneur. This pre-feasibility assumes the legal status of a sole proprietorship.

### 3.4 Market Entry Time

The proposed business faces a seasonality factor that becomes apparent in the sales. Sales tend to peak during the wedding session. Wedding session fall in winters (October to February) and in summer (June to August). As far as the importance of timing of setting up a Gold Chain business is concerned, it's preferable that the business be set up to coincide with either of the wedding sessions. It is recommended that project should be started in September.

This would not only help the initial cash flows but also amplify any promotional tactics.

### 3.5 Proposed Location

The ideal location for this unit would be within jewelry cluster often referred to as Sirafa Bazaars in main urban cities. It is recommended to set up the project at Dhobi Mandi, Near Mall Road, AG Office, Lahore. This area is already established in terms of manufacturing Gold Chains and Jewellery. The advantage of the locating the proposed unit in this area is that this cluster is almost self sufficient in terms of supply of raw material, small tools and equipments, ancillary services such as machine repair etc. Important contacts with main suppliers and retailers who may be potential customers are also found in this market.

### 3.6 Project Capacity

Selection of Project Size is really critical. After doing thorough Market Research, it is decided that the proposed Pre-feasibility will be based upon the Production Capacity of 25,000 As it is evident that there is a large consumption of Gold Chains, high grade producers will have heyday in the Gold Chain market in future. This particular Pre-feasibility study is however based on the production capacity of 25,000/- which is the appropriate feasible size for a gold chain manufacturing unit.

### 3.7 Project Investment

Total Project cost is Rs. 19.824 million worked out in the following table:-.

**Table 2: Total project cost**

	<b>RUPEES</b>
Capital Investment	8,594,101
Working Capital Requirement	11,470,453
Total Investment	20,064,554

### 3.8 Recommended Project Parameters

**Table 3: Project Parameters**

<b>Capacity</b>	<b>Human Resource</b>	<b>Location</b>	
8 hours a day for 300 days	28	Dhobi Mandi, Near Mall Road, AG Office, Lahore	
<b>Financial Summary</b>			
<b>Project Cost</b>	<b>IRR</b>	<b>NPV (Rs.)</b>	<b>Payback period</b>
20,218,608	32.438%	27,676,992	4.14 Years

### 3.9 Target Market

Target market for the proposed business is retail industry. Gold Chains manufactured shall be sold to retailers which are mainly located in Dobhi Mandi, Sirafa Bazar (Rang Mehel), Ichra, Moon Market (Allama Iqbal Town), Liberty Market, The Mall, Defence, etc. The proposed business shall not target general public (consumers) directly. But as Gold Chains are used by all classes of the society, demands for different sectors of market must be fulfilled (as design, style and fashion of classes of society are different).

## 4 TECHNOLOGY AND PROCESSES

Gold is the world's most ancient and most coveted metal. Wherever it was mined or traded, it always represented wealth and power. The earliest known gold jewelry came from the Sumer civilization around 3000 BC, in an area that we now know as southern Iraq. Other ancient masterpieces were created across Europe, the Middle East, Asia, and South America. Gold's beautiful color and malleability inspired craftsmen to create ornaments and jewelry. It has always been liked specially among women.

Pure gold is generally considered too soft to make into everyday jewelry. It bends, scratches, and wears away with friction. Even in ancient times, gold was frequently alloyed with other metals to keep its shining glow but with added strength, durability, and a range of colors. White gold's look is achieved by alloying gold with nickel, silver, or palladium. Red gold is created by alloying gold with copper. Most yellow gold contains varying amounts of nickel, copper, and zinc.

The purity of gold (or percentage of pure gold in an alloy) is measured in karats (kt). Karat should not to be confused with a "carat" (ct), the unit of weight for diamonds. Here's a quick chart to break down the conversion:

**Table 4: Types of Gold**

Karat	Gold %
24 karat	100% gold
21 karat	87.5% gold
18 karat	75% gold
14 karat	58.3% gold
10 karat	41.6% gold

Most popular in Pakistan is 21 karat gold, which is warmly lustrous and finely workable but strong enough to wear every day. This pre-feasibility assumes that all chains are

made of 21 karat gold. When gold is weighed, it is generally measured in grams (g) or ounces (oz). All real gold jewelry must have its karatage clearly stamped on it. Gold is a mined metal, and sources have been found on literally every continent. Normally gold used in Pakistan is imported from Switzerland as it is of best quality. It is also imported from Dubai & Saudi Arab.

#### 4.1 History of Gold Chains

The definition of chain is as simple as interlocking links of metal. If the metal happens to be precious metal, then we consider the chain jewelry.

Chain making has always been, up until the middle of the 18th century, a labor-intensive time consuming hand operation. Before automated wire drawing machines, the craftsman had to hammer down and pull metal through succeeding smaller dies to form thin wire. Once the wire was pulled down to the needed diameter, it was wound around a mandrel forming loops. Then, the craftsman would make a cut through the looped wire down the length of the mandrel forming individual offset loops. The craftsman would then interlock the loops, bend each link closed, and then solder each link. Chain making was mostly a hand operation all the way up until the middle of the 17th century. At this time, we saw the invention of the chain machine. There is an unauthored article from World Gold Council brochure that claims the first machine that could be called a chain machine was invented in France in 1750 by a Jacques de Vaucanson. The machine was actually used to make u-shaped wire for mesh chain. By 1782 a true machine for the sole purpose of making chain was built. The machine, driven by cams and powered in the early days by a belt connected to some external source of power (probably including human peddling), was a toolmakers marvel that has changed very little since then.

