CHAPTER NO 4

ENTREPRENEURSHIP IN DIAMOND JEWELLERY INDUSTRY

Diamond jewellery industry is country’s second largest foreign exchange earner after textile industry. Gem & Jewellery (GJ) industry in India is labour intensive industry and employs more than 1.5 million people in India. This has indicates a massive growth socially as well as economically in the Indian sub continent. The diamond industry is established in Mumbai in Maharashtra, Surat in Gujarat, Jaipur in Rajasthan and many other places in India. Diamond has a major share in Indian Gems & Jewellery Exports. Export of cut & polished diamonds is almost 80%.

The Gem and Jewellery (GJ) Industry in India is established as one of the largest unorganized sector and employs nearly more than 1.5 million workers who are employed in gold and diamond jewellery industry. The majority of the workers are employed by small industries that are processed in unorganized sector in India. However, the unorganized sector shares in diamond industry have started declining due to demand of big stones. This is due to innovation of advanced technology in cutting and polishing diamonds and improvement in processing of diamonds in foreign countries have also declined the diamond industry share in the international market.

Mumbai is the main centre of India's Gem and Jewellery Industry. All the rough diamonds arrives in Mumbai and it is processed in Mumbai in SEEPZ and in Surat, Ahmedabad, Navasari and Bhavnagar in Gujarat and some more places in India.

A large number of rough diamonds are sent to India for processing and then it is exported to foreign markets. Diamonds are found in Africa but it is send to India for processing for which India is famous for cutting and polishing the diamonds and after reaching to this remarkable mark, the Indian diamond industry has taken a motto to develop “India the diamond trading hub”
In India, Mumbai is known as the financial capital of the country and in terms of diamond industry in Mumbai city is known as Indian Antwerp in making of diamonds. The diamond industry in India has been divided into different channel where the diamonds are sources to India, through direct selling of rough diamonds on getting the brokerage to the diamond merchant. “Bharat Diamond Bourse” (BDB) was formed in Mumbai as a nonprofit organization. “Bharat Diamond Bourse” (BDB) prime objectives were to develop necessary and adequate infrastructure to promote export of polished diamonds as well, as diamond jewellery. This “Bharat Diamond Bourse” project nearly took two decades to develop the diamond industry where the diamonds industries people have work hard to establish themselves in Mumbai city. Today, Mumbai is the largest diamond market in India as well as in international market.

The Bharat Diamond Bourse (BDB) is called as the center for exporting diamonds in Mumbai. Bharat Diamond Bourse (BDB) also has a special space for trade shows, auditoriums and theaters. The Bharat Diamond Bourse (BDB) has place for more than 2,500 offices from where the diamond merchants can trade diamond easily. The Bharat Diamond Bourse (BDB) can provide details about each and every diamonds which comes through its door. The Bharat Diamond Bourse (BDB) has played an important role in helping the local exporters and small diamond units who were waiting to export the diamonds.

Diamonds in Mumbai evens come from the cities such as Surat, Navsari and Ahmedabad. The diamond merchant works for only few hours and earn good amount by selling the rough diamonds or through cutting and polishing the diamonds. Thus Mumbai city has become the “India diamond trading hub” and financial capital of India.

Mostly diamond jewellery manufacturing companies are based in Mumbai, where the city is the town for various types of jewellery starting from the traditional jewellery to a high fashioned jewellery. India has become one of the largest exporters of jewellery, which is estimated to be more than $14 billion dollars. India shares more than 18% of the world’s jewellery fabrication and one of the fastest growing consumer markets for jewellery.
Today, India consumer market for diamond jewellery is almost over $14 billion dollars which is an increase of more than 8% over the previous years.

Mumbai is the main centre for diamond jewellery manufacturing. Mumbai is also India’s largest wholesale market in terms of volume of diamonds and diamond jewellery. This is because of availability of rough diamonds in time, as well as skilled workers for cutting and polishing the diamonds and government support by establishing special zones for export of diamond jewellery. Thus, India was able to develop an competitive environment in diamond jewellery industry.

The caste distribution in Mumbai is interlinked with the understanding of the diamond industry. The diamond industry is a highly trust based business, much like the trade in New York and Antwerp is dominated by ultra-orthodox Jews (Richman, 2005), the management and production of the stone in Mumbai is controlled by major caste groups. The Palanpuri Jain (from Palanpur in Gujarat state) established the first production units in 1960s. They began bringing people from their own family and caste to the city. Most of the industries in diamond jewellery manufacturing are still owned and managed by the Palanpuri. The diamond industries whether small or big even today it is under the management of the Guajarati’s. The diamond processing industry has spread from the State of Gujarat, which accounts for almost 80% of the diamonds processed in India.

Mumbai has developed in establishing the diamond industry because of development of infrastructure and due to modernization and automated industry which uses the laser-cutting machines to cut the diamonds and to shape the diamonds. Now many diamond processing units have been set up in Mumbai to take advantage of modernization and automation.

Indian diamond jewellery entrepreneurs have started their own offices in foreign countries such as U.S.A. Africa, Russia etc. to control the purchase of rough diamonds.
The Indian diamond industry, similar to its origin, is based more in the towns and cities of Gujarat and recently in the Mumbai city where most of the processing facilities are installed. The purchasing, processing, manufacturing, marketing and finance for all the diamonds take place from Mumbai, where all the major diamond jewellery manufacturers have their registered offices in Mumbai.

The entrepreneur’s behavior in Mumbai is largely attributed to typical culture of the city with the innovative ideas and modernized thinking of the entrepreneurs. In the study conducted, the entrepreneurs of Mumbai especially in industrial cluster of Gujarati Entrepreneurs in diamond jewellery industry were identified to arrive at certain entrepreneurial orientations of Gujarati entrepreneur and entrepreneurship.

Diamond processing is a very traditional and one of the oldest industries in India. It was observed that many decisions in the enterprise are based on one’s own experience and poor formal education of the entrepreneurs support the decision of the head of family. It was observed further that from the childhood their family members who are in this diamond jewellery business are trained and skills which is passed on from generation to generation.

India’s diamond tradition goes back thousands of years and is one of the oldest in the world. Traditionally, India has always excelled in the field of diamond cutting and polishing and processing. At present, India is one of the world’s leading diamond cutting and polishing centers in the world which contributed world’s largest share in processed diamonds.

India is the undisputed global leader in the polished diamond market: it holds a 60% market share by value, 80% by volume and 92% by the number of stones. India’s diamond and jewellery business involves about 1.3 million workers engaged in 25,000 enterprises. Today the country produces 8 out of every 10 polished diamonds in the world.
4.1 Process of the Diamond Jewellery Industry:

Anyone who knows diamonds says, each diamond has a story to tell. The treatment of each stone is different from assessment to polish. Each diamond has 57 faces and no karigar (worker) can finish a diamond alone. There are various levels of work.

Diamond is processed in more than 30 countries but today it is more concentrated in five important countries such as India, Belgium, South Africa, Israel and US. India accounts for approximately 65% of the global polished diamonds in terms of value. China and Thailand are the countries who are increasing at a rapid speed and giving developing as a big centre for cutting and polishing of diamonds.

The diamond processing industry depends on the mining and supplying of rough diamonds. Countries like Australia, Botswana, Russia and South Africa are the major suppliers of rough diamonds. The production of rough diamonds from mines is presently dominated and controlled by De Beers, which is the largest diamond miner in the World.

The diamond jewellery supply value chain includes exploration, mining, sorting, cutting and polishing, jewellery manufacturing, and marketing the the diamond jewellery. The entire process varies in terms of length of time depending on the size of the diamond.

