CHAPTER II

DIAMOND CUTTING AND POLISHING INDUSTRY (MACRO ANALYSIS)
2.1 Introduction:

Several artisan skill oriented handicraft based enterprises are operating in the Indian economy. Artisan skill oriented diamond cutting and polishing industry is more recent in origin. Cut and polished diamond included in the inventory of Indian artistic products during the sixties of 20th century. Since inception this industry has made tremendous progress within the short period of time and has become the leading export earner for the country. Cut and polished diamond export increased from US $20 million in 1966-67 to US $7110 million in 2002-03.

2.2 History of Diamond Industry:

Jainism and diamond trade and industry was historically associated in the early period of development of this industry. Palanpur was the centre of development. Before independence Palanpur was a native state and was reckoned as the oldest Muslim State of India. From its past history and local environment it is difficult to establish any definite casual correlation between the Jain community and diamond business. Several hypothesis may be advanced but without much historical evidence. For example, the Jain community is highly religious minded with very strict dietary habits. They have therefore been exclusive and tended to develop close interrelationships and trust among themselves. They could prescribe and hand over fundamentals of business including business traits to the next generation. Jains being traditionally business minded, hardworking, shrewd and parsimonious were in a position to
provide larger amount of funds involved in the diamond business. This strength coupled with close-knit relationships and mutual trust must have helped them in fostering business in diamonds. In Palanpur they served the rulers well and came in contact with highly priced jewellery that came to the rulers. This must have slowly developed expertise among them. Thus it appears to be a combination of factors which could in some way explain the entry and contribution of the Jains community in the diamond business.

The first jewelers to leave Palanpur to settle down in Bombay to expand their business were Surajmal Lallubhai and Amulakh Khubochand Parikh. These two could be easily described as the planners of the Indian diamond trade. This happened at the beginning of last century. While the diamond trade established in Mumbai in subsequent years diamond cutting and polishing industry developed in Palanpur. The more recent development of diamond cutting and polishing industry took place from 1960 onwards in Palanpur and Surat and subsequently at few pockets of Ahmedabad. Economic recession in 1969 hit the diamond industry hard in Surat. Gravity was so intense that many workers could return home with just their shirts on. These displaced workers later started their own business at their native places. During that period diamond industry was proliferated into different parts of Gujarat.

2.3 Many Facets of Diamond Industry:

Diamond cutting and polishing is an artisan skill oriented tiny handicraft industry. It belongs to informal unorganised sector of Indian economy, which is characterised by small size of operation, informal
structure and mainly family ownership. Though diamond industry belongs to unorganised sector, it differs in many ways from traditional unorganised industry. Most industries in unorganised sector use unskilled labours from local community. Unlike other industries diamond industry needs highly skilled-trained manpower for its entire chain of operations starting from assortment to processing i.e. cutting and polishing. Without proper training no one will be able to work for cutting and polishing operation of diamond industry. Secondly very small portion of artisan labour are from local community. These trained labours are highly movable and move from one factory to other and also from one city to another for better wages and other facilities. Artisan labour from Saurashtra region may be seen working at all important centers of diamond industry. In unorganised sector cottage industry generally uses locally available raw material for its operation and its output is sold in local market, rarely some of them can become an entity of national or international importance. Peculiarity of diamond industry is that almost entire portion of raw material i.e., rough diamond used in this industry is imported from different countries and major portion of the industry output i.e., cut and polished diamond is exported to America, Europe and other important trade centers of the world. Thus it has not only broken the local barrier but also broke the national barriers to establish it as an artisan skill based industry in the global village. This industry has many other striking differences from that of other small-scale industries. Most of the artisan skill based cottage industries do not need power driven machine, lathe etc. for its operation. An artisan can carry the job work at
their home or mostly operate from the home itself. But unlike that diamond industry needs modern lathe, polishing machines and motors along with power as its basic requirements. One in this industry cannot carry the job at home, if one need to do so he/she has to carry a small factory at his/her premises. Thus irrespective or location and scale of operation it has to operate in a factory environment and minimum manpower requirement is 4–5 workers for full scale smallest operation. This industry has come out from the small cottages of village and entered into the small power driven mechanised factory to large scale big factories, but one thing has not changed in its operation i.e., skill of its artisan. It will be better to say that diamond cutting and polishing is an artisan skill based mechanised factory oriented small-scale industry.

2.4. **Environment of Diamond Industry:**

The term ‘environment’ refers to the totality of all the factors, which are external to beyond the control of individual business enterprises and their managements. Environment furnishes the macro-context, the diamond firm is the micro-unit. The environmental factors are essentially the ‘givens’ within which firms and their managements must operate. For example, the value system of society, the rules and regulations laid down by the government, the monetary policies of the central bank, the institutional set up of the country, the ideological beliefs of the leaders etc., all constitute the environment system within which an industry and all business units must operate. These environmental factors are many in numbers and various in forms. Some of these factors are totally static, some are relatively static and some are very dynamic – they are changing every now and then. Some of these factors can be conceptualised and quantified, while others can be only referred to in
qualitative forms. Thus the environment of business is an extremely complex phenomenon.

The environmental factors generally vary from country to country. The environment that is typical of India may not be found in other countries like USA, UK, Japan etc. What to say of countries, the magnitude and direction of environmental factors do differ over a region within a country and localities within a region. Thus one may talk of local, regional, national (domestic) and international (foreign) environment of business. The environment differs not only over space but also over time within a country. As such we talk about the past, present future environment. Future environment is the product of past and present environments.