Other machines started appearing in England in the early 1800's and by 1830, machine chain manufacture was coming on strong. The Germans came into the picture at this time making fine chains while the English were making ball chain and other heavier styles. By 1870, chain making was found all over Europe. Around this time the technology had made its way across the Atlantic to America where the Americans focused on high-speed machines. In fact high-speed chain machines were exhibited at the 1893 Chicago World Exposition.

As world wars one and two ravaged Europe, many of the craftsman immigrated to America, taking up residence in the Providence area of Rhode Island, which was the center of the American jewelry industry at the time. They brought their craft with them and chain manufacturing took hold here. After the wars and into the 60's, the Italians grabbed the technology and soon became the masters of chain making machines and remain so to this day.

Over the years, machines have evolved in their ability to make an incredible number of different type chains. The machines have fallen into several basic types, which make most of the chains. Briefly there are two major types of chain machines, cable machines and curb chain machines.

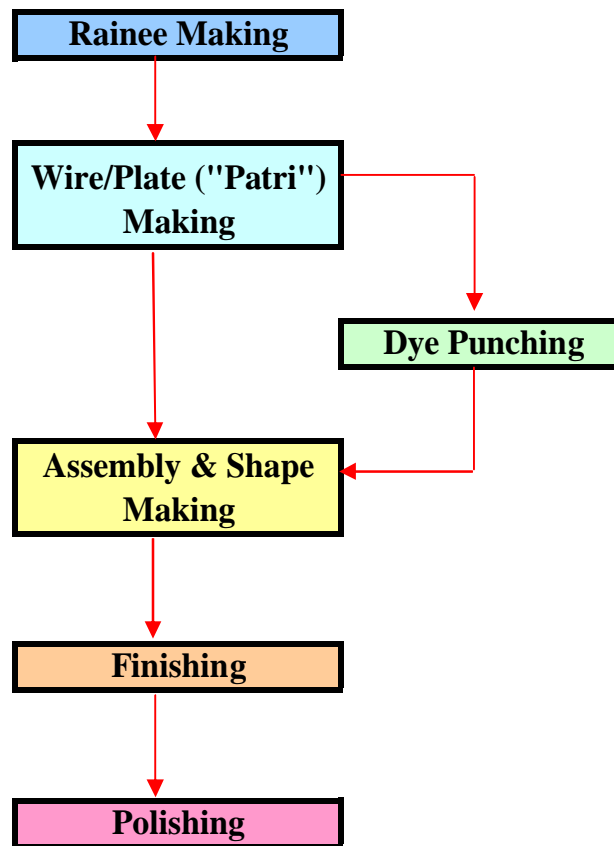
Cable machines feed wire off a spool into a set of straightening rollers. It then goes through a guide and gripper, which feeds it against a stop, which determines the length of the wire and thus the size of the link. Unless this is the first link, the wire is also fed through the previously made link. A forming tool then pushes down on the wire forming it into a U. Just before this forming happens, a cutter cuts the wire from the feedstock. After the U forms, a bottom set of jaw type tools holding the wire closes and a top-forming tool comes down to complete the shape and close the link. The link is then rotated 90 degrees and the process start all over again. A curb machine takes a slightly different method by feeding the wire into a helix type tool which forms it into a spiral. As the helix turns, the spiral wire is fed through the previous loop. The loop is closed as it is grabbed and cut off the spiral. The link is then rotated as the next loop of wire is fed through. There are also machines, which make chain from flat stock, sometimes called snake chain machines. Ball chain machines make ball chain from both wire and flat stock with the flat stock being formed into a ball around the wire. There are Figaro chain machines, which have two heads for making two size links.

Chain can be mass produced on specialized chain machines using round, oval or square wire in a variety of patterns. The wire is fed continuously into the machine, wrapped around shaped steel formers to create the link, cut and the next link is interwoven as the wire is fed in again. On more modern machines, the links are automatically welded by laser or micro plasma welding torch, but more commonly, the links are soldered in a belt furnace after manufacture.

More complex chains can be made from stamped components which are bent and interlocked. It is also possible to make lightweight hollow chain by use of small, thin tube around a base metal core. Chain can be made in all caratages of gold (8-24 kt).

## **4.2 Gold Chain Making Process (Traditional)**

Traditional gold chain making process can divided into following sections. The process is explained in following flowchart.



#### 4.2.1 Rainee (Rod) Making

It is the start of gold chain making process. Raw gold (called “biscuit”) is melted in furnace and put in a Rod making Dye. This process results in creation of gold rod. It is also called “Rainee” making.