The manufacture is divided into two sections of work i.e. assessment, marking and then polishing. The first is usually done in the head office while the polishing is done in the factory. At first, the rough diamonds is assessed for its value. Then it is put through a machine to decide how it will be cut. Thereafter, the diamond is examined mechanically for its quality. In this process its clarity is studied for how many microscopic birthmarks or inclusions a diamond has. The value of the diamond falls if there are visible inclusions. The rough diamond is marked accordingly to avoid any inclusions in the finally polished version. Then the diamond moves to the production department.

Chart No. 1

Title: Diamond Jewellery Industry Value Chain
The diamond jewellery industry in India processed through exploration, mining, sorting, cutting and polishing, jewellery manufacturing, and marketing the the diamond jewellery. India is one of the fastest growing diamond jewellery markets in the world. Indian gems and jewellery industry is also one of the largest diamond processors in the world; more than 80% in terms of pieces, around 75% in terms of carats, and around 50% in terms of volume are processed in India. This means that India processes 8 out of 10 diamonds processed in the world. This is mainly because diamond jewellery in India is treated as an investment which has a good value in market and it can be easily sold in the time of need.

Chart No. 2:
Title: Diamonds Process Value Chain:
The above chart shows the process of diamond industry. It shows how the diamonds are mined and the process of converting the rough diamonds to diamond jewellery which is sold in the market.

Indian gems and Jewellery industry is major unorganized sector. The unorganized sector is managed by the family owned business. It is estimated that nearly more than 1,00,000 jewellers in India and 10,000 diamond processors and 9,000 diamond jewelers. Further, the Indian gems and jewellery industry survive on the availability of skilled worker and large market size.

1.1.1. MINING:
Mining is the first stage in the process of value chain. Diamonds are mined by pipe mining or by alluvial mining. Diamonds are found in volcano pipes. Diamond crystals are found deep within the mantle of the earth when carbon is exposed to extreme pressure at a very high temperature. This volcanic rock fragments and magnetic components formed are called kimberlitic pipes. These kimberlitic pipes are the richest source of diamond mines and are in shape of a cone which is 2 kilometer deep in the earth. This type of mines is found in South Africa, Russia and Canada. The kimberlitic pipes are the main source of diamonds in the world. Lamproite pipes are depth up to one kilometer and have broader shape. This type of mines is found in Australia. This Lamproite pipes is the primary sources of diamond.

Diamonds are sourced by four different ways such as Open Pit Mining, Underground Mining, Alluvial Mining and Marine Mining. Diamonds which are mined are sorted out in different categories according to colour, grade, shape and size. The diamonds which are good in quality are sent for processing and the diamonds which are bad in quality are sent for industrial used.
Diamonds are mined in four different methods:

1. **Open Pit Mining**

2. **Underground Mining**

3. **Alluvial Mining**

4. **Marine Mining or Off-shore Mining**

**1. Open Pit Mining:**
Open pit mining is used when the diamonds are closed on the surface of the earth. Open pit mines are used when deposits of commercial minerals are found near the surface of the earth.

Open pit mining requires a close attention of the geology, equipments, drilling, blasting technology and safety. Open pit is controlled by proper monitoring the mines. This helps the operator to extraction of diamonds at a ground level and helps them to control cost.
2. Underground Mining:
Underground Mining occurs when diamonds are deposited below the ground level. The Underground Mining is one of the best technically method to extract the diamonds.

The mechanism Blast Hole Open Stopping (BHOS) is the popular method which is popular method used for underground mining. The advantage of underground mining is that the diamonds are extracted deeply underground.

![Picture No. 2 Underground Mining](image)

The mechanism of Blast Hole Open Stopping (BHOS) allows a mine to be converted from open-pit to underground mining. The method used for underground mining depends upon grade, shape and size of the kimberlitic deposit. (See Picture No. 2)

3. Alluvial Mining:
Alluvial diamonds are the diamonds which are extracted from the primary sources. Alluvial diamond deposits are spread across a huge geographic area.
Alluvial diamonds after extracted from mines they are clean from sand and gravel. Then the alluvial diamonds are deposited at the bank of river.

4. Marine Mining:
Marine mining are extracted from the ocean bed. Marine mining is done through special ship (See Picture NO 4) which is constructed which is used to suck the gravel and this gravel is send to plant for screening for diamonds.
Marine mining ship is a vessel where the mining operations are done in sea and processed is done on shore.

Mining plays the important role in the supply chain of diamond jewellery. India has significant reserves of gold, diamond, ruby and other gems. In India diamonds and other gem reserve were found in state of Maharashtra, Madhya Pradesh, Orissa, Chhattisgarh, Bihar and Andhra Pradesh. The government of India and the different State Government have started taking initiatives to open the sector for exploration by global players. This has attracted the foreign companies specially the mining companies such as Rio Tinto and Diamond Trading Corporation (DTC).

Even though, most of the India’s diamond mines were depleted centuries ago, but still there are a few active diamond mines such as Panna district also known as the Golconda mines in the central state of Madhya Pradesh

4.1.2. PURCHASE OF ROUGH DIAMONDS:

India import diamonds from De Beers/CSO diamonds, the Rio Tinto and Diamond Trading Corporation (DTC). De Beers holds ten sales or ‘sights’ per year in London, Lucerne and Johannesburg at which their diamonds are sold to its clients or ‘sightholders’.

According to De Beers, their approximately 120 clients comprise ‘the most experienced diamond polishers and dealers in the world’; “who are ‘world leading diamantaires’, and are carefully chosen for their diamond and marketing expertise” (De Beers website). De Beers’ clients are well established in the trade and are required to demonstrate that they are financially secure which is important because traditionally diamonds are traded for cash. Sight holders are invited by De Beers; there is no formal application process to become part of this elite group. However, whilst the sight holders have obligations to De Beers, they are also able to buy on the open market in Antwerp and Tel Aviv, often at prices up to 30% cheaper than
De Beers (Bailey 2002). Another main dealer in rough diamonds is Argyle, a company partly owned by Rio Tinto and Ashton Mining Ltd that split from what was then the Central Selling Organization in 1996 to market its own diamonds.

4.1.3. SORTING:
Sorting is a process start after the rough diamonds are mined. Sorting is a process which is done by the experts where the diamonds are sorted and valued as per their quality. After the rough diamonds are minds, they are send to experts who sort the diamonds in different categories such as colour, size and shape of the diamonds and these diamonds which are good in quality are send for the next stage of diamond jewellery process. Normally, 80% to 85% of rough diamonds passes through the Antwerp. This best quality diamonds in term of quality, colour size and shape are then distributed to the diamond market with the certification of Kimberely Process certification. This certificate is the proof that the diamonds are conflict free.

The Indian sightholders have until fairly recently exercised tight control over the industry, bound by links of honour and trust. At the 'pinnacle of the Indian diamond business' there are approximately thirty Indian De Beers sightholders who buy from De Beers in London, many of whom are part of tightly knit Jain family firms from Palanpur and there are new entrants into the Indian diamond trade, largely Guajarati entrepreneurs. The trade is centre around Mumbai and in Surat.

4.1.4 CUTTING AND POLISHING:
After the rough diamonds are sorted into different categories, they are sent to the diamond market for process of cutting and polishing in Mumbai, Surat, New York etc. The diamond cutting and polishing centre adds value to the rough diamonds by changing their looks through cutting into different shapes such as oval, brilliant, the pear. The location of these activities depends on skills and labour costs. Very few, and only very high value, diamonds are now cut and polished in New York,
Tel Aviv or Johannesburg; most small and lower priced diamonds are processed in Mumbai in Maharashtra and Surat in Gujarat.