Finally, we may classify the environment into economic and non-economic environment. Non-economic environment refers to social, political, legal, educational and cultural factors that affect the business operations. Economic environment on the other hand is given shape and form by factors like the physical policy, the monetary policy, the industrial policy resolutions, physical limits on output, the price and income trends, the nature of the economic system at work, the tempo of economic development, the national economic plan etc. The non-economic environment has economic implications just as the economic environment may have non-economic implications. Since the environment is sum total of the history, geography, culture, sociology, politics and economics of a nation, the interaction between the economic and non-economic forces is bound to take place.
2.4.1 International Environment:

Diamond is rarely available in India. Panna mine in Madhya Pradesh is the only operative mine in India, produces diamond in small quantity, which is insignificant for the diamond industry in India. Thus diamond industry in India depends both for its raw materials and markets for cut and polished diamond on foreign market and economic forces operating therein.

Major diamond mines in world are at South Africa, Central Africa Republic. Congo, Botswana, Tanzania, Lesotho, South West Africa, Guinea, Ghana, Guyana, Siberia and also scarcely in USA, Venezuela, Brazil, Australia etc. Diamond from these mines reach to the DTC sight holders, from where it is imported by different countries for their industries. Some of these diamonds producing countries are affected by terrorist and separatist activities. This group smuggled diamonds to different countries and uses this money for financing their terrorist activities. These unauthorised diamonds is known as conflict diamond and world business group, mainly from USA has banned the use of such diamond.

Major markets for cut and polished diamond are in USA, UK, Belgium, Japan, Hong Kong etc. and these are traded through New York, Houston. Antwerp, Valenza, Dubai, Panyu, Hong Kong, Bangkok, Surat, Mumbai etc. international trade and business centers for diamonds. As such whole of the Indian diamond industry can be compared to an export zone developed on the Indian soil.
World Map Showing Diamond Mines and Market for Indian Diamond.

Figure 2.1
Figure 2.2  -  Indian Diamond Mines
Indian diamond industry is often described as a ‘miracle’, ‘mini-revolution’ or a ‘gamble’. Each of these types of short description represents a certain point of view from which the industry is seen. When a few enterprising diamond merchants started buying the rejected diamond from the open market in Belgium, they were really taking a chance in the world of diamonds. But the Indian artisan cutter and polisher largely from Surat and Navsari converted this gamble into a positive achievement. It is not an exaggeration to say that the diamond industry in India, which gradually develops after this decision, was perhaps the best utilisation of waste. It amounted an innovation because it created an entirely new market for smaller diamonds. Thus gems of hundreds of dollars a carat was created out of semi gems or industrial waste.

Diamond industry in India is a direct outcome of the rapidly increasing demand for small diamonds in the international market. This continuous growth of demand combined with scarcity of labour in the foreign market provided perhaps the most powerful push to the growth, development and proliferation of this industry in India. India again had some traditions in the cutting and polishing diamonds, hence it was not difficult for its work force to learn this skill. It was combination of these circumstances along with abundant supply of labour, which initially provide the impetus for this industry to expand in India.

2.4.2 Socio-Cultural Environment for Growth and Proliferation:

Major part of development of diamond industry in India is remained confined to Gujarat, more particularly a few districts of Gujarat. At the level of state some important factors of socio economic origin have
helped growth and rapid proliferation of the diamond industry. In the first place, traditions relating to this industry existed in Gujarat. Cutting and polishing of diamonds was carried out in Surat and Palanpur and to an extent at Cambay. Jains of Palanpur were in offices of princely states and dealt with the diamonds and other jewelleries for their masters. During this courses they got expertise in diamond business. Though the activities of this group were limited it has provided the basic foundation for the expansion and subsequent proliferation of this industry into the various parts of Gujarat. Another factor which have contributed to the rapid growth of exports is the fact that Indian diamond merchants are spread over all important centers i.e., New York, Houston, Antwerp, Valenza, Dubai, Panyu, Hong Kong, Bangkok etc. of diamond business. Majority of the export nearly 90 per cent is based on the activities of diamond units of Gujarat and 50 – 60 per cent of these are cut and polished at Surat. For this reason Surat is also known as the “Diamond City of India”. Diamond industry of Gujarat offers the most exciting example of rapid industrial growth, dispersal and widest possible proliferation of small-scale industries in Gujarat. It is an industry which needs small capital base and even can be started at residential complexes. The skill required for becoming an artisan for diamond cutting and polishing can be acquired within a short period of one to three months. One artisan worker working at a particular unit brings his relatives and neighbours to the unit for learning the job and in most cases this training is imparted at the unit at free of cost and the trainees are later absorbed by the units after acquiring skill. Similar is the case for the assorting personnel. In this case generally merchants or unit owners brings their family members at an early stage to the business to acquire the knowledge of assortment along with business skill and aptitude. If family members are not available relatives are preferred and in its scarcity also members of friends’ family or persons
with some well-known connection from some caste are taken for the job. Normally merchants and their office staff and unit owners and their managers belong to same family and business affairs are kept secret from others. Small capital base, small space requirement, easy availability of skilled workers and indigenous availability of cheap machine tools and accessories and almost no investment on working capital (rough diamond) has helped this industry to grow at a faster space. Artisan workers after acquiring skill and managing a few thousands money can start their own business at their native place provided they can establish a supply chain for rough and cut and polished diamond. Generally the merchant supply rough to the unit owner who are know to them and belong to the same caste and religion. This has created a cartel of people in this industry who are from same caste and religion. These entire situations have helped the business to disperse and proliferate to different places of Gujarat. It is seen that unit owners have contacts with merchants of different places for supply of roughs. Faith and trust among people in this industry and risk taking ability along with entrepreneurial capacity of Gujarati people has helped this business to proliferate into different areas of Gujarat.