#### 4.2.2 Wire/Patri Making

“Rainee” is used in making a gold wire on wire making machine. It can also be used to form a plate (called “patri”) on patri making machine. This wire is base for gold chain.

#### 4.2.3 Dye Punching

Plate (“patri”) is use in Dye Punching Machine and small sized shapes/designs are created. Sometimes these are itself joined together to form a gold chain. Also these are used sometimes to create beautiful designs on the chain. Chain created in this way is called “Mala”.

#### 4.2.4 Assembly & Shape Making

This process involves highly skilled labour. It is almost a hand based work. In this process different shapes are made from gold wire e.g. round, leaf, oval or square etc. These are joined together in form of a chain. A large no. of designs can be made. Small pieces cut from dye punching machine can be soldered to form a “Mala”. A solder with different types of Nozzles are used to connect small pieces (created from dye punching machine) with the chain.

#### 4.2.5 Finishing

In this process the gold chain is given final touches. Rough areas are evened and the chain is standardized. Chain is made smooth and even in its surface and shape. In local slang it is called (Jhillai/Chillai).

#### 4.2.6 Polishing

This process involves polishing and shining of the gold chain. All of dirt & dust is removed. Different types of chemicals, Acids and machine are used in this process. When this process is complete, a chain is ready to be shown in display center for sale.

### 4.3 Tools and equipments

Tools and Equipments used in making gold chain in a traditional way are as follows.

**Table 5: Tools & Equipments**

8.3 - Technology & Machinery Requirement				
Items	Technology	Number of Units	Cost per Unit	Total Cost
Wire Making Machine	local	2	25,000	50,000
Pattri Making Machine	local	2	25,000	50,000
Dye Punch Machine	local	2	5,000	10,000
Dyes	local	200	500	100,000
Polishing Machines (Buff Machine, Vibrator Machine with Steel bolls, Ultra Sonic Machine, etc.)	local	1	150,000	150,000
Other Machinery Tools & Equipments	local	-	-	15,000
<b>Total Cost of local Machine</b>				<b>375,000</b>



#### 4.4 Machine based Gold Chain manufacturing

Gold chain manufactured on machines is a highly automated process. It has very little labour involvement. Now it is possible to manufacture large quantities of gold chain in a large variety in a very short time.

Basically machine based process of gold chain is divided into two parts. In the first part a wire is produced on a specialized wire making machine. It produces bulk quantities of gold wire in a very speedy way. This wire is of high quality and can be formed of differing sizes according to the requirement.

The next part is to make a gold chain. Many kinds of machines are available in international market. They vary in terms of capacity and types/designs of chains produced. These machines use gold wires produced earlier and convert them into a finished form of gold chain. Each machine has its own limit of designs and chain can be manufactured of any given type.

The Machinery requirements comprise the following.

**Table 6: Wire Making Machines**

Sr No.	Qty	ITEM	SUPPLIER	DESCRIPTION
'1.	1	Italimpianti FIM/7NT Melting Furnace	ItalimPianti, Italy	<ul style="list-style-type: none"> <li>◆ Melting time at Max load is 15 minutes</li> <li>◆ capacity of graphite crucible (kg Au):8.5</li> <li>◆ capacity of silicon carbide crucible (kg Au): 12</li> <li>◆ Chiller for 8 hour working: FRIGO 15</li> <li>◆ Weight 190 kg</li> </ul>
'2.	1	Rod making machine	Italimpianti, Italy	
'3.	1	GoldPro P312 Seamless Tuber Former	GoldPro, Italy	<ul style="list-style-type: none"> <li>◆ Tooled for 0.14mm x 3.00mm wire</li> <li>◆ 3 Axis Position Adjustment of Welding Torch</li> <li>◆ Digital Controls</li> <li>◆ Speed 5 Meters per Minute</li> <li>◆ Weight 415 Kg</li> </ul>
'4.	1	MCA GoldPro TF-011 Wire Drawing Machine	GoldPro, Italy	<ul style="list-style-type: none"> <li>◆ Number of Passes 10</li> <li>◆ Maximum Drawing Capacity: up to 2.0 mm</li> <li>◆ Production 30-60 meters per minute</li> </ul>

				◆ Weight 460 Kgs
'5.	1	Ultra Sonic Machine	Local	◆ Softens the wire. Makes it usable in Chain making machine.
<b>BISMARK (CHITAI) CHAIN MAKING MACHINE</b>				
Sr No.	Qty	ITEM	SUPPLIER	DESCRIPTION
'1.	1	BML – Bismark Soldering with Laser	Fasti, Italy	◆ Maximum matching width: 25 mm ◆ Speed soldering per minute: 600 max
<b>CURB CHAIN MAKING MACHINE</b>				
Sr No.	Qty	ITEM	SUPPLIER	DESCRIPTION
'1.	1	BML – Bismark Soldering with Laser	Fasti, Italy	◆ Maximum matching width: 25 mm ◆ Speed soldering per minute: 600 max

Gold Chain machinery can be imported from Italy, Germany, USA etc. However for the purpose of this pre-feasibility, we have selected a major supplier from USA i.e. Gold International Machinery Corporation Ltd. USA.