Cutting and polishing diamonds companies in Mumbai are able to survive due to cost effective labour, quality assurance and with safety means of production have helped to survive in international competitive market. This stage of cutting and polishing plays an important role in developing the future progress of the company in international market.

India is popular and finest in cutting and polishing the diamonds in world. The major reason for the success of Indian diamond cutting and polishing industry is cheap labour cost in comparisons to foreign countries. This cutting and polishing industries are found in cities like Mumbai in Maharashtra and Surat and Navsari in Gujarat.

The brilliant cut or round cut diamond is popular as a result of its brilliance its regular shape and standardization and because most rough diamonds lend themselves to the cut with an average weight recovery of the order of 50 %. But it is not the only cut. Approximately 2 % of rough diamonds, because of their shape or flaws, cannot be cut into a round brilliant without an unacceptable loss of weight. The brilliant cut or round cut diamond is popular as a result of its brilliance its regular shape and standardization and because most rough diamonds lend themselves to the cut with an average weight recovery of the order of 50 %.

This stage, in which diamonds are transformed from rough stones into finished gems, comprises five steps: determining the optimal cut, cleaving or sawing to break the rough diamond into pieces, bruiting to give the diamond the desired shape, polishing to cut the facets and final inspection to ensure quality. To cut diamonds accurately it requires specialized cutter with latest tools and equipments. Thousands of small players populate this segment of the industry, mostly in India and elsewhere in Asia. Governments are increasingly requiring diamond producers to keep some profits closer to home by developing a local infrastructure and talent, with the result that countries including Botswana are emerging as cutting and polishing centers.
4.1.5 PROCESS OF ROUGH DIAMONDS

There are five processes used in the creation of a polished gem from the rough:

4.1.5.1. Cleaving

Cleaving is the separation of rough diamonds into small pieces of diamonds. Cleaving is not required for all the diamonds some of the diamonds are in good form and are ready for cutting. Cleaving is done to remove impurities in the diamonds and placed in quick drying cement.

After, that the diamonds are groove to carved the diamonds with the help of other diamonds of laser machine.

Picture

No. 5 Showing the Cleaving Process

Once the cutter decides about the place of cutting the diamond the steel blade is placed in the groove and the diamond is split in different pieces. Cleaving can be done with a diamond-coated rotary saw or a laser.
4.1.5.2. Sawing
Dividing a crystal by using a diamond saw. Clean regular octahedral are normally divided by sawing. The diamond cutter is said to “saw grain” that is he cuts in a non-cleaving direction. Many times diamonds are not cleaved properly. So, laser or diamond saw are used to cut the rough diamonds

4.1.5.3. Bruting
Bruting is the process whereby two diamonds are rubbed in opposite direction which is then grinded against each other for giving a good shape to diamonds.

Shaping a diamond is done by removing part of it by rubbing against another diamond.

Picture No. 6 Showing the Bruting Process

The next step is to shape the sawn or cleaved stone into a circular outline. The result of this very skilled operation should be a diamond with a perfectly rounded gridle set exactly parallel to the table. The diamond used as a tool is usually itself a rough and will be bruted in its turn. The diamnd is placed on lathe machine while other diamond is rubbed against it to create the shape of diamond.
4.1.5.4. Grinding or Blocking Making
A flat surface by holding the crystal against a rotating wheel coated with diamond powder. First he grinds the table of the diamond and then a crown or bezel facet between the girdle and the table. The stone is then turned over and four pavilion facets are ground below the girdle. These eight facets are followed by four more on the crown and four more on the pavilion.

4.1.5.5. Brillianteering or Polishing
Brillianteering is the final stage of the cutting and polishing process, giving the diamond its finished shaped. Preparing the finished gem is done through a more refined application of grinding techniques. The brillianteers complete the whole operation by adding the remaining forty facets. First he cuts eight star facets where the crown facets meet the table and then 16 girdle facets where they meet the girdle. Finally he cuts two long facets called halves into each of the pavilion facets. All the facets are then polished.

The main function of brillianteering is to cut and polish facets in order to create a different shape of diamonds such as the heart sand arrow shape are the some skilled craft of diamonds with more and more facets on diamonds which brings full brilliance and light which is reflected in the polished diamonds.
These loose diamonds are ready to be distributed to the wholesaler or jewellery manufacturers to convert into diamond jewellery.

4.1.6. JEWELLERY MANUFACTURES:
Once the diamonds are processed, they are sold to the jewellery manufactures directly. India is popular for handmade jewellery and always has a good demand in international market. Today, India has also developed a machine made jewellery which has increased the export of gems and jewellery and indicated positive growth in international market. Some of the India companies who are the Sightholders have diversified into jewellery manufacturing industry.

Almost 98% of import of rough diamonds and export of cut and polished diamonds are done through Mumbai. Therefore In 1985 Government of India had set up a Special Custom Clearance Cell in the “Opera House” The Trading Hub of diamond in Mumbai. Government of India permitted the setting up of a custom clearance centre for gems and jewellery Known as Diamond Plaza Customs Clearance (DPCC) centre. It is the first kind of it which was set up jointly by Government of India and gems and jewellery industry.

Diamond Plaza Customs Clearance (DPCC) has been functioning within Mumbai city under a special permission and arrangement between gems and jewellery and Government of India. Diamond Plaza Customs Clearance (DPCC) manages without the financial help by Government of India on the basis through the income generated by services charged on import and export of diamonds. The service charged by the Diamond Plaza Customs Clearance (DPCC) is 0.01% of the value of the diamonds. Diamond Plaza Customs Clearance (DPCC) very shortly will be transferred to Mumbai new address to “Bharat Diamond Bourse” which is within the Bandra - Kurla Complex (BKC).

In Mumbai Gemological Institute of India was the first non-profit research and educational organization in the field of gem and jewellery in India. It was established in
the year 1971 by Gems and Jewellery Exporters Association in Mumbai. This was first public institution set by Gemological Institute of India. It has also up a National Research Centre at Opera House. The role of the research was to update and equipped the diamond industry with the latest instruments and equipments required for gems and jewellery industry.

The foundation of Diamond and Gems Research Foundation (DGRF) was promoted by the Diamond and Gems Development Corporation. This foundation has developed various machines for cutting and polishing diamonds which has brought the new revolution in operating and functioning of diamond jewellery industry.

Diamonds are mined and found in various types which are processed through the inventive manufacturer. This manufacturer has started diamond processing manually in early years 1960’s in Surat in Gujarat which is near to Mumbai.

Diamonds which are cut and polished are sold worldwide through registered diamond exchange or directly through manufacturers. Diamond jewellery industries by using their own resources such as jewellery designer who design the jewellery beautifully transform the diamonds into jewellery.

Jewellery making has high margins and therefore, many cutting and polishing centres across the globe are aiming to move up the value chain to gain maximum revenue. The jewellery that is manufactured from the diamonds is sold either through a wholesaler or directly in the retail market, domestically or internationally.

Jewellery manufacturing is characterized by extreme fragmentation, with more than 10,000 manufacturers around the world. Roughly 80 % are based in India and China because of the relatively low cost of labor in those countries. From 2000 to 2010, India and China’s share in jewellery manufacturing grew from 27 % to 55 %. For the most part, Asian manufacturers do not brand their businesses, and the work they do is at the low end of the market.
Chart No. 3
Title: Growth in the volume of jewellery manufacturing unit during last decade (2001-2010)

The above chart no. 1 shows the growth of the diamond jewellery industry from 2001-02 till 2010-11 where the manufacturing units have increased constantly from 6000 units to more than 42,000 units by 2011.

Today, India is one of the largest centres for cut and polished diamonds where the cutting and polishing diamonds accounts for more than 46% of international diamond market and more than 72% in terms of carat.
Table No: 1
Title: Detail of growth in different countries between 2000 and 2010.