The industry in its earlier phase of development started even before the import replenishment scheme was brought into operation. This phase of development was essentially based on indigenous skills and entrepreneurial quality of Gujarati people. These skills got transferred and proliferated in the subsequent phases. In both these phases of its earlier and subsequent developments it has not been assisted in any significant way by promotional policy measures. The Government of Gujarat took some interest by removing sales tax on purchase of roughs and like wise on the diamond powder of finer quality. The government also instituted
training programme and an industrial estate so those units could be located in shade with assured infrastructural facilities.

2.5. **Diamond Industry an Export Earner:**

Exports are given top priority in India, as India needs foreign exchange due to adverse balance of trade. In fact, practice of giving encouragement to exports is followed by almost all nations. Government gives encouragement to export through various schemes. Exports are mainly supported and supervised by ‘Commerce Ministry’ of Government of India. Export promotion Councils have been formed for various product categories. There is a negative list of imports. Barring these items, all other goods can be imported under ‘Open General License – OGL’. Similarly negative list of exports has been made.

Broadly, the export incentives for manufacturers are

a) indigenous inputs without payment of excise duty
b) no excise charged on final product
c) imported input without payment of customs duty
d) no export duty on export of final product
e) bank finance at concessional rate of interest
f) exemption from income tax and
g) exemption from sales tax etc.

To help the diamond and other gems and jewellery product to become a major export earner government of India established Gems and Jewellery Promotion Council in the year 1956. The Gem and Jewellery sector continues to be a leading foreign exchange earner for the country and is one of the fastest growing sectors counting for 17% of total Indian

Gems and Jewellery export basket comprises of

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond</td>
<td>-</td>
<td>80%</td>
</tr>
<tr>
<td>Gold jewellery</td>
<td>-</td>
<td>16%</td>
</tr>
<tr>
<td>Coloured Gemstones</td>
<td>-</td>
<td>02%</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>02%</td>
</tr>
</tbody>
</table>

100%

In the last four decades, since the establishment of Gems & Jewellery Export Promotion Council in the year 1956, this industry has made strides, and is evident from the following export figures.

<table>
<thead>
<tr>
<th>Gems &amp; Jewellery (in Million US $)</th>
<th>Cut &amp; polished diamond (in Million US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968 – 69</td>
<td>62</td>
</tr>
<tr>
<td>1978 – 79</td>
<td>887</td>
</tr>
<tr>
<td>1988 – 89</td>
<td>3145</td>
</tr>
<tr>
<td>1998 – 99</td>
<td>6212</td>
</tr>
<tr>
<td>1999 – 00</td>
<td>8145</td>
</tr>
<tr>
<td>2000 – 01</td>
<td>7779</td>
</tr>
<tr>
<td>2001 – 02</td>
<td>7756</td>
</tr>
<tr>
<td>2002 – 03</td>
<td>9106</td>
</tr>
</tbody>
</table>

- 34 -
Gems and Jewellery Export Since 1968
(in Million US $)

![Graph showing export of Gems & Jewellery and Cut & Polished Diamond from 1968 to 2001](image)


Figure – 2.3

Since inception of diamond industry during 1950 – 60 India has achieved a predominant position in manufacturing of diamonds. India has also transformed itself from mere a manufacturing centre to one of the world largest trading centre for gems & jewellery. India is the largest cutting polishing centre of diamond in the world, which employs a workforce nearly 1.4 million. 11 out 12 diamonds set in jewellery worldwide are cut and polished in India. India’s share in world net imports of cut & polished diamond is

- 60% in terms of value
- 85% in terms of volume
- 92% in terms of pieces
Indian diamond industry is now using latest technology including laser technology and computer aided design, planning and manufacturing processes.

India’s tariff structure in trade friendly regime to boost diamond industry is as follows:-

- Import duty of rough diamonds into India is as 0 % duty without licenses.
- Import of rough coloured gemstones is at 0 % duty without license.
- Import of cut & polished diamond and polished coloured gemstones are at 9.6 % duty.
- Import of precious metals under licenses through nominated agencies are as below:-
  
  Gold – Rs. 250/- per 10 gms  
  Silver – Rs. 500/- per kg  
  Platinum – Rs. 550/- per 10 gms

- Import of precious metal jewellery is under OGL and is allowed to be imported on payment of duty @ 30.6%.
- VAT is not applicable
- There are no surcharge to be paid

There are various scheme for exporter to encourage export like Duty Exemption Entitlement Scheme, Value Based Advance License, Quantity Based Advanced License, Self Declared pass book for Regular
Exporters, Import of materials for job work and Re-export, Manufacture under Bond etc.

The Gem & Jewellery Export Promotion Council runs a number of institutions that provide regular and part time training in all aspects of manufacturing and design. The institutions are as follows:

- Jewellery product development centers in Mumbai, Delhi and Jaipur
- Gem Testing Laboratory, Jaipur
- Indian Gemological Institute, Delhi
- Indian Diamond Institute, Surat (Supported by both government and council)
- Indian Institute of Gems & Jewellery, Mumbai

2.6 Diamond units as Small Enterprises:

Diamond industry is a most interesting example of rapid industrial growth, dispersal and widest proliferation of small industrial units. These industry was started during fifties and growth and proliferation started during the upsurge of trading and industrial activities around sixties of previous century. It is during this period diamond cutting and polishing units established in great numbers in Gujarat. The spread of this industry was rapid in terms of number of units and its expansion covers several cities, towns and villages in Gujarat. To understand this industry along with its proliferation we need some conceptual understanding about the following areas of small enterprise as follows.

a) Nature and operation of small enterprise
b) Entrepreneur and entrepreneurship in small enterprise and

c) Economics relating to small enterprise.