## 5 SECTOR CHARACTERISTICS

Historically the gold chains used in Pakistan were in the shape of Qasurri Balay. With the passage of time the life style of the people improved and they get more interested in small chains. These chains were not manufactured in Pakistan rather these were imported. The first manufacturers of gold chain in Pakistan were Mottiwala Gold Chain manufacturers. The project was set up in Karachi and for this purpose the machinery was imported from Italy. This was the first ever project of manufacturing the Gold Chains in Pakistan through machines as before this the chains were manufactured manually.

Considering the bright aspects of the project viability, M/s Shalimar Chains Manufacturers entered into the business, also with an imported machinery to produce a special range of gold chain known as Disco Chains. These Chains captured a large

portion of the market due to its fine finishing and design which continue to rule over the chain market over a long period of time.

The Gold Chain sector is currently un-organized and there are many manufacturers are currently involved in making chain in a completely traditional way. However the government is taking significant steps in promoting gold art and manufacturing in Pakistan.

Major gold chain manufacturers in Pakistan are as follows.

**Table 7: Chain Manufacturers in Pakistan**

SR No.	Name	Location/Place
1	Motti Wala Chain Manufacturers.	Karachi
2	Shalimar Chain Manufacturers	Lahore

## 5.1 Machinery Requirement

Machinery requirements are as follows:

**Table 5-8: Details of Machinery & Equipment**

Items	Tech.	Qty	Cost per Unit-Rs.	Total Cost
Wire Making Machine	local	2	25,000	50,000
Pattri Making Machine	local	2	25,000	50,000
Dye Punch Machine	local	2	5,000	10,000
Dyes	local	200	500	100,000
Polishing Machines	local	1	150,000	150,000
Other Machinery Tools & Equipments	local	-	-	15,000
<b>Total Cost of local Machine</b>				<b>375,000</b>
Imported Machinery for Machine Made Chains	Rate Euro	Qty	Cost per Unit-Euro	Total Cost
<b><u>Wire Drawing Machines (Mother Unit)</u></b>				
Italimpianti FIM/7NT Melting Furnace	72.4	1	7,820	566,168
Rod Making Machine	72.4	1	5,000	362,000
GoldPro P312 Seamless Tube Former	72.4	1	27,350	1,980,140
Ultra Sonic Machine	Local	1	100,000	100,000
MCA GoldPro TF-011 Wire Drawing Machine	72.4	1	13,000	941,200
<b><u>Bismark (Chitai) Chain Making Machines</u></b>				

BML – Bismark Soldering with Laser	72.4	1	20,760	1,503,024
<b><u>Curb (Disco) Chain Making Machines</u></b>				
Knitting Machine (SGF/SGU)	72.4	1	10,000	724,000
<b>Total</b>				<b>6,176,532</b>
Add : Clearing & Forwarding Charges			6%	370,592
<b>Total Cost of Imported Machine</b>				<b>6,547,124</b>
<b>Total Cost</b>				<b>6,922,124</b>

## 5.2 Furniture & Fixtures

**Table 5-9: Furniture and Fixture**

Items	No. of Items	Cost per Unit	Total Cost
		Rupees	Rupees
Executive Tables	1	7,500	7,500
Accounts Office Table	1	3,500	3,500
Marketing Office Table	1	3,500	3,500
Designer's Table	1	3,500	3,500
Computer Tables	2	2,000	4,000
Executive Chairs	1	3,000	3,000
Accounts Office Chairs	1	1,000	1,000
Marketing Office Chair	1	1,000	1,000
Designer's Chair	1	1,000	1,000
Visitors & Other Chairs	8	500	4,000
File Cabinets			20,000
<b>Total</b>			<b>52,000</b>

## 6 LAND & BUILDING REQUIREMENT

### 6.1 Land Requirement

The land required for the project is recommended to acquire by way of rent along with the building in the area of Dhobi Mandi, Near Mall Road, AG Office, Lahore. The area required to set up the manufacturing facility including both for the machine made chain production and conventional method of chain making is expected to be 250 square yards rent of which is taken to be about Rs. 50,000/-

## 7 HUMAN RESOURCE REQUIREMENT

Description	No. of Employees	Per Month Salary	Annual Salary
		Rupees	Rupees
<b>Production Salaries &amp; Wages</b>			
Supervisor	1	6,000	72,000
Designer	1	8,000	96,000
Machine Operators	4	6,500	312,000
Rainee Maker	1	4,000	48,000
Wire & Patri Maker	2	4,000	96,000
Dye Punch Operator	2	4,000	96,000
Dye & Wire Asseblor	3	4,000	144,000
Finishing Person	3	4,000	144,000
Polish Person	2	4,000	96,000
Total Production Wages			<b>1,104,000</b>
<b>Administrative Salaries</b>			
Admin & Finance Manager	1	10,000	120,000
Accountant	1	5,000	60,000
Office Boy	1	4,000	48,000
Security Guards	2	7,500	180,000
Sweeper	1	2,500	30,000
Total Administrative Salaries			<b>438,000</b>
<b>Marketing Salaries</b>			
Senior Sales Officer	1	14,000	168,000
Sales Officer	2	9,000	216,000
Total Marketing Salaries			<b>384,000</b>
<b>Production Salaries, Wages &amp; Other Benefits</b>			<b>Rupees</b>
Production Salaries & Wages			1,104,000
Other Benefits			165,600
Total			<b>1,269,600</b>
<b>ADMINISTRATIVE COST</b>			<b>Rupees</b>
Administrative Cost			438,000
Other Benefits			65,700
			<b>503,700</b>
<b>MARKETING COST</b>			<b>Rupees</b>
Marketing Cost			384,000
Other Benefits			57,600
			<b>441,600</b>

\* Other benefits include EOBI, Social Security, Gratuity, Medical and Other welfare expenses.