<table>
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Sources: Gems & Jewellery Export Promotion Council (GJEPC)

The above table shows the increase/decline in the growth of countries from 2000 till 2010.

Chart No. 4
Title: Growth in the volume of jewellery manufacturing units during the last decade.

Volume of Jewellery Manufacturing Units

![Graph showing the growth in volume of jewellery manufacturing units from 2000 to 2010.]

Sources: Gems & Jewellery Export Promotion Council (GJEPC).
The above chart no. 4 shows the comparison of growth of different countries between the periods of 2000 to 2010 year wise where majority of country had shown the growth in increase in the number of jewellery manufacturing units except Europe and Italy. In Europe the diamond jewellery manufacturing unit has shown decreased to 13.1% in the year 2009 and it further decreased to 12.9% in the year 2010. Italy has also shown decreased in the year 2009 by 6.3% and in 2010 by 6%.

Industry experts see huge potential demand among the emerging middle classes in India and China. Some experts believe that Asian markets hold the key to future growth in the global jewellery manufacturing business

4.2. The Steps/Process of diamond manufacturing Jewellery:

Every piece of diamonds sold in international market was handmade which was beautiful mastered by the skilled employee who ensures that each and every piece of diamond jewellery is flawless finished. Although the process of diamonds jewellery making process had begin in ancient times and today it is most technically advanced with modern equipment.

The step or process starts with preparing the design of the product or diamond jewellery. After the design is approved by the authorities then the actual process of production starts or process of manufacturing a diamond jewellery starts which is explained as follows:
4.2.1. Creation of the Wax Model:
The diamond jewellery production process starts with the wax department. Each and every diamond jewellery industry has its own rubber mold for making the replicas.

The experts begin waxing with injecting the liquid wax into rubber mould. Then the rubber mold is kept for cooling after the temperature cools, the wax is removed from the rubber mould.
It is very essential to cool wax mould to correct temperature at an accurate time and ensure optimal result.

Then the wax is checked to ensure that is free from defect from air, bubbles, and irregularities of colour. During this process to ensure prefect wax moulds and proper care is taken to produces the jewellery.

Wax moulding process was used to retain its shape and therefore produces excellent result. There is a separate wax tree used for each metal and for different carat. As shown in the picture no.11 below.
4.2.2. Placing the Wax on the Casting Tree and Investing the Flask:
The next stage of process starts with the assessment of wax by size and mass. This is formatted on a standard tree where on the top of the tree lighter weight ring are placed and on bottom heavier ring are placed on tree.

As soon as the tree is setup is finished. The casting department pours liquid on the wax. Multiple rings are placed on tree to save time, space and money. After, the investment are harden the casting team places the cylinder inside the oven.

The tree is kept overnight in an oven so the wax is evaporated leaving the investment. Then, the investment is removed from the oven when it is cooled.
At this stage pure gold and metal alloys are mixed to create the desired shape and colour where the gold and metal alloys are melted so that the gold becomes in a liquid form. This liquid gold is then poured into the cylinder to form the jewellery. Once the gold is solidifies inside the cylinder, then the casting team open the investments and recover the tree.

The tree which is removed is then send to the cutting department where the links are carefully cut. The tree stem is melted again for reusing if for next time.

After the linked are cut and sorted, they are separated for the various orders. All the rings are placed correctly in a can where the investment solution is poured in the can and which is kept for 3 to 4 hours.

4.2.3. Casting the Model

In this process once the solution is poured in the can the can is placed in a furnace overnight. During this time, the wax burns which creates a reverse mould. Then the can is removed from the furnace.
The casting of gold and other metal alloys takes place in a vacuum pressure casting machine at a correct temperature when it reaches at the correct temperature the skilled operator instigate the casting process.
The casting chamber is flushed with helium. Then a vacuum is applied to the lower chamber, the stopper is lifted in the upper chamber, allowing metal to flow into the mould through the process of gravity. The vacuum is then released and the chamber opens and the cast is removed and immersed in the water to reveal the casted tree.

After the metal links are stored, they are transferred to the assembling department. The assembly team connects the links and assembles the piece of jewellery. Then it is measured to confirm in length and number of diamonds are fixed as per the design or according to the order.

Finally the jewellery is checked for final touch up or filing of any gap in jewellery. A specialist skilled master examines the quality of jewellery and sends the jewellery for next step of hallmarking of the jewellery.

4.2.4. Removing the Jewellery from the Casting Tree and Hallmarking:
In this stage, the jewellery is cut off the tree. The jewellery is removed from the casting tree where the jewellery is forwarded to the department where the hallmarking of the jewellery is done.
4.2.5. Cleaning up the Casting:

Once the jewellery has been hallmarked it has been send to the department where the metal tabs are removed and the filling of the jewellery is done to and further it is send for final setting and polishing of diamond jewellery.

4.2.6. Sizing, Setting and Polishing the Diamond Jewellery:

This stage is important for diamond jewellery where the team of experts of skilled jewellery will select the diamonds as per the customer orders or as per the requirements
of demand in market. Each and every diamond is carefully checked in terms of cut, carat, clarity and colour of diamonds.

![Picture No. 18 Polishing of Jewellery](image)

The facets of diamonds are selected by an expert who selects the diamond as per the size of jewellery. To select the diamonds and to fix the diamond perfectly to maximize the look and beauty of the diamond jewellery. Once the diamond are set in to jewellery it is send to buffing and polishing to achieve the shine and the light of the diamond and make it sparkles again.

After this process is completed the diamonds and diamond jewellery is forwarded to the quality department.
4.2.7. Quality Control:
Once all the above steps are completed where each and every process checked the diamonds and the metal used are assemble properly to make good quality diamond jewellery. In the quality control process the diamond jewellery is checked and examined that there is no marks, scratches or any flaws in diamonds.

It also checks that proper polishing has been done to make diamond jewellery to sparkle and shine.
Quality control department also ensures that the quality and standards are maintained for the diamond jewellery manufactured. If the quality control sanctions the diamond jewellery then it is forwarded to packing department and finally it is ready for marketing the diamond jewellery

**4.3 MARKETING:**

The secret of De Beer’s marketing campaign “A Diamonds Is Forever” has successfully created a cultural of buying diamond jewellery on the engagement or marriage occasion. It had convinced every woman in the world that they should received a diamond ring from her fiancé on the engagement. De Beer and its subsidiaries are proactive in promoting the marketing of diamonds. Today all the diamond jewellery industry are putting their best effort in marketing the diamond jewellery for promoting their sales.

In India gem and jewellery industry is one of the fastest growing indusrty with the growth of more than 42% approximately. The domestic market is estimated around US $ 15 Billion representing more than 3,50,000 jewellers across India.

Undoubtedly, the Indian diamond jewellery industry acts as a torch with the rising economic growth of our nation. It is no more a hidden fact that India is heading on its way to become a leading centre of diamond jewellery as its exports for the year 2010 have been US $ 38 billion.

**4.4. RETAILERS**

This is the final stage of the diamond supply chain where diamond jewellery travels from the manufacturers to retailers who further sell them to the final customers or may be further sold to some small retailers. USA is considered as the largest market for Indian diamond jewellery, followed by Japan and so-on.

India has large domestic diamond jewellery in form of organized and unorganized sector. In India family owned jewellery stores has encouraged to develop a retail format in
diamond jewellery industry. Today, India customers are showing positive preference in terms of quality design and brands in diamond jewellery. Branded diamond jewellery is worth US $ 3 billion by 2013.

The Indian organized retail jewellery sector offers long term benefit to customer. India government allows 51% of FDI in single brand retail outlet, attracting both international and domestic industry.