The above areas of small enterprise will give a comprehensive conceptual
framework for understanding the activities of diamond units.

2.6.1 Nature of Small Enterprise:

A small enterprise is a transformation of one man's vision into an
organisation or mission to earn livelihood as well as profit from it. It does
not have an organisation in terms of well-defined managerial or executive
responsibilities. The 'owner - manager' concept applies with great degree
of accuracy in these enterprises. The relationship between the employer
and employee is informal and in most of the cases employees belong to
the same family. In most of the cases a small enterprise starts its
operation as a household business and family members looks after its
operating along with the entrepreneur. This gives the enterprise an
organisational set up which is based on hierarchy derived essentially from
family relationship, Such family enterprise comes quickly because of the
capital requirement is low and capital can be pooled up from family
members and relatives. Again as the capital requirement is low one can
start a new enterprise seeing the success of other.

2.6.2 Entrepreneur and Entrepreneurship in Small Scale Industry:

A small enterprise can not be understood without understanding the
entrepreneur fully. In a small enterprise entrepreneur is the man who
perceives the opportunity, takes the risk to convert the opportunity into a
success. In the enterprise he is the owner and also he himself manages the
entire business affairs i.e., financing, production and marketing also. Such individuals come from various sections of society and may be pioneer in that area to establish a business on the followers in that they become motivated after seeing the success of the first entrant.

Capital requirement in small enterprises is generally low it is not difficult for other to enter into such venture after seeing the success of other. This is the very reason to see small enterprises develop their clusters in different locations. One serious consequence of such an agglomerating tendency is excessive competition among small enterprises especially in areas where such concentration have taken place.

Enterprise which starts in a small way gets the opportunity to become a big concern and may diversity its activities into the related fields. But it is not possible by all units because the entrepreneur behind it generally lacks the knowledge, competency and capital to enter into other related areas. In many cases therefore it is seen that a small enterprise continues to remain small.

A different group of entrepreneurs hails from the artisan community in India. Their technical skills that are largely inherited enable them to design complex components or instruments. Based on their artisan skill, they enter into the small scale industry. These groups normally take the opportunity to become a manufacturer but rarely able to take opportunity to move to the next stage of larger outputs, expanding their markets and larger organisation and management. Artisan skill oriented enterprise normally remains small and due to this weakness the units are exploited by the traders, agents etc. particularly in the area of marketing their product.
In order to avoid government regulations small entrepreneur prefers to establish another such enterprise as against expanding the existing one, which is already in existence. This is to avoid the intricacies of Factories Act and save a portion of capital from outgoing on employees’ welfare.

2.7 **Economics of Small Scale Units:**

A small enterprise has two important features, which determines its economics and explains its operation very well. SSU requires relatively small amount of capital, infrastructure and small gestation period. The second important feature is it lacks a well defined organisational set up. Because of its small capital base SSU’s borrowing capacity remains limited and it remains as a small unit. Because of the second feature it tends to depend upon the entrepreneur. Thus the one-man - the owner-manager entrepreneur, performs supervision, marketing, selling, purchasing and such other functions. Its small capital base makes its owner more conscious about its turnover. This turnover consciousness forces it to accept job work along with its main product. In the initial period till the unit achieve its break-even level of output this features is commonly observed.

Small-scale enterprises have some significant characteristics, which have been attracting attention of the policy makers all over the world, particularly the developing countries in the recent periods. Small enterprises are characterised by low capital input per unit of output. This thing forces it to rely more on labour than capital. As it uses labour intensive technology it generates more employment per unit of capital.
invested. Small enterprises are advocated on the ground that they generated more employment. SSU can be set up within a short period of time. It relies less on infrastructure and therefore can be located even in underdeveloped regions. Thus it can be used to achieve balanced-regional-industrial development. Its growth promotes distribution of economic power and facilitates technological experiments and innovations. Small industries bring the potent entrepreneurs and nourish and develop their entrepreneurial, managerial and risk taking qualities thus help them to become industrialist of future.

These are the general environmental features of small-scale enterprises. For understanding any particular industry we need to understand its typical features and its environments where it operates. The above general industry level discussion will help us to develop a correct prospective to the diamond industry.

2.8 The Nature of Diamond Industry:

The above analysis of small enterprise should provide a very good background for understanding the diamond industry. In its establishment and subsequent proliferation diamond industry demonstrate all typical features of a small enterprise. Diamond cutting and polishing enterprise like any other small enterprise needs very small amount of capital. A smallest unit can be started with two ghanties (polishing machines), two motors and two lathe or even with just two polishing machine and one motor. Similar to many small enterprises, diamond cutting and polishing industry is a labour intensive industry where employment opportunity is very high. Typical pattern of employment in a representative small unit would be as under-
Generally four workers work on a polishing machine which is known as ‘Ghanti’ in diamond industry. From the name itself it can be assumed that this artisan worker does the polishing job. For a single cut and double cut diamond polishing is a three stage affair. These three stages are polishing the bottom facets, polishing the top facets and polishing the topmost surface. These three polishing in diamond industry is known as ‘Talia’ for bottom, ‘Mathala or pal’ for top facets and ‘Table’ for topmost surface. Since one motor provide motive power to two polishing machine one small unit will have at least two polishing machines and eight workers. Similarly one motor can give motive power to 2 to 4 lathes depending on its capacity. Smallest unit will have at least two lathes, which will deploy two workers. Thus a smallest diamond unit will offer employment to at least ten workers. Again to look after the job of workers and other jobs of the enterprise one manager/owner is needed. Thus a typical unit engaged in single cut or double cut would provide job to at least eleven individuals. Similarly a unit engaged in manufacturing princess or chouki, it does not need any lathe for shaping and bruiting. So such unit can be started with just two ghanties, one motor and eight workers on job. Capital requirement in this case is again minimal.