## 8 FINANCIAL ANALYSIS

### 8.1 Project Cost

	<b><u>Rs.</u></b>
<b>Fixed Capital Expenditure</b>	
Land	-
Machinery	6,922,124
Fittings & Installations	249,000
Office Equipments	319,500
Furniture & Fixtures	52,000
Vehicles	822,000
<b>Total Fixed Exp.</b>	<b>8,364,624</b>
<b>Working Capital</b>	
<b>Current Assets:</b>	
Stock in Trade	23,684,156
Stores & Spares	147,011
Cash introduced	500,000
Advances, Deposits & Other Receivables	1,079,696
<b>Total Current Assets</b>	<b>25,410,862</b>
<b>Current Liabilities:</b>	
Advances from Customers	4,410,325
Accrued Charges	877,729
Sales Tax Payable	4,758,381
Provision for Taxation	3,905,063
<b>Total Current Liabilities</b>	<b>13,951,499</b>
<b>Net Working Capital</b>	<b>11,459,363</b>
<b>Total Project Cost</b>	<b>19,823,987</b>
<b>Financed By:</b>	
Sponsors' Equity	9,911,994
Debt Financing	9,911,994
	<b>19,823,987</b>
<b>Financial Viability:</b>	
Payback	4.14 Years
IRR	32.44%

## 8.2 Projected Income Statement

	<u>Year - 1</u>	<u>Year - 2</u>	<u>Year - 3</u>	<u>Year - 4</u>	<u>Year - 5</u>	<u>Year - 6</u>	<u>Year - 7</u>	<u>Year - 8</u>	<u>Year - 9</u>	<u>Year - 10</u>
<b>Sales -</b>	380,670,504	438,770,528	506,410,279	581,939,271	671,791,623	775,573,385	895,439,736	1,033,880,010	1,193,769,436	1,378,428,900
<b>Cost of Sales</b>	362,586,853	422,881,893	488,063,273	561,448,046	648,136,033	748,262,951	863,908,083	997,473,101	1,151,731,987	1,329,888,683
<b>Gross Profit</b>	<b>18,083,650</b>	<b>15,888,635</b>	<b>18,347,006</b>	<b>20,491,225</b>	<b>23,655,590</b>	<b>27,310,434</b>	<b>31,531,654</b>	<b>36,406,909</b>	<b>42,037,449</b>	<b>48,540,217</b>
<b>Operating Exp:</b>										
<i>Admin Expenses</i>	7,152,263	7,797,920	8,718,608	9,794,336	11,072,811	12,566,685	14,305,556	16,324,058	18,662,555	21,367,943
<i>Marketing Exp.</i>	535,405	582,421	632,180	695,398	764,938	841,432	925,575	1,018,132	1,119,946	1,231,940
	<b>7,687,668</b>	<b>8,380,341</b>	<b>9,350,788</b>	<b>10,489,735</b>	<b>11,837,749</b>	<b>13,408,117</b>	<b>15,231,130</b>	<b>17,342,191</b>	<b>19,782,501</b>	<b>22,599,883</b>
<b>Operating Profit</b>	<b>10,395,982</b>	<b>7,508,295</b>	<b>8,996,219</b>	<b>10,001,490</b>	<b>11,817,841</b>	<b>13,902,317</b>	<b>16,300,523</b>	<b>19,064,718</b>	<b>22,254,949</b>	<b>25,940,334</b>
<b>Other Income</b>	951,676	1,096,926	1,266,026	1,454,848	1,679,479	1,938,933	2,238,599	2,584,700	2,984,424	3,446,072
	<b>11,347,659</b>	<b>8,605,221</b>	<b>10,262,245</b>	<b>11,456,339</b>	<b>13,497,320</b>	<b>15,841,251</b>	<b>18,539,123</b>	<b>21,649,418</b>	<b>25,239,372</b>	<b>29,386,406</b>
<b>Financial &amp; Other Charges</b>										
<i>Interest</i>	-	1,412,459	1,115,099	817,739	520,380	223,020	-	-	-	-
<i>Bank Charges</i>	190,335	219,385	253,205	290,970	335,896	387,787	447,720	516,940	596,885	689,214
	<b>190,335</b>	<b>1,631,844</b>	<b>1,368,304</b>	<b>1,108,709</b>	<b>856,275</b>	<b>610,807</b>	<b>447,720</b>	<b>516,940</b>	<b>596,885</b>	<b>689,214</b>
<b>Profit before Taxation</b>	<b>11,157,323</b>	<b>6,973,376</b>	<b>8,893,940</b>	<b>10,347,629</b>	<b>12,641,044</b>	<b>15,230,444</b>	<b>18,091,403</b>	<b>21,132,478</b>	<b>24,642,488</b>	<b>28,697,191</b>
<b>Taxation</b>	3,905,063	2,440,682	3,112,879	3,621,670	4,424,365	5,330,656	6,331,991	7,396,367	8,624,871	10,044,017
<b>Profit after Taxation</b>	<b>7,252,260</b>	<b>4,532,695</b>	<b>5,781,061</b>	<b>6,725,959</b>	<b>8,216,679</b>	<b>9,899,789</b>	<b>11,759,412</b>	<b>13,736,111</b>	<b>16,017,617</b>	<b>18,653,174</b>
Profits - brought forward	-	7,252,260	11,784,955	17,566,016	24,291,975	32,508,654	42,408,443	54,167,854	67,903,965	83,921,582
Profits - carried to the Balance Sheet	7,252,260	11,784,955	17,566,016	24,291,975	32,508,654	42,408,443	54,167,854	67,903,965	83,921,582	102,574,757

