India had been the home of diamonds since times immemorial and a sole supplier of high value gems to the world for over two thousand years till the close of the first quarter of the eighteenth century. The supremacy of the Indian diamond industry crumbled with the discovery of diamond mines in Brazil in 1725 and subsequently in South Africa in 1866. With the depletion of indigenous resources, the industry in India gradually slipped into a state of oblivion and remained dormant from around the middle of the 18th century till the closing years of the 'fifties of the present century.

With a modest beginning, though in the area of small diamonds based entirely on imported roughs, towards the end of 'fifties, the export sector of the industry has made rapid strides during the last two decades. The period following oil price-hike has witnessed an unprecedented growth, export performance of the industry having reached dizzy heights touching the level of Rs 7277 million in 1981-82 compared to about Rs 590 million in 1972-73. From the viewpoint of foreign exchange earnings, the diamond industry contributes substantially to the national economy and plays an
important role as number two exchange earner next only to engineering goods.

Such a phenomenal growth has been achieved by the industry despite an ad hoc and unsystematic approach adopted by it. The industry with its cottage character remains unorganised. The processing and the export marketing sectors are divorced from each other there being complete absence of vertical integration between the two. The existing set-up of the industry is not congenial for technological improvements or research & development for achieving higher productivity, increased per carat yield and product diversification resulting in higher value added content. As against this, in other competing countries the rising tide of technological innovations and developments has paid them rich dividends, more so when their cutting & polishing as well as export sectors are completely integrated and scientifically organised. These competitors have been able to achieve all conceivable economies in the spheres of processing and export marketing of howsoever marginal nature these could be.

The Indian diamond cutting industry and its export sector have immense scope in solving some of the complex socio-economic problems confronted by the country, namely, of (a) accelerating export earnings
and bridging the yawning trade deficit gap, (b) effecting import substitution, thus saving substantial amount of expenditure in foreign exchange on purchase of roughs, and (c) generating employment opportunities for large number of illiterate and semi-literate unemployed. The potential for the industry is enormous when viewed in the context of its low level of investment, minimum requirements of power and freedom from problems of pollution and logistics. The areas which virtually remain virgin and untapped for development and export expansion of the diamond industry include scientific organisation, product orientation and product diversification, research & development, and systematic marketing and distribution. The existing institutional support for export expansion of diamonds being weak needs to be strengthened.

The study of a subject of vital importance to the national economy like diamond industry & trade assumes special significance when one views its personalised, specialised and secretive characteristics. The research work in this area becomes more fascinating and challenging on account of paucity of available literature and lack of awareness of adequate product knowledge on the part of authorities responsible for policy formulation. While traits of the diamond business, especially the malpractices rampant in this trade remain unknown, even trade data is not available in a systematic form both at the national and international levels.
OBJECTIVES

The combination of factors including, in particular, immense scope of the industry to step up exports; capacity to effect import substitution; vast potential to generate employment for large number of persons; non-availability of authentic and basic information on the subject; and the previous background of the scholar constituted a motivating force to select the subject of 'Export Prospects & Problems of Indian Diamond Industry', virtually a virgin field where no worthwhile research work has earlier been done. In an attempt to fill this gap, the various aspects contemplated to be covered by the study were as follows:

i) to bring to focus peculiarities of the diamond business, review the position of the Indian diamond cutting industry, and study its production constraints;

ii) to examine the gains that could accrue to the diamond industry & trade in terms of higher productivity, greater per carat yield, and improvement in quality through improved tools and techniques of processing;

iii) to analyse export trends, India's position in global trade, export prospects and problems of international marketing;

iv) to study the extent of competition and the marketing strategies employed by the competing countries;
v) to evaluate the measures to maximise export earnings in the form of higher value added content through product diversification;

vi) to draw lessons from the success stories of leading centres which have developed their international diamond business acquiring the status of world famous trading centres;

vii) to bring to focus the new developments taking place in various other diamond processing and trading centres;

viii) to assess the effectiveness of the institutional support necessary to cope up with the export effort of the diamond industry & trade;

ix) to suggest the areas of governmental assistance and intervention in the export expansion effort of the diamond sector; and

x) to evolve a strategy for systematic and scientific development and export expansion of the industry.

RESEARCH DESIGN

The preliminary research design for the study was prepared and submitted to the Panjab University in October 1980 along with the research project. The Research Board of the Panjab University approved the research topic and the preliminary design in March 1981. During the course of the study, the original design has been modified and its scope enlarged to
enable an indepth analysis of the major identified issues in an integrated manner. The initial examination revealed that the most important impediment in boosting exports of diamonds from India was one of strengthening and organising the supply base, world markets being, by and large, firm especially in the segment of small diamonds of prime export interest to the Indian diamond industry. The final research design, which constitutes the basis of the presentation of this thesis, was inevitably required to adopt an interdisciplinary approach encompassing all the areas of diamond industry & trade.