For most of the diamond units this ratio of polishing machines, motor and worker remain fixed and when a new unit is established or existing unit want to expand its operation it has to increase its investment in the above given ratio. The technology for cutting and polishing is simple and the industry uses indigenous machine tools. Easy availability of ghanties, motors and lathes and their low cost made it possible for numerous small units to come up without disturbing the fixed proportion of labour and capital. This has established an interesting pattern of
investment in this industry. Economists might like to examine a diamond unit as a case of constant return to scale, since the expansion from a minimum size takes place in terms of fixed proportions of labour and capital.

A diamond unit is a somewhat different from other small industries in the group of engineering or chemical industries. Engineering group of industry causes major noise pollution which needs strong trees cover to minimise its adverse effect. While the chemical industries generate industrial effluents which is harmful for environment and degenerates land, air and water. In the age of environmental pollution by rapid industrialisation, diamond industry is a blessing. Noise and effluent pollution by this industry is almost nil. It can be started even in a small residential premise. Its requirement for power is nominal. The most important feature is that it is one of the most labour intensive industries and labour can be trained within a short period of two to three months on job training of cutting and polishing. Gujarat is an industrial state where most of its population is engaged in trade and commerce. Traditionally entrepreneurial initiative and organising abilities are abundant among Gujarati people. This congenial environment along with small capital base, easy availability of machineries and abundant supply of trained manpower contributed substantially to the proliferation of diamond industry in Gujarat.

A most outstanding operational feature of diamond industry is personalised dealings based on trust. This type of business dealings suits the small-scale operations. The packets of rough diamonds are handed over to unit owner for cutting and polishing as a consignment on trust. Thus unit owners need not to block money on working capital and it can
be used to increase the operation. If one needs not to invest in rough, cost of establishing a new unit became just half if started in rented premises. Thus in an environment where assured supply of rough is available, a new entrepreneur can translate his vision of establishing a small industrial kingdom become reality. One could always argue that operations in the diamond industry can not be carried out save on the basis of trust. In other words, there does not seem to be managerial alternative to this. Both rough and polished diamonds are very small and constant supervision on each of the workers and every piece one works on is almost impracticable. These peculiar features of operation have forced it to be a trust-based business. Secondly during cutting and polishing operations some pieces of diamond get spoiled to a size which is not amenable to any polishing. In this condition number of polished pieces would not match with the number of roughs brought. In such situation supplier has to believe the unit owner. The other aspect is that good quality rough of one carat gets converted into 45–65 cents of polished diamond, (1 carat=100 cents) whereas poor quality of rough gives only 30–45 cents of polished diamond. There are no fixed ratios of conversions; on the basis of experience one can make some approximate judgment. Thus for quantity as well as for quality suppliers have to rely on the unit owners and labours respectively. In an indirect manner derived from the nature of operation and nature of product therefore the diamond industry has personalised relation based on trust. The diamond industry is a special kind of industry with special features and operations.

Another peculiarity of this industry is the number of months in a year for which it normally works. Diamond units suspend its operations for three to four weeks after Diwali. These may be because workers in this industry come from different places, many of the Surat units depend
on the workers of Saurashtra region and these workers would like to go home at the time Diwali and Gujarati New Year. During the periods of industrial development at any particular place and in any particular industry migrant labours fill demands of the industry. This characteristic is so common in diamond industry that it has formalised the return of labours to home by introducing a vacation during Diwali. Again the units remain closed for one to two weeks during summer. Thus while analysing the capacity utilisation, these vacation periods should be kept in mind. The industry has passed through many ups and down, booms and recessions. It has come through its growth and development stage and now reached to its maturity. Migrant workers have settled down in the cities where they are working, but the industry has not changed its vacation pattern. It is therefore, not possible to explain this peculiar pattern of vacation and thereby capacity utilisation i.e. working for 8 to 10 months in a year on any economic ground.

In other parts of the year unit tends to utilise their capacities depending on the supply of roughs and supply of labours. In some areas power shortage is a main constraint on the path of capacity utilisation. Due to shortage of roughs a typical unit some time suspends its operation in one shift i.e. morning or afternoon or it may operate fewer ghanties or in the extreme case suspend its operation for a short period. Against shortage of labour or heavy absenteeism force the unit to run fewer ghanties. Such ‘transient character’ of this industry can be economically explained only under the following conditions-

a) The unit is very small and has been started for providing supplementary occupation and income to the family. This type of units is available particularly in rural areas.
b) The unit is small and the owner has not been able to establish the required business contacts with the suppliers of rough which leads to discontinuous or intermittent supply of roughs.

c) Absence of labour has led to closure – partial or full.