### 8.3 Projected Cash-flow Statement

	<u>Year - 1</u>	<u>Year - 2</u>	<u>Year - 3</u>	<u>Year - 4</u>	<u>Year - 5</u>	<u>Year - 6</u>	<u>Year - 7</u>	<u>Year - 8</u>	<u>Year - 9</u>	<u>Year - 10</u>
Profit before Taxation	11,157,323	6,973,376	8,893,940	10,347,629	12,641,044	15,230,444	18,091,403	21,132,478	24,642,488	28,697,191
Depreciation	950,612	832,721	731,185	643,455	567,421	501,328	443,714	393,358	349,234	310,481
	12,107,936	7,806,098	9,625,125	10,991,085	13,208,465	15,731,772	18,535,117	21,525,836	24,991,722	29,007,672
Stock in Trade	(23,684,156)	(2,368,416)	(2,605,257)	(2,865,783)	(3,152,361)	(3,467,597)	(3,814,357)	(4,195,793)	(4,615,372)	(5,076,909)
Stores & Spares	(147,011)	62,413	(13,113)	(15,145)	(17,493)	(20,204)	(23,336)	(26,953)	(31,130)	(35,955)
Advances, Deposits & Other Receivables	(1,079,696)	87,752	(119,759)	54,923	(129,412)	(148,304)	(169,784)	(194,250)	(222,159)	(254,030)
Accounts Receivable	0	0	0	0	0	0	0	0	0	0
Advances from Customers	4,410,325	665,542	786,759	908,707	1,049,557	1,212,238	1,400,135	1,617,156	1,867,815	2,157,326
Accrued Charges	877,729	(55,207)	117,631	(23,258)	131,531	151,015	173,401	199,133	228,720	262,750
Mark - up payable	-	669,060	(148,680)	(148,680)	(148,680)	(148,680)	(74,340)	0	0	0
Sales Tax Payable	4,758,381	726,250	845,497	944,112	1,123,154	1,297,272	1,498,329	1,730,503	1,998,618	2,308,243
	(14,864,427)	(212,606)	(1,136,921)	(1,145,123)	(1,143,704)	(1,124,260)	(1,009,951)	(870,204)	(773,509)	(638,575)
<b>Cash form other Sources</b>										
Sponsors' Equity	9,911,994	-	-	-	-	-	-	-	-	-
Debt Financing	9,911,994	-	-	-	-	-	-	-	-	-
	19,823,987	-	-	-	-	-	-	-	-	-
<b>Total Sources</b>	<b>17,067,496</b>	<b>7,593,491</b>	<b>8,488,204</b>	<b>9,845,962</b>	<b>12,064,761</b>	<b>14,607,512</b>	<b>17,525,166</b>	<b>20,655,632</b>	<b>24,218,213</b>	<b>28,369,097</b>
<b>Applications:</b>										
Fixed Assets	8,364,624	-	-	-	-	-	-	-	-	-
Long Term Deposits	60,000	-	-	-	-	-	-	-	-	-
Re -Payment of Loan	-	1,982,399	1,982,399	1,982,399	1,982,399	1,982,399	-	-	-	-
Taxation	-	3,905,063	2,440,682	3,112,879	3,621,670	4,424,365	5,330,656	6,331,991	7,396,367	8,624,871
	8,424,624	5,887,462	4,423,080	5,095,278	5,604,069	6,406,764	5,330,656	6,331,991	7,396,367	8,624,871
<b>Cash Increase/(Decrease)</b>	<b>8,642,873</b>	<b>1,706,029</b>	<b>4,065,123</b>	<b>4,750,684</b>	<b>6,460,692</b>	<b>8,200,748</b>	<b>12,194,510</b>	<b>14,323,641</b>	<b>16,821,846</b>	<b>19,744,226</b>
Opening Balance	-	8,642,873	10,348,902	14,414,025	19,164,709	25,625,401	33,826,149	46,020,660	60,344,301	77,166,147
<b>Closing Balance</b>	<b>8,642,873</b>	<b>10,348,902</b>	<b>14,414,025</b>	<b>19,164,709</b>	<b>25,625,401</b>	<b>33,826,149</b>	<b>46,020,660</b>	<b>60,344,301</b>	<b>77,166,147</b>	<b>96,910,373</b>