Selectivity Approach

While selectivity formed the keynote of the sample in each category of respondents, the interviews generally followed the monadic research design. Identification of enterprises and respondents was done to ensure representativeness and proportionality of the sample to the universe before embarking on the field investigations. The criteria for the selection of survey units comprised firstly the size of the unit as reflected in the f.o.b. value of exports during 1979-80, secondly the degree of integration of processing activities, and thirdly the geographical
dispersal of the units as detailed below:

i) The top 32 exporters accounting for about 60 per cent of the total exports with individual exports above Rs 10 million were selected; 50 units exporting between Rs 5 million and Rs 10 million, and 40 units with export performance below Rs 5 million were identified for intensive investigations.

ii) With a view to determining the degree of integration of processing and marketing activities, the respondents were classified into the following six categories:

a) DTC sight-holders with cutting & polishing facilities of their own and having foreign sales outlets;

b) DTC sight-holders without cutting & polishing workshops of their own but with foreign sales outlets;

c) DTC sight-holders without cutting & polishing factories as well as foreign sales offices;

d) Non-DTC sight-holders with their own cutting & polishing workshops and foreign sales outlets;

e) Non-DTC sight-holders without processing facilities but with foreign sales outlets; and

f) Non-DTC sight-holders acting only as merchant exporters.
iii) To identify the problems unique or peculiar to different areas of geographical location, the coverage ensured selection of units from all the major cutting & polishing centres.

iv) Some of the master craftsmen, artisans and IDI trained boys were identified to evaluate the training requirements and the existing facilities available to the industry.

v) Comprehensive questionnaires/check lists (given as Appendices) were designed for each category of respondents identified for eliciting information through mail as well as for personal interviews. The respondents included exporters, foreign importers, factory owners/contractors, master craftsmen and artisans.

**METHODOLOGY**

Considerable amount of preliminary work comprising study of literature and discussions with experts preceded the preparation of scheme for execution of the research project. The entire study was completed in three broad phases consisting of (a) library research and discussions with knowledgeable persons in the industry & trade; (b) field investigations; and (c) collation, analysis and interpretation of data as well as information for preparation of the thesis.
During the first phase, all relevant published and unpublished literature was surveyed in various libraries including those of the Ministry of Commerce, Central Secretariat, Planning Commission, Federation of Indian Chambers of Commerce & Industry, Indian Institute of Foreign Trade and the United Nations at Delhi; Diamond Merchants Association and the Gem & Jewellery Export Promotion Council at Bombay; Gem Testing Laboratory at Jaipur; Indian Diamond Institute at Surat; and the Directorate General of Commercial Intelligence & Statistics at Calcutta. Simultaneously, a detailed and comprehensive bibliography of publications, reports, journals and articles was prepared. In the course of the first phase leading issues were identified and certain hypotheses established. These hypotheses were tested and information collected earlier was supplemented through discussions with leading diamantaires in the trade and the concerned officers in the various Government Departments, especially the Ministry of Commerce, Office of the Chief Controller of Imports & Exports, Ministry of Finance, Department of Customs, Reserve Bank of India and commercial banks dealing with diamond trade. These hypotheses subsequently formed the basis of research design comprising questionnaires and check lists for different categories of respondents.
The second phase of the study was devoted to identification of respondents and for mailing them the questionnaires. The respondents constituted the cross section of interests including diamond merchants, owners of processing workshops and factories, foreign dealers and importers, master craftsmen and artisans engaged in cutting & polishing, brokers and contractors, and trade associations. Simultaneously, the Indian Missions located in important diamond processing and trading centres particularly Belgium, U.K., USA, Japan, Switzerland and Hong Kong were approached to supply relevant material and information in relation to the respective markets. The Commercial Sections of the Embassies and Missions of these countries in Delhi were also contacted for eliciting requisite information in respect of their two-way diamond trade.

The selection of respondents in each category was done to ensure the most representative sample. The selection was done in consultation with the Gem & Jewellery Export Promotion Council and the concerned trade associations. The respondents so identified consisted of 345 units comprising 122 exporters, 90 factory owners and contractors, 75 foreign importers, 55 master craftsmen and artisans, and 3 trade associations, whom questionnaires were mailed. Forty-four replies including 26 from within the country and
from foreign importers, quite many of them partially filled in, were received from the respondents. This response was considered as grossly inadequate.