One serious consequence of such a tendency is that it is difficult to enumerate fully diamond units in any locality. Since the unit is small and its equipments are fairly handy shifting of locations by factory owners is not uncommon. Lower rent for factory premises is the main driving force, which tempt a unit owner to shift to a new location. Some time it is also seen that a unit owner who has failed to establish contact in market made partnership with other was seen during 1969 – 74 in Surat. It was due to trained diamond worker moving to their residential locations to start independent units of their own. This migration resulted into the development of small diamond clusters in Bhavnagar, Palitana, Garaiadhar, Botad and Gadhda. It is also made for starting of small units in Talukas of Surat district. Similarly Palanpur based workers moved to Disa, Danta, and Dhanera to start their own factories. Such type of migration can be seen in Bhavnagar city also. During sixties diamond units were started at Nirmalnagar and later on at Sardarnagar. Workers were coming from villages to these units. During eighties and later on during nineties it is seen that diamond units have shifted its location from heart of city to the periphery of Bhavnagar Municipal Corporation where rent of factory premises are low and areas are proximate to villages from where the labourers are coming. Surat and Palanpur served the role of
informal training centers. This transitory character of the diamond unit basically can be explained by its smallness of operation.

An interesting feature of small diamond units is preference of 'job work' over 'own work'. This nature is seen everywhere in this industry and it is preferred because of its economics. Doing job work is a safer option for unit owners. In this case they need not to invest in working capital i.e., rough diamonds, again the suppliers of rough pay workers. Unit owners get on an average of three rupees per piece of rough diamond processed by the units. Whereas if they start doing 'own work', one has to invest on rough diamond, has to pay the wages to the workers, salary of supervisors, electricity bill, house rent etc thus blocking a huge amount which otherwise can be used for the expansion of ghanties. Though margin in 'own work' is more but one has to involve him in trading as well as in manufacturing. If capital base is less one would not be able to purchase sufficient rough for its full capacity operation, in that case he has to accept 'job work' along with own work for better capacity utilisation and more profit. Due to these very reasons most of the diamond units in Gujarat is operating as a "Job work shop" than as manufacturing unit combining 'job work' with 'main product'. In this industry job-work does not differ from own work in any manner except the costing because the process of cutting and polishing are same for both the cases.

It is not very uncommon that a unit owner doing 'own work' and involving himself in manufacturing as well as in trading of diamond. Trading in the case of diamond industry comprises dealing in roughs and polished diamonds. In larger number of cases dealing in roughs is part of agency or contracting work which is performed by numerous agents.
spread between the sight holders in Mumbai and the cutting and polishing units spread over Gujarat. A small factory owner slips into trading activity temporarily only when cutting and polishing works are not available.

2.9 **Operating System:**

The diamond industry of India in general and that of Gujarat in particular depends upon imported rough for "job work" and "own work". Indigenous supply of roughs forms a negligible proportion of the total supply. The system by which imported roughs reach to the small units spread all over Gujarat needs to be understood. It is a chain of operations in the hands of different agencies after which rough reaches a unit. In terms of basic operations the entire chain can be divided into three broad operations as - major assortment, deep assortment and cleaving and finally processing at units. In major assortment after import, roughs are segregated as per size, colour and shape. In the second stage assorted diamonds reaches to their agencies where it is assorted again on the basis of weight, shape, size, colour etc. Odd sized pieces are marked and cut by laser to required size. Then assorted pieces are counted and weighted and made into packets with required instruction about the necessary cutting to be done. In the third stage the deeply assorted pieces reached to units where pieces are and polished according to the instructions. Later on these polished pieces are counted and weighted and made into packets and follows either the reverse chain or a different chain through which it reaches to the exporters.

These entire chain operations are done by different agencies. Normally major assortment, deep assortment and cleaving are carried out
by sight holders, merchants and agents and processing by unit owners. These operations are carried out as follows.

a) Sight holder owns a diamond unit and hence from import roughs, assortment, cleaving, shaping, processing and exporting forms a series of continuous operations.

b) The sight holder passes on imported roughs in the first round to a commission agent who finishes the assortment and cleaving operations and then passes on the roughs to diamond units for cutting and polishing.

c) The sight holder has partnership arrangements with small agents— who in turn pass on the roughs to diamond units.

d) The sight holder, after assorting and cleaving, passes on roughs directly to units with which he has contractual relations. Such diamond units carry out cutting and polishing operations for sight holders with whom contractual agreement has been made.

e) The sight holder sell a part of his imported roughs which is used for ‘own-work’ against the part for job work by diamond units.

With the changes of time reality has also changed a lot and the operating chain has become much more complex. At present almost all-important centre of diamond industry has developed its own market. Through these markets majority of rough and polished diamonds transects. The wholesale traders purchase majority of imported roughs. Whole sale traders then with the help of agents sell roughs to retail traders and small unit owners for their own-work.. Small traders after
assortment and cleaving hand over the rough packets to unit owners. After cutting and polishing diamond reaches to the small traders. Unit owners doing their own-job generally sell their diamond to agents. An agent also purchases diamond from small traders. Later on after grading the polished diamond as per colour, size, shape and weight agents sell the same to the wholesale merchants who in turn after accumulating sell those polished diamonds to the exporters.