**4.5. VALUATION OF DIAMONDS:**

Today the fact is that very few people can distinguish between a good diamond and a bad one, they do not even know if what they are looking is a diamond at all or not.

Diamonds are known by its 4 C’s i.e Cut, Clarity, Colour and Carat. This 4 C’s are the parameter of to evaluate the value of the diamonds. Price of diamond depends upon the cut, colour clarity and weight of carat. Today, the weight remains constant for calculating factor of grading the diamond commonly in market. The value of diamonds is determined by setting the diamonds and setting the diamonds itself increases the value of the diamond.

![Real Diamond](Picture No. 21 Real Diamond)
Diamond was introduced in the world by India. India was first to mine diamonds. Cutting and polishing was also done by India on a large scale and is popular to trade cut and polished diamonds. India has a tradition in cutting and polishing the diamonds and earned a good reputation in domestic as well as international market due to skilled craftsman available at very low labour cost.

Diamonds which are processed in India has a good value in both the market. India contribution in terms of value is nearly 55% and in terms of carat weight it is around about 80%. India diamond industry is famous for its skilled art work as well as for low cost labours.

In India diamonds are available at all size with variety in quality and cut diamonds. In India markets diamonds are available in different colour and carat as per the requirements of the customer’s budget. Thus value of diamonds is very important to know by the customer’s.

4.6. THE 4 C’S OF DIAMOND IN DETAIL:
The 4 C’s i.e Cut, Clarity, Colour and Carat are very important in diamond world. Let us consider this 4 C’s in detail:

4.6.1. Cut:
The cut of diamond highlight the shape and the quality of the skilled cutter or a craftsman. A Cut in diamond refers in which shape a rough diamond is cut and polished and converted into a fine diamond gem. Cutting a diamond is an art of creating the quality in the gem from a rough diamonds which are mined. Diamonds are cut into different shapes depending upon the rough diamond. A cut diamond reflects the light in better way. The diamond ability to reflect light depends on the brilliance.

A well cut diamond is crafted carefully in the right proportion and polished until it sparkles. The cut diamond brilliance appears due to maximum amount of light is passed through the eyes of the viewers. A very good cut in diamonds is the overall result of the
angles of diamonds, measurement of the diamonds and the reflection of the light entering the stones.

A good cut diamond is graded by the art and quality of diamond which is the result of the workmanship of the cutter who is having a good experience in cutting and polishing the diamonds. It is also important that the diamond is symmetrical in form of facets in the final finished diamond.

Diamonds are cut in different shapes and some most popular shape of cut diamonds are as follows:

The names and descriptions of the most famous and popular cuts include:
1) Round
2) Oval
3) Princess
4) Emerald
5) Radiant
6) Heart
7) Marquise and
8) Pear

Diamonds are used as a gem stone is more familiar to the people. Diamonds are cut in different shape for using it in jewellery. The proportion of diamond which is cut gives a grade to the diamond which is testified by the skilled craftsman and a skilled polisher. A proper and perfect cut refers to the symmetry of the facets and their overall finish. The best cut diamonds reflects the light and brilliance of the diamonds and visualization of diamond. The quality of a best cut diamond establishes a good proportion and a good grade of a diamond.

A cut diamond is the property which is totally dependent on the cutter who is always overlooked. The art of a skilled cutter is one of the important aspects to consider the diamonds.
Diamond cutters always analyze the rough diamonds and then decide how to cut the diamond. Cut of diamond not only reflect the shape of diamonds but also the brilliance of the diamond which helps the diamond to sparkle.

The following are some types of the cuts:

Table No. 2

Title: Different Types of Cuts in Diamonds:

<table>
<thead>
<tr>
<th>Cut Grades</th>
<th>Cut Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>Ideal</td>
</tr>
<tr>
<td>EX</td>
<td>Excellent</td>
</tr>
<tr>
<td>VG</td>
<td>Very Good</td>
</tr>
<tr>
<td>GD</td>
<td>Good</td>
</tr>
<tr>
<td>FR</td>
<td>Fair</td>
</tr>
</tbody>
</table>

Source: GIA

A polished diamonds value depends on the light and how much light enters the diamonds and reflects the eyes. The result of reflecting the light is from the interior of the diamond.
The sparkle of diamonds is the overall result of diamond we see. A polished diamond affects the light performance and increases the beauty of the diamond.

4.6.2. Colour:

Colour of a diamond is has the biggest impact on its price. A good cut diamond and the art of the skilled cutter increases the beauty of the diamond which has a direct impact on the price of the diamond. Diamonds are distinguished in different colours and colourless diamonds.

Diamonds are graded as per colour. Colourless diamonds are mostly very costly and its value is very high which depends on the light passing through its spectrum. If diamonds are more transparent the wider will be the spectrum of colours.

Diamonds are founds in many colours. It is found even in blue, pink purple and red which are rare in colour are very beautiful and expensive. Diamonds which does not have any colour then that diamonds are graded and rated in scale of colourless.

The point of colour grading is to mark the degrees of grading from the whitest possible stone down to the yellowiest which is still acceptable as being of gem quality. This is true when the diamond is viewed from the front and the eye confused by the spectrum colours. Lighting is vitally important, sunlight for example contains ultraviolet light which can cause the diamond being examined to fluorescence very slightly blue but enough to hide any tint of yellow.

The chart below shows the grading of colour created by Gemological Institute of America (GIA)

Chart No. 5
Title: Detail of Colour Grading Scale

<table>
<thead>
<tr>
<th>GIA COLOUR GRADING SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCALE</td>
</tr>
</tbody>
</table>


A diamonds are measured in terms of Alphabets starting from letter ‘D’ to ‘F’ alphabets which are graded as a colourless diamonds. Alphabets ‘G’ to ‘J’ grade diamonds is graded as nearness to colour. Alphabets ‘K’ to ‘M’ are graded as faint yellow, alphabets ‘N’ to ‘R’ are graded as very light yellow, and the largest range of alphabets of diamonds from ‘S’ to ‘Z’ are graded as light yellow.

The Laboratories only grade diamonds which are unmounted, or "loose". Once a loose diamond is mounted and fixed on jewellery, even the trained professional cannot always tell the difference between the grades of diamonds. Such a whether a diamond is "D" grade diamond or a “E" or "F" grade diamond. If the colour is more intense than "Z", it is considered fancy. A fancy yellow diamond fetches a higher price than a light yellow diamond.

**Table No. 3**

**Title: Showing the grading of colours with cost and quality:**

<table>
<thead>
<tr>
<th>Scale Ratings</th>
<th>Color</th>
<th>Cost &amp; Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>D E F</td>
<td>Colorless</td>
<td>Most Expensive &amp; Desirable</td>
</tr>
<tr>
<td>G H I J</td>
<td>Near Colorless</td>
<td>Most Expensive &amp; Desirable</td>
</tr>
<tr>
<td>K L M</td>
<td>Faint Yellow</td>
<td>Most Expensive &amp; Desirable</td>
</tr>
<tr>
<td>N O P R</td>
<td>Very Light Yellow</td>
<td>Most Expensive &amp; Desirable</td>
</tr>
<tr>
<td>S T U V W X Y Z</td>
<td>Dark Yellow</td>
<td>Cheapest &amp; Least Desirable</td>
</tr>
</tbody>
</table>

Source: GIA

**4.6.3. Clarity**

After ascertained of a diamond colour, the next step is to grade it according to clarity by assessing its degree of freedom from imperfections, clarity grading is straighter forward than colour grading, but arguable classifications can still arise. Diamond clarity is a
measure in terms of its purity. The clarity of a diamond refers to how “clear” or "clean" the diamond is the more "clean" or “clear” the diamond, the higher will the price. Most diamonds have "imperfections" in them.