### 8.4 Projected Balance Sheet

	<u>Year - 1</u>	<u>Year - 2</u>	<u>Year - 3</u>	<u>Year - 4</u>	<u>Year - 5</u>	<u>Year - 6</u>	<u>Year - 7</u>	<u>Year - 8</u>	<u>Year - 9</u>	<u>Year - 10</u>
<b>Tangible Fixed Assets</b>	7,414,012	6,581,290	5,850,105	5,206,650	4,639,229	4,137,902	3,694,188	3,300,830	2,951,596	2,641,115
<b>Long Term Deposits</b>										
Electricity	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Sui Gas	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
<b>Current Assets:</b>										
Stock in Trade	23,684,156	26,052,571	28,657,828	31,523,611	34,675,972	38,143,569	41,957,926	46,153,719	50,769,091	55,846,000
Stores & Spares	147,011	84,598	97,710	112,856	130,348	150,552	173,888	200,840	231,971	267,926
Advances, Deposits & Other Receivables	1,079,696	991,944	1,111,703	1,056,780	1,186,192	1,334,495	1,504,279	1,698,529	1,920,688	2,174,718
Cash in Hand / Bank	8,642,873	10,348,902	14,414,025	19,164,709	25,625,401	33,826,149	46,020,660	60,344,301	77,166,147	96,910,373
	33,553,735	37,478,015	44,281,267	51,857,956	61,617,914	73,454,766	89,656,753	108,397,390	130,087,896	155,199,017
	<b>41,027,746</b>	<b>44,119,305</b>	<b>50,191,372</b>	<b>57,124,606</b>	<b>66,317,143</b>	<b>77,652,668</b>	<b>93,410,940</b>	<b>111,758,220</b>	<b>133,099,492</b>	<b>157,900,132</b>
<b>Owners Equity:</b>										
Capital Introduced	9,911,994	9,911,994	9,911,994	9,911,994	9,911,994	9,911,994	9,911,994	9,911,994	9,911,994	9,911,994
Accumulated Profits	7,252,260	11,784,955	17,566,016	24,291,975	32,508,654	42,408,443	54,167,854	67,903,965	83,921,582	102,574,757
	17,164,254	21,696,949	27,478,010	34,203,969	42,420,647	52,320,436	64,079,848	77,815,959	93,833,576	112,486,750
<b>Long Term Loan</b>	7,929,595	5,947,196	3,964,797	1,982,399	-	-	-	-	-	-
<b>Current Liabilities:</b>										
Long-Term Loan	1,982,399	1,982,399	1,982,399	1,982,399	1,982,399	-	-	-	-	-
Advances from Customers	4,410,325	5,075,866	5,862,626	6,771,333	7,820,889	9,033,127	10,433,262	12,050,417	13,918,232	16,075,558
Accrued Charges	877,729	822,523	940,154	916,896	1,048,427	1,199,442	1,372,843	1,571,976	1,800,696	2,063,446
Mark - up payable	-	669,060	520,380	371,700	223,020	74,340				
Sales Tax Payable	4,758,381	5,484,632	6,330,128	7,274,241	8,397,395	9,694,667	11,192,997	12,923,500	14,922,118	17,230,361
Provision for Taxation	3,905,063	2,440,682	3,112,879	3,621,670	4,424,365	5,330,656	6,331,991	7,396,367	8,624,871	10,044,017
	15,933,897	16,475,161	18,748,565	20,938,238	23,896,495	25,332,231	29,331,092	33,942,261	39,265,916	45,413,382
	<b>41,027,746</b>	<b>44,119,305</b>	<b>50,191,372</b>	<b>57,124,606</b>	<b>66,317,143</b>	<b>77,652,668</b>	<b>93,410,940</b>	<b>111,758,220</b>	<b>133,099,492</b>	<b>157,900,132</b>