2.10 **Stages of Growth of Diamond Units:**

Roles of an artisan – owner changes over a period of time with the growth of business. These changes can be understood if take a long period of accounts into consideration. Growth of a diamond unit has been observed through the following stages.

a) Artisan – owner stage: In this state an artisan worker somehow manages capital and start his own business. At this stage number of ghanties are small and only job work is carried out. Artisan owner could also operate on the polishing machine as a worker. Relations with co-workers are very congenial and informal. He looks after the entire business affairs.

b) Owner manager stage: During this stage artisan worker expand his business beyond 4 ghanties. Number of labour increases beyond 20 and managing the unit work needs more time devotion. Artisan owner feels it difficult to do the job as a worker along with looking after the business. So he changes his role from a worker – owner to a full time owner – manager. At this stage the unit is in a position to combine ‘job-work’ with some ‘own-work’.
c) Owner – manager – entrepreneur: As the business keeps growing and unit grows beyond 8 – 10 ghanties, owner – manager starts exploring the other opportunities in this business. He starts taking risk and explores the opportunities in trading. At this stage unit starts deciding about the type of job to be done, goes for better equipments, better working premises and combine trading with processing job. As the business grows considerably, he brings his family member for look after the manufacturing and processing work and also sometime promotes some good and trusted worker for the supervisory job. By doing this entrepreneurs get more time in establishing forward and backward linkages in the market. Thus an informal organisational set up comes in, with separate room for manager and supervisors, where assortment and grading works are also taken up.

Industry being predominantly job oriented, most of the units receives payment for the job done which is normally known as “Majoori”. Majoori consists of piece rate wages paid to the workers, overhead expenditures and owners’ remuneration on profit. Job done by each worker is registered per day and they are paid at the end of month. Some time unit gives advance payment in between and entire account is cleared at the end of the month. Roughs are handed over to the unit owner with instructions regarding weight and type of cut to be obtained. Formally it was stated that unit owners do not maintain any book of accounts. From observation it is seen that even a small diamond unit keeps some accounts. Even a smallest unit employs 10 – 15 workers. It is not possible for a unit owner to memorise the amount of job done by each worker for a period of one month. Again quite a good numbers of accessories are used in this industry. If no account is kept, unit owner will
not be able to assess the profitability of his business. Though, these do not fall in line with the systematic account book of a large diamond unit. Secondly, many of the bigger diamond units keep their accounting work with chartered accountants. The later are very knowledgeable but they are not interested to share their business secrets with any one. Thus it is difficult to get full insight into all aspects and operations of bigger diamond units.

2.11 Types of Cut:

Diamond units are engaged in different types of cutting and polishing. There are single, double, chouki, princes, mercury and fancy cuts. Among this single, double, chouki and princes are very common and a small unit gets specialised in a particular type of cut. Occasionally a unit engages in all types of cut. Specialisation at small unit level in fancy cut is almost rare. Usually larger units may do fancy cutting along with other type of work whenever an especially good piece of rough is available. No generalisation can, however, be made on this account as the type of work done depends, among other things, on skills of workers, the quality of roughs received and the equipments used.

2.11.1 Single cut:

One of the simplest works is single cut where each piece is given 16 facets. Though it is simplest the job of processing a single cut diamond passes through number of complicated stages. In the earlier period the job of cutting and polishing used to get completed in two stages – i.e. bruiting and polishing. Nowadays with the specialisation of job, a rough diamond passes through five different stages to become a polished single cut
Figure 2.4

The Facets of a Brilliant

CROWN

SIDE VIEW

PAVILION

TABLE

STAR FACET

UPPER MAIN FACET

UPPER GIRDLE FACET

CROWN

GIRDLE

LOWER GIRDLE FACET

PAVILION

LOWER MAIN FACET

CULET

-52a-
Figure 2.5 - Forms of Diamond Cuts

Eight Cut

Swiss Cut

Modified Brilliants

Oval
Navette or Marquise
Drop Pendelique

Variations of Radiant cut

Brilliant
Heart Shape
diamond. The different stages are as follows: Bruiting is done in two steps—i.e. Ghat and bit and polishing is done in three steps—i.e. polishing bottom 8 facets i.e. pal or Talia, polishing top 8 facets i.e. Mathala and polishing topmost surface that is commonly known as table. Each small pieces of rough are pasted separately on a die and then it is handed over to the worker for ghat making (i.e. shaping on lathe for bottom surface). It is then goes to other worker for table making i.e. top most surfaces. Next it goes to another lathe worker for bit i.e. shaping the top surface. It then goes for polishing bottom facets or talia and then for polishing top facets i.e., Mathala. Each artisan–worker gets different wages for different types of job done by them.

2.11.2. Double cut diamond:

In double cut a diamond has 56 facets. Good quality roughs are used for double cut diamond. It is more beautiful and hence there is a greater demand for it. Double cut diamond passes through same stages of cutting and polishing as that of a single cut diamond only difference is that it has 56 facets instead of 16 facets for single cut. Only lower quality diamonds which are not amenable to double cut are used for single cut.

2.11.3. Fancy cut:

Diamond pieces of very good quality and bigger sizes are normally used for fancy cut. In this type of cutting diamond is given the shape of the rough i.e., minimising the wastage during cutting and polishing. Different types of fancy cuts that are commonly in use are baguette, princess, trapeze, rose, king, fish, butterfly, cross, star, horse head etc.
Figure 2.6  -  Fancy Cuts of Diamond

Emerald Cut Rectangular

Emerald Cut Square

Baquette

Trapeze

Princess Cut

3-facet rose

6-facet rose

Double Dutch Rose

Simple Dutch Rose

Antwerp Rose

Fish

Butterfly

Cross

Star

Horse’s head
2.11.3.a Baguette (Chouki) Cut diamond:

It is a special type diamond of rectangular shape, which is cut and polished into the shape of a tomb. Like single cut it has 16 facets but processing is somewhat different. Normally roughs that are rectangular in shape are used for chouki cut. In this type of cutting no bruiting is needed and it is only a two-stage procedure. In the first stage shape is given which in the industry is known as dhar and latter it is polished. On small pieces a single worker does the entire job, whereas on good and bigger pieces entire job is done by two workers for dhar (shape) and pal (facets).