The following is the chart showing the scale of diamond clarity:

**Table No. 4**

**Title: The following Table shows the GIA Diamond Clarity Scale:**

<table>
<thead>
<tr>
<th>Ratings Abbreviations</th>
<th>Ratings Descriptions</th>
<th>Details of Clarity</th>
<th>Ratings, Cost &amp; Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Flawless</td>
<td>No internal or external flaws</td>
<td>Very Rare and Expensive</td>
</tr>
<tr>
<td>VVS1</td>
<td>Very, Very Small Inclusions Level 1</td>
<td>Very difficult to see inclusions under 10x magnification</td>
<td>Expensive</td>
</tr>
<tr>
<td>VVS2</td>
<td>Very, Very Small Inclusions Level 2</td>
<td>Difficult to see inclusions under 10x magnification</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>VS</td>
<td>Very Small Inclusions</td>
<td>Inclusions are noticeable to a jewellry under 10x magnification</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>VS1</td>
<td>Very Small Inclusions Level 1</td>
<td>Inclusions are noticeable to a jewellry under 10x magnification</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>VS2</td>
<td>Very Small Inclusions Level 2</td>
<td>Inclusions are noticeable to a jewellry under 10x magnification</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>SI</td>
<td>Small Inclusions</td>
<td>Inclusions are easily seen to a jewellry under 10x magnification</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>SI1 &amp; SI2</td>
<td>Small Inclusions Level 1 &amp; Level 2</td>
<td>Inclusions are easily seen under 10x magnification but not visible to naked eye</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>LI</td>
<td>Large Inclusions</td>
<td>Inclusions are visible to naked eye but minimum loss of brilliance</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>LI 1 &amp; LI 2</td>
<td>Large Inclusions Level 1 &amp; Level 2</td>
<td>Larger Inclusions visible to naked eye with small loss of brilliance</td>
<td>Less Expensive</td>
</tr>
<tr>
<td>LI 3</td>
<td>Large Inclusions Level 3</td>
<td>Larger Inclusions visible to naked eye with brilliance diminished</td>
<td>Cheapest</td>
</tr>
</tbody>
</table>

The followings are the detail of rating of diamonds in abbreviations:
**Flawless** – *(FL)*: These Diamonds does not have any imperfections inside or outside of the diamond under the magnification of a loupe of 10 powers.

**Internally flawless** – *(IF)*: These diamonds have no inclusions under a loupe with a 10 power magnification.

**Very Very Slightly Imperfect** – *(VVS)*: These VVS have very small inclusions which are very difficult to see under a loupe with a 10 power magnification.

**Very Slightly Imperfect** – *(VS)*: These vs diamonds has a small inclusion which are slightly difficult to see under a loupe with a 10 power magnification.

**Slightly Imperfect** – *(SI)*: These SI diamonds have inclusions which are fairly easy to see under a loupe with a 10 power magnification, or visible to the naked eye.

**Imperfect** - *(I)*: These stones have inclusions which range from eye visible to very easily seen to the naked eye.

### 4.6.4. Carat:

Carat is the weight of diamonds. The carat weight of diamonds is the standard unit of measure that defines the weight of diamonds.

1 carat is = to 100 cents and

5 carats = 1 gram.

As the carat increases the price of diamond also increases. Diamonds are more expensive when their weight goes on increasing. Since larger diamonds are both rare and more desirable as a gemstones.
The weight of a diamond is measured in carats. 5 carats = 1 gram (142 carats to the ounce) and 1 carat is commonly divided into 100 cents. Diamonds below than 1 carat in weight are known as pointers. A small portable chemical scale is used to weigh diamonds to within a hundredth part of a carat. So many jewellers use electric balances.

The size of a diamond has the biggest impact on its price. If other factors are equal, the larger the diamond in weighs, larger will be the value of diamond. It is a Gemological laboratory who measures the carat (weight) when the diamond is loose (unmounted). While it is possible to estimate the weight of a mounted diamond, the lab uses ultrasensitive scales to achieve an exact weight, measured to 3 decimal places, although the third decimal place is not usually mentioned at the retail level.

Here are several ways to express 1 carat:

1 carat = 200 milligrams

Diamond price is considered on the basis on carat. The impact on diamond price depends on the carat of the diamond. India is considered as the world’s largest centre for cut and polished diamonds where the processing of the diamond ranges from the smallest carat to the biggest carat. The production capacity of cutting and polishing depends on the shape, type and size of the diamonds.

There are about thousands of the different types of diamonds. The process of diamonds is done through latest machines as well as the manually operated machines in India. These diamond industries was developed in Surat in the state of Gujarat in early 60’s because Surat city is near to Mumbai were all the export house are located to export cut and polished diamonds.
4.7. DIAMOND PROCESSING COMPANIES IN MUMBAI:

Diamonds pass through a series of processes before they are finally sold in the retail market. The value chain of diamonds begins with exploration of diamonds from mines and is followed by processing, manufacturing, whole selling and retailing.

In Mumbai, the diamond jewellery manufacturing industry was considered a very attractive field for foreign investments. However, the industry went into decline owing to raw material constraints. Several units are operating at half capacity, some are shut and several are for sale. Besides India, China and Thailand are fast emerging as alternative centers for processing large diamonds. In general, there is a scope to sell Indian cut and polished diamonds as there is not rough material of diamonds for processing in Mumbai. Diamond-cutting plants have begun to purchase rough diamonds from the West. At the same time, western companies and investors have expressed interest in the Mumbai diamond-cutting and diamond-polishing industry. As a result of this interest, new diamond processing plants have been established in Mumbai.

The diamond jewellery industry in India is mainly concentrated by the unorganized sector. This unorganized diamond jewellery industry employs more than 2.1 million workers in the Gem and Jewellery industry. The majority of diamond cutter and polisher are employed by the small units, where the diamond is processed on contract basis where these small units processed the diamond on job work basis. Today, there are more than 8000 diamond jewellery manufacturers. However, the share of unorganized sector is declining and more and more organized diamond jewellery manufacturers are establishing themselves in the diamond jewellery business. For example, according to a survey done by GJEPC, the share of the organized sector in diamond processing industry has increased from 9% in 1995 to 45% in 1998.

In India, Mumbai has become a centre for gem and jewellery industry. In Mumbai most of gold and rough diamond arrives in Mumbai and then forwarded to the various cutting and polishing industry. Mumbai itself has an increasing number of modern semi-
automatic factories and laser-cutting units. Today, Indian diamond jewellery industry has even reached to international market where many Indian diamond jewellery manufacturers have their offices in Antwerp, New York, Los Angeles, etc.

Diamond processing industries today have been established in Mumbai especially in SEEPZ (Santacruz Electronics Export Processing Zone). There are also diamond processing industries in Trichur in Kerala, Coimbatore in Tamil Nadu, Jaipur in Rajasthan, and Goa. Mumbai continues to be the main diamond trading center of India accounting for the dispatch of more than 93% of diamond exports.

Diamond cutting is a great skill work. The rough diamonds from mines determines the shape of the final polished diamonds. Diamonds usually are distributed to main cutting centre where a skilled worker cut the diamonds, polished the diamonds and gives an appropriate shape to rough diamonds. India is one of the dominating countries in cutting and polishing the rough diamonds. This is possible due to availability of skilled labour at very low cost. Today, in India there are more than 1,00,000 small industries in diamond processing.