## 9 KEY ASSUMPTIONS

### 9.1 Product Mix

Production of Chains in Units					25,000
Type of Chain	Manufacturing Process	Production Lead Time of Chain per day per person	Product Mix	Product Weight in grams	Total Production in numbers
<b>1 - Ball Chain</b>					
Light Weight	Convential & Machine made Chain	1	8.00%	8.00	2,000
Medium Weight			10.00%	14.00	2,500
Heavy Weight			5.00%	20.00	1,250
<b>2 - Karri Chain</b>					
Medium Weight	Convential & Machine made Chain	1	2.00%	12.00	500
Heavy Weight			3.00%	20.00	750
<b>3 - Chitai Chain</b>					
Light Weight	Convential & Machine made Chain	1	2.00%	8.00	500
Medium Weight			3.00%	12.00	750
Heavy Weight			2.00%	20.00	500
<b>4 - Patt Chain</b>					
Light Weight	Convential & Machine made Chain	1	3.00%	8.00	750
Medium Weight			3.00%	12.00	750
Heavy Weight			2.00%	20.00	500
<b>5 - Rassa Chain</b>					
Light Weight	Convential & Machine made Chain	3	9.00%	14.00	2,250
Medium Weight			15.00%	18.00	3,750
Heavy Weight			8.00%	24.00	2,000
<b>6 - Madarassi Chain</b>					
Light Weight	Convential & Machine made Chain	1	2.00%	8.00	500
Medium Weight			3.00%	12.00	750
Heavy Weight			2.00%	18.00	500
<b>7 - Leaf Chain</b>					
Light Weight	Convential & Machine made Chain	1	2.00%	8.00	500
Medium Weight			3.00%	12.00	750
Heavy Weight			3.00%	18.00	750
<b>8 - Curb Chain (Disco Chain)</b>					
Light Weight	Machine made Chain	0	2.00%	6.00	500
Medium Weight			4.00%	10.00	1,000
Heavy Weight			4.00%	20.00	1,000

## 9.2 Project Assumptions

Projected Life of The Project in Years	10
Sponsors' Equity	50%
Debt Financing	50%
Annual Mark Up Rate (Short Term & Long Term)	14%
Debt Tenure in Years	5
General Inflation Rate	10%

## 9.3 Operating Assumptions

Total No. of Days in One Year	365
Total No. of Months in One Year	12
No of Working Days in One Year	300
Capacity ( Sales ) growth rate	5%

## 9.4 Depreciation Rate Assumptions

Machinery	10%	of the Written Down Value
Fittings & Installations	10%	of the Written Down Value
Office Equipments	20%	of the Written Down Value
Furnitures & Fixtures	10%	of the Written Down Value
Vehicles	20%	of the Written Down Value

## 9.5 Working Capital Turnover Assumptions

Raw Material	15	Days Raw Material Consumption
Work in Process - Gold Chains	2	Days Gold Chain Production
Finished Goods - Gold Chains	7	Days Gold Chain Production
Stores and Spares	30	Days Stores & Spares Consumption
Debtors' Turnover	30	Days Annual Turnover
Advances from Customers 15 days	30%	of gold consumed
Accounts Payable against expenses	30	Days of Total Annual Expenditure

## 9.6 Others

<b>Long Term Security Deposits</b>		
Electricity	50,000	Rupees
Sui Gas	10,000	Rupees
<b>Advances &amp; Prepayments</b>		
Advances to Staff	40%	of the one month's salary
Loans to Staff	20%	of the Total annual salary

## 9.7 Revenue Assumptions

<b>1 - Ball Chain</b>	
Light Weight	8,154
Medium Weight	14,269
Heavy Weight	20,384
<b>2 - Karri Chain</b>	
Medium Weight	12,230
Heavy Weight	20,384
<b>3 - Chitai Chain</b>	
Light Weight	8,154
Medium Weight	12,230
Heavy Weight	20,384
<b>4 - Patt Chain</b>	
Light Weight	8,154
Medium Weight	12,230
Heavy Weight	20,384
<b>5 - Rassa Chain</b>	
Light Weight	14,269
Medium Weight	18,346
Heavy Weight	24,461
<b>6 - Madarassi Chain</b>	
Light Weight	8,154
Medium Weight	12,230
Heavy Weight	18,346
<b>7 - Leaf Chain</b>	
Light Weight	8,154
Medium Weight	12,230
Heavy Weight	18,346
<b>8 - Curb Chain (Disco Chain)</b>	
Light Weight	6,115
Medium Weight	10,192
Heavy Weight	20,384
<b>Cost of Goods sold</b>	
Pure Gold Purity in Karats	24
Gold Chain Purity in Karats	21
%age purity of gold chains in karats	87.50%
Silver mixing	8.00%
Copper mixing	4.50%
Gold Prices per gram of 24 K Gold	1,090

**9.8 Miscellaneous**

<b>Repair &amp; Maintenance</b>		
Building and fittings & installations	3%	of the Cost
Machinery	5%	of the Cost
<b>Insurance</b>		
Machinery	2%	of the Cost of Building
Gold Stock	4%	of the Cost of Building
<b>Administrative Expense Assumptions</b>		
Traveling & Conveyance	0.75%	of Total Cost of Goods Sold
Printing & Stationary	.04%	of Total Cost of Goods Sold
<b>Consultancy Charges</b>		
- Audit Fee	50,000	Rupees
- Out of Pocket Expenses	5,000	Rupees
- Policy Manual	150,000	Rupees (only for Ist year)
- Income Tax & Sales Tax Consultancy	70,000	Rupees
- Inflation rate of Consultancy charges	10%	
Entertainment	.15%	of Total Cost of Goods Sold
Telephone Fax and Postage	.05%	of Total Cost of Goods Sold
Utility Charges	.2%	of Total Cost of Goods Sold
Office vehicles insurance rate	4%	of Written down value
Insurance rate of Display Furniture and stores	3.5%	of the Cost of Stock in trade
Repair & Maintenance	10%	of the Cost.