2.11.3.b. Princes Cut:

It is a special type of double cut diamond, which is square in shape and has rounded facets. Rough which are square in shape used for this cut? In this type of cut no bruiting i.e., shaping is needed. Processing is only a two step job i.e., polishing facets and polishing table or topmost surface. Smaller pieces are processed by a single worker where as on bigger pieces two worker works to produce polished princes cut diamond. Other types of fancy cuts are not in use in Bhavnagar city.

2.12. Advances to workers “Baki”:

A typical system of advance to the workers was existing in diamond industry. This was known as “Baki”. This particular system of advance was developed on account of i) scarcity of skilled workers particularly during the initial period when growth rate of the industry was higher and faster, ii) competition among unit owners to win away skilled labourers and iii) some compensation to young workers who is coming to
this industry from far away places. But during the recession of 1969 and in the years 1979 – 80 many units suspended their operations and many closed down. Workers returned home and pocketed the advances and never turn up again after the revival of the industry. Thus unit owners suffered losses on this account and at present they are reluctant to pay any advances. With the change of time number of training schools has come up almost at all important centers of this business. They are charging nominal fees and producing sufficient number of skilled labours. Nowadays skilled labours are abundant. With these changes over time the system of advance to workers is almost non-existing. Although during any emergency a worker can get money from unit owners but this is not as an advance but as a loan.

2.13 Technology Used In Diamond Industry:

We have already discussed the different stages through which rough diamond passes before it get converted into a polished diamond. In short a rough diamonds passes through i) assorting ii) planning for required cut as per size and course ness, iii) marking and cutting into required size, iv) bruiting or shaping at factory and v) polishing. Among these first three stages are done either by exporter, agents, traders or unit owners and remaining job is done at diamond units by workers.

Assorting, planning and pen marking jobs are carried out manually while for cutting the bigger size pieces into required size is done laser-sawing machine. Although nowadays there are laser assorting and planning machines available in market but they are not very popular. Shaping and polishing is done at unit level by skilled workers. Earlier in
this industry chalu ghanties and cotoras were used. By using those machines productivity was very low. During last 15 years piece rate wages have not changed but still the industry is surviving and progressing because of its adoptability to the changing technology. Now semi ghanties and electronic cotoras are used which has increased the productivity of a labour 4–10 times of the earlier productivity. On an old pattern ghanti one can produce 10–15 pieces per day where as on semi ghanti using an electronic cotoras one can produce 40–150 pieces depending upon the efficiency of the worker. Nowadays laser machines for bruiting (shaping) and polishing is available but these machines are not very popular and cost effective. Manual system of cutting and polishing is better for smaller size of rough diamond so there is no immediate threat to the labours of this industry.

2.14 Other Aspects:

A small diamond unit generally works in a rented premise. The room size varies as per rent and anywhere between 10’ x 10’ to 12’ x 18’. At present bigger size of halls are commonly seen where 20–30 ghanties are operating at a time. Quite a good number of GIDC shades are occupied by this industry. As per the lay out of the room one finds a small desk for the owner-artisan. In a bigger one a chamber separated by glass shutters well lighted and ventilated is used for owners and other supervisors. Their main job is to hand over roughs, collect polished diamonds from workers and make the required entries. Owners hand over roughs to workers in a small paper pack of different colours to maintain difference among each of the assignments. In the factory room one could see lathes are arranged in one side of the room on a small height table in such a manner that workers can sit on the ground and work conveniently.
Tube lights hang on the ghanties for better lighting. On each ghanties 3 – 4 workers do their job. The unit starts by 7.30 – 8.00 a.m. in the morning. Around 10.30 – 11.00 a.m. there is a tea break. One could see number of the tea stalls, pan shop and small restaurants in the diamond factory areas. Little boys working with the tea stalls move around the factories and supply tea on demand to owner, supervisors and workers. Units suspends work around 12.30 – 2.30 p.m. for lunch break resume its operation after that till 7.30 – 8.00 p.m. in the evening with short tea interval in between. A diamond unit would resemble any holy place in so far as, one has to remove shoes before entering it. This is to avoid small pieces sticking to the soles. In the evening the premises are swept carefully and smallest pieces collected.

2.15 Conclusions:

As discussed above a typical small diamond cutting and polishing unit has all characteristics of a small enterprise and even some more special features which arises out of the peculiar character of the industry and its related trade and business practices. It is owner–managed and its operations are personalised, based on trust. Small capital base, indigenous machineries and easy skill formation have played important role in its rapid growth and quick proliferation. Diamond units are shifted quite often from one part of a town or city to another for the search of small rental premises.

Growth and proliferation is a characteristic of any small industry but its typical emergence and proliferation in Gujarat only is quite peculiar. Number of persons joined this industry like swarms. Such phenomenon was also noticed in the past also. For example, Jamnagar
witnessed phenomenal growth of nylon button and brass component manufacturing in the recent past. Rajkot experienced rapid proliferation of diesel engine industry. Surat witnessed growth and proliferation of handloom industry engaged in silk weaving. This time it was the turn for diamond industry, which has provided opportunity starting from artisan, craftsman, ordinary wage earners, and industrial workers to entrepreneur to join this industry. This industry has broken all barriers and rules of society and brought all groups under it. Phases of transition may be described as artisan owner, owner manager and manager entrepreneur. The industry has contributed a great deal to the social and economic mobility in Gujarat.

Majority of diamond cutting and polishing units are small in size but large, well laid out and well managed factories are not totally uncommon. Normally units specialised in a particular type of cutting and polishing and have adopted itself with the changing technology and environment quite efficiently.
References:


- 59 -