4.8. GEM AND JEWELLERY COMPLEX WITHIN SEEPZ:
(SANTACRUZ ELECTRONICS EXPORT PROCESSING ZONE)

Santacruz Electronics Export Processing Zone (SEEPZ) was initially established with a view to exploit the growing world trade in electronics. It came into being in September 1974, on about 100 acres of land taken on a 99 year lease from the State Government of Maharashtra in the Marol Industrial Area, Mumbai. Santacruz Electronics Export Processing Zone (SEEPZ) has a vast commercial, industrial and social infrastructure. Various facilities such as factory space, power, water, in-zone customer clearance, warehousing, communication, canteen, etc. are provided within the area.
Santacruz Electronics Export Processing Zone (SEEPZ) was initially set up for 100% export production of electronics; in the year 1986. The Government decided to create a gems and jewellery complex in Santacruz Electronics Export Processing Zone (SEEPZ) for the 100% export of gems and jewellery items. Various concessions and facilities have been granted to those who set up production in the zone.

At present in SEEPZ there are more than 60 gems and jewellery industry. A large number of applications for establishing new diamond jewellery have been pending since 1989-90 for want of space in SEEPZ. A new building is under construction through the self-financing scheme, which will accommodate more than 32 new diamond jewellery industries.

According to the KPMG study, India’s growing importance in the global jewellery industry is expected to increase in the coming year. The total demand of diamond jewellery is expected to reach $18.25 billion in 2010 and $28.28 billion in 2015. A study by KPMG says that India is set to realize total jewellery sales of $21 billion by 2010 and $37 billion by 2015.

Diamond jewellery manufacturing business is US$ 11.29 billion is a major Indian export business. Recently, DTC has decided to prune supply of rough diamonds to India. India has becomes a manufacturing hub for jewellery as well as a major consumer hub for diamond jewellery which has made India a powerful sector in world.

In order to improve the country's export and attract FDI, the concept of Special Economic Zones (SEZs) was introduced in 2000 by the government. Special Economic Zones (SEZs) are pockets of manufacturing excellence which also contribute tremendously to the generation of employment and eventually to the economic growth of the country.

The policy framed by Special Economic Zone (SEZ) has attracted business entrepreneurs with packages and incentives for developing industries in the Special Economic Zone (SEZ). The development of SEZs depends on the economic growth where an advantage
depends on the availability of skilled workers. The expansion of Special Economic Zone (SEZ) lies with an increase capacity as well as setting up of new industries. The best example is SPEEZ which is a Special Economic Zone (SEZ) in Andheri, Mumbai with more than 100 industries employing more than 45,000 people which is single largest diamond jewellery manufacturing industries in world.

The Gems & Jewellery sector contributes more than 50% of SPEEZ’s export. The government of India considering this increased in export has simplified the export procedure and implemented with the promotional measures to increase the export.

Following is the table showing the import and export of SEEPZ from 2006 – 2011.

**Table No. 5**
**Title: Imports from SEEPZ from (2006 – 2011) Value in US Million$**

<table>
<thead>
<tr>
<th>IMPORTS</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rough Diamonds</td>
<td>21.93</td>
<td>53.24</td>
<td>23.14</td>
<td>60.61</td>
<td>37.11</td>
<td>46.35</td>
</tr>
<tr>
<td>Gold Bars</td>
<td>17.12</td>
<td>64.1</td>
<td>64.52</td>
<td>35.68</td>
<td>25.31</td>
<td>89.46</td>
</tr>
<tr>
<td>Stones</td>
<td>1.23</td>
<td>1.01</td>
<td>0.48</td>
<td>1.22</td>
<td>0.73</td>
<td>1.87</td>
</tr>
<tr>
<td>Cut &amp; Polished Diamonds</td>
<td>16.59</td>
<td>107.02</td>
<td>135.84</td>
<td>173.88</td>
<td>182.53</td>
<td>210.85</td>
</tr>
<tr>
<td>Silver Bars</td>
<td>0</td>
<td>0.7</td>
<td>0.11</td>
<td>0.19</td>
<td>0.46</td>
<td>0.05</td>
</tr>
<tr>
<td>Platinum</td>
<td>0</td>
<td>2.97</td>
<td>1.22</td>
<td>10.67</td>
<td>4.84</td>
<td>8.23</td>
</tr>
<tr>
<td>Total Imports into SEEPZ</td>
<td>56.87</td>
<td>229.04</td>
<td>225.31</td>
<td>282.25</td>
<td>250.98</td>
<td>356.81</td>
</tr>
</tbody>
</table>

Sources: SEEPZ Report 2011

The above table shows that imports from SEEPZ increased in 2006 and 2007, fell marginally by a little more than 1% in 2008 and grew 6.35 times to US $ 356.81 in 2011.
Table No. 6
Title: Export from SEEPZ from 2006 – 2011 Value in US Million $

<table>
<thead>
<tr>
<th>Description</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut &amp; Polished Diamonds</td>
<td>27.76</td>
<td>52.04</td>
<td>78.52</td>
<td>29.15</td>
<td>56.79</td>
<td>41.66</td>
</tr>
<tr>
<td>Gold Jewellery</td>
<td>44.58</td>
<td>227.74</td>
<td>406.16</td>
<td>525.47</td>
<td>507.47</td>
<td>504.25</td>
</tr>
<tr>
<td>Silver Jewellery</td>
<td>0</td>
<td>0</td>
<td>7.12</td>
<td>0</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>Platinum</td>
<td>0</td>
<td>6.59</td>
<td>7.71</td>
<td>7.32</td>
<td>8.31</td>
<td>7.21</td>
</tr>
<tr>
<td><strong>Total Exports From SEEPZ</strong></td>
<td><strong>72.34</strong></td>
<td><strong>286.37</strong></td>
<td><strong>499.51</strong></td>
<td><strong>561.94</strong></td>
<td><strong>573.08</strong></td>
<td><strong>553.63</strong></td>
</tr>
</tbody>
</table>

Sources: SEEPZ Report 201

The above chart of export from SEEPZ has increased from the last 4 years i.e from the year 2007 till the year 2010. In the year 2011 the export has decreased from 573.08 million US $ to 553.06 million US $.

Today, gems and jewellery industries are global industries with mining of gold, diamonds and platinum in Africa, Russia, Canada and Australia. The polishing diamonds and diamond jewellery manufacturing is done in some other countries such as in Belgium, India and China where as the retailing of diamonds and diamond jewellery is done all over the world.

The diamond jewellery industry contributes over 20% of the total export and employs millions of people. India contributed a major portion of rough diamonds and uncut diamonds produced. India is famous for processed and polished diamonds jewellery. India is the world largest diamond processing centre handling over 60 percent of the world’s rough diamond.
The total Gem & Jewellery Industry Exports were recorded with an increasing trend from 2001-2002 till 2010-2011 which is shown in the (chart no. 6). In the F.Y. 2010-2011 the exports were 43,139 million US $ as compared to 29,433 million in April 2009 to March 2010. Exports in 2010 – 11 rose by 13,706 crores which works out to 46% rise in money terms which may not reflect the correct picture due to change in the value of the rupee.

Indian gems and jewellery sector has been one of the largest and fastest growing sectors in past few years. Gem and Jewellery sector has gained popularity because of the skilled and talented craftsman who cut and polished the diamonds in such a manner where the brilliance of the diamonds increases. It is also popular due to cheap labour cost and cost effective technology.

The gem and jewellery has played an important role in the Indian economy since the year 2008-09 where the contribution of gem and jewellery industry export has increased to
13%. The gems and jewellery sector in India is engaged in the manufacturing and processing of diamonds and selling in domestic as well as international market.

The Gem & Jewellery Export Promotion Council (GJEPC) has set up the Indian Institute of Gems & jewellery just outside the SEEPZ in Andheri in Mumbai. The aim of this institute is to make aware about the new technology, teach and educate the large number of workers.