Since no such study or survey had been undertaken by any individual or organisation earlier, discussions with leading exporters and representatives of the industry & trade revealed that poor response was mainly due to inward looking attitude and closed door policy of the trade respondents being shy in parting with information. Response to mail questionnaires was practically nil from the factory owners, contractors and artisans. This was attributed to absence of knowledge of three R's on the part of respondents of these categories. This inevitably necessitated greater emphasis being laid on field investigations and personal interviews, which were arranged through the good offices of the influential members of the Gem & Jewellery EPC with a view to ensuring maximum cooperation from various types of respondents. In the process, about 100 exporters, 85 factory owners and contractors, and 75 master craftsmen and artisans at different centres like Bombay, Surat, Navsari, Bhavnagar, Cambay, Jaipur, Trichur and Goa were interviewed for detailed personal discussions.

About 20 foreign buyers from USA, Belgium, U.K., Japan, Hong Kong and West Germany, on their
business trips to Bombay, were interviewed to know their impressions about the quality of the product and experience of their business dealings with Indian counterparts. Besides contacting the respondents directly concerned with the DCI and export trade, artisans including some of those trained by IDI were also interviewed to evaluate the training needs and the existing facilities for upgradation of skills.

As part of field investigations, various institutions and organisations directly or indirectly concerned with the diamond industry & trade were also covered. These included the Geological Survey of India, Minerals & Metals Trading Corporation, National Mineral Development Corporation, Mineral Exploration Corporation, Indian Diamond Institute, Gem Testing Laboratory, Indian Standards Institution, Quality Control Wing of Export Inspection Council, Export Credit & Guarantee Corporation, Hindustan Diamond Company Ltd., and Departments of Mines & Geology of Andhra Pradesh and Madhya Pradesh.

Data Collection

Collection of data remained a continuous activity during the course of the research work. The main sources of data included the Directorate General of Commercial Intelligence & Statistics, Calcutta; National Mineral Development Corporation, Hyderabad; Diamond Division

LIMITATIONS

Diamond trade data at the international and national levels suffers from certain limitations. The global trade data available from the international sources, mainly the U.N. Yearbooks of International Trade Statistics includes both cut & polished and roughs. This renders commodity-wise comparisons at micro level difficult, some countries being exporters of only or mainly rough diamonds while certain others being exporters largely or entirely of cut & polished diamonds. Some of the countries are exporters and importers of both categories of diamonds, though in a varying degree.

At the national level also the data relating to diamonds is clubbed with pearls and precious & semi-precious stones. The import-export trade data itself is presented under the heading "pearls and precious & semi-precious stones" without making a mention of diamonds which form over 90 per cent
share of the total two-day trade of this group. Data on cut & polished diamonds, therefore, has been built partly from the trade accounts of the respective countries and largely from the specialised trade journals brought out by the supplying and buying countries.

In the final phase, specific areas of vital importance to the diamond industry & trade like processing techniques, product diversification, marketing strategies, and new developments in the areas of scientific organisation were also covered while analysing the outcome of the earlier two stages of the study. The results of these different phases are coordinated and embodied in this thesis.

CHAPTER SCHEME

The thesis is presented in two parts containing six chapters in addition to relevant appendices, statistical tables, questionnaires & check lists used during the research work, and bibliography. Part I of the thesis embodies analysis of different peculiarities of the diamond business, the status of the Indian diamond cutting & polishing industry, and its production constraints. The second Part containing five chapters discusses export prospects and problems of the Indian diamond industry & trade.
Chapter II on Indian Perspective in World Diamond Trade examines various aspects like global import-export trade, India's position in the world, place of the diamond export sector in the country's export mix, export trends and future prospects. Chapter III embodies a succinct account of the emerging dimensions of international competition including success stories of the leading processing and exporting countries, developments like discovery of new diamond mines in the world, emergence of new production or processing centres, and technological innovations in the areas of tools and techniques of production. Chapter IV analyses the problems of export marketing besides discussing the strength and weaknesses of the marketing as well as distribution system in India, and marketing strategies and practices adopted by the competing countries.

In Chapter V has been outlined a comprehensive strategy for export development right from the stage of stepping up of indigenous availability of roughs; improvement in cutting & polishing; diversification to include processing of high value large diamonds in fancy shapes, and production of precious metal diamond studded jewellery with additional value added content; and creation of necessary institutional infrastructure.
in terms of developmental and promotional measures such as hall marking facilities, creation of a jewellery design centre, upgradation of skills, re-orientation and strengthening of marketing strategies, and necessary service support in the form of diamond bourses and office of diamond controller. Besides, areas of governmental assistance and intervention for attaining the optimum level of exports have been discussed in this chapter. The last part of thesis preceding appendices, statistical tables, questionnaires and bibliography is the Chapter on Summary of Conclusions and Recommendations.