4.9. DIAMOND JEWELLERY IS ONE OF INDIA’S LEADING FOREIGN EXCHANGE EARNING SECTORS:

The chart no.7 below shows us the export share of cut and polished diamonds, gold jewellery, rough diamonds, coloured diamonds and others in 2010-11. The chart shows us that major export shared is 65% by cut and polished diamonds and 30% of export is of gold jewellery, 2% of rough diamonds are export 2% of others and 1% is shared by coloured diamonds.
The above (chart no.7) shows us the export share of cut and polished diamonds, gold jewellery, rough diamonds, coloured diamonds and others in 2010-11. The chart shows us that major export shared is 65% by cut and polished diamonds and 30% of export is of gold jewellery, 2% of rough diamonds are export 2% of others and 1% is shared by coloured diamonds.

The gem and jewellery sector in India accounts for more than 20% in exports and in value it amounts to US $ 43139.24 million as per the year ended 2011. (As per the records of GJEPC)
Chart No. 8

Title: Major buyers in the year 2010-11

In the (chart no. 8) the major export buyers are listed which shows that UAE is the largest with 44% followed by Hong Kong with 25%, USA with 12%, Belgium with 5%, Israel with 3% and Thailand, Singapore, UK, Australia and Japan with 1% where as the remaining countries was engaged in export of 5%.

Diamond processing is done in more than 30 countries but mostly it is concentrated in India, Belgium, South Africa, and Israel and U.S.A.

The diamond processing industry largely depends on supply of rough diamonds whereas Australia, Botswana, Russia and South Africa are the major suppliers of rough diamonds. The production of rough diamonds from mines is controlled by De Beers which is the largest diamond miner in the world.
Export of cut and polished diamonds increased to US $ 13.28 billion in the year 2010. Whereas the largest importer of cut and polished diamonds from India was Hong kong with 35% followed by U.S.A. and U.A.E.

Gem & Jewellery Export Promotion Council (GJEPC), polished diamond exports declined 39 per cent year on year to $ 1.50 billion, while the polished diamond imports plunged 72 per cent to $ 337 million.

In the year 2012, as per the records Gem & Jewellery Export Promotion Council (GJEPC), the export of diamonds have fallen to 41% with the value of 13.282 billion US $ and polished diamonds import has dropped by 22% with the value of 4.141 billion US $. On other hand the imports of rough diamonds have increased to 7% with a value of 1.236 billion US $.

Imports of polished diamonds to India fell 47% to $ 480.31 million during the month. Net polished exports, representing the excess of exports over imports, declined by 11% to US $ 858.95 million.

Rough imports to India rose 109 %to $ 1.475 billion during the month, while rough exports fell 30% to $ 99.65 million. Net rough imports, representing rough imports less exports, increased 144% to 1.375 US $ billion.

India’s polished diamond exports fell 28% year on year to $ 1.339 billion in October 2012, according to the Gem & Jewellery Export Promotion Council (GJEPC). By volume, polished exports declined 27% to 2834 million carats as the average price of the export dropped 2% to $ 472.57 per carat.

India’s October net diamond account, representing total exports less total imports, fell to a deficit of $ 516.91 million, from a surplus of $ 402.21 million the previous year.
India’s export of polished diamonds has dropped by 40% to 14.621 billion, US $ while its polished imports slumped to 74% to 4.621 billion US $. Rough imports rose 3 percent to 12.331 billion US $ and rough exports declined by 6 percent to 1.335 billion US $.

Recently in last few years cut and polished diamonds export has been declined 17.3% from 28,217 million US $ in 2010-2011 to 23,329 million US $ in 2011-12. As per the records of Gem & Jewellery Export Promotion Council (GJEPC) cut and polished diamonds export up to September 2012 has registered with a deficit of 479 million US $.

According to the sources Indian gems and jewellery export growth is likely to be flatter this year due to economic crisis in international environment. But, according to the new trend Gem & Jewellery Export Promotion Council (GJEPC) plans to promote and expand its market of diamonds jewellery across India and China.

Last year, the country exported gems and jewellery worth $ 42.84 billion in the fiscal year that ended on March 31, 2012.

According to a KPMG report Cutting and Polishing of Diamond (CPD) centers will be benefited by the decreased in rough diamond price and value. The report also predicts that there may be reduction in India’s share in cut and polished diamonds from 49% to 60% by 2015.

According to JP Morgan report dated 11 April, 2008 of export of cut and polished diamonds from India yields a small margin as cost of raw material comprises of 80% to 90% of selling price. The diamond processing industry is presently running it business activities with a narrow margin of 3% to 5%.

Companies have started to look at downstream aspects where manufacturer/exporter of diamonds is shifting and focus to give a brand name and develop the business in retail
market. Profitability in the branding and retail business is much higher than dealing in rough diamonds and cut and polished diamonds.

4.10. INITIATIVES BY GOVERNMENT:

The government of India has come out the following initiatives to promote the diamond jewellery industry.

The diamond industry has been identified as a sector of trust in Foreign Trade Policy (FTP). The government of India has appointed an expert committee on gems and jewellery in the 2006 to suggest the measures for making India a global hub of diamond industry.

The committee recommended various measures for providing a competitive edge to India diamond industry which also included the removal of import duty on cut and polished diamonds.

In import and export of diamonds is done through the specialized customs clearance centre called the Diamond Plaza Customs Clearance Centre (DPCCC) which is established in Mumbai with the view to give a proper guidance to the entrepreneurs who are engaged in import and export of rough diamond and cut and polished diamonds. This was done with the view to increase the percentage share of the diamond industry in the international market.

Cutting and polishing of rough diamonds and other gems was treated as manufacturing purpose and it was exempted from the section 10A of the Income Tax Act. Import of gold and diamonds above eight carat was allowed under replenishment scheme. It was also decided that semi precious gems, gold, platinum, commercial samples and re-imported of rejected jewellery was allowed as duty free import. In the supplement of Foreign Trade Policy (FTP) (2004-2009) it was added and allowed to import of machinery and equipments duty free.

In the union budget for the year 2007-08 import duty on cut and polished diamonds was abolished and all industrial requirements and undertaking in the gems and jewellery
industry were exempted from obtaining industrial licenses for the diamond jewellery manufacture.

According to the sources of Gems and Jewellery Export Promotion Council (GJEPC) the export of cut and polished diamonds has decreased by 10% in the financial year 2010. The diamond industry has decreased due to the increasing demand from the export oriented countries.

4.11. GEMS & JEWELLERY INDUSTRY IN MUMBAI:

1. Mumbai is the centre of Gem & jewellery industry where all the rough diamonds are imported to Mumbai from various countries.

2. Mumbai is considered as the cluster for the entire jewellery industry throughout the state of Maharashtra.

3. Diamond jewellery manufacturing industry set is more in Mumbai especially in Seepz due to government incentives.

4. Mumbai being a mega city majority of diamond jewellery manufacturing units is automated with latest machines like laser cutting machines etc.

5. Most of the diamond jewellery manufactures in Mumbai have an international office which helps them to manage their business easily in foreign countries such as in the U.S.A, Belgium etc.

6. Mumbai is considered as one of the biggest diamond exporting city of the world.

7. Mumbai is considered as a business hub of diamond manufacturer.

8. The Diamond Plaza Customs Clearance Centre (DPCCC) was established in Mumbai to promote the diamond industry.
9. Gems and Jewellery Export Promotion Council (GJEPC) has headquarters in Mumbai and was also set up to promote the export of diamond jewellery business.

10. The diamond jewellery sector in India is export-oriented, highly skilled labour-intensive industry which contributes major portion of export of our country. Therefore, Indian government has declared gem and jewellery sector as a trust area of export promotion of country.