

## II C. SCHEME TO ENHANCE THE EFFICACY OF TRANSFER OF TECHNOLOGY

### 1. INTRODUCTION

The scheme to Enhance the Efficacy of Transfer of Technology (SEETOT) consist of the following components:

- ☞ National Register of Foreign Collaborations and Technology Management (NRFC & TM).
- ☞ Transfer and Trading in Technology (TATT).
- ☞ Promotion and Support to Consultancy Services (PSCS) including Consultancy Development Centre (CDC).

The activities and achievements under each of the above components are indicated in the following paragraphs:

### 2. NATIONAL REGISTER OF FOREIGN COLLABORATIONS AND TECHNOLOGY MANAGEMENT

#### 2.1 Objectives and Activities

The primary objective this component of SEETOT is to facilitate efficient acquisition and management of technology.

Major programmes and activities that have been undertaken under NRFC & TM include:

- ☞ Compilation and analysis of data on approved foreign collaborations
- ☞ Studies on issues relating technology development and management of technology
- ☞ Programmes focusing on collaborative work in the area of TM with academic institutes

- ☞ Training programmes on varied issues related to TM for the benefit of industry, academic institutes, R&D organizations and others
- ☞ Case studies covering specific management of technology aspects in respect of manufacturing and research organizations
- ☞ Industry-institute networking

Issues relating to Technology Management are steadily gaining importance. As a result, the focus on Technology Management oriented activities has been on the rise and so have programmes and related activities in this area. The programmes are being implemented in close association with technical and management institutes, universities, research organizations, major industry units and associations, Government Departments and bodies both at the State as well as the Centre, industry training institutions, small and medium enterprises, entrepreneurs, international bodies and consultancy organizations. During the year, in addition to a number of on-going activities, some more need-based programmes and activities have been taken up.

#### 2.2 Compilation and Analysis of Data on Approved Foreign Collaborations

An annual compilation of foreign collaborations approved during each year is brought out regularly. These compilations include information relating to the names and addresses of Indian and foreign collaborators

and the specific items of collaboration. The publication is only one of its kinds and is much sought after as an authentic record of foreign collaboration approvals in the country. Compilation for the year 2002 is in progress.

## 2.3 Studies on Technology Development and Management

2.3.1 A study on technology status and potential of vegetable dyes industry in the country has been undertaken by UP Industrial Consultants Limited, Kanpur. The scope of the work for the study involves identification of various plants useful for production of vegetable dyes, assessment of availability of various plants and their quantity, cultivation process to maintain ecological balance, current demand pattern of vegetable dyes in India and abroad, etc. The study also covers sector-wise demand pattern covering the sectors of textiles, paper, leather industry and foodstuff. A broad synopsis of the study is given below:

Natural dyes are classified as monogenetic and polygenetic dyes. Monogenetic dye materials produce only one color on textiles irrespective of the mordants. Polygenetic dye materials develop different colors according to the mordants applied. The common sources of vegetable dyes are:

- ☞ Parts of plants such as leaves, flowers, fruits, seeds, barks, roots of dye yielding plants.
- ☞ Minerals such as Prussian blue, Red ochre and ultramarine blue
- ☞ Animal origin materials such as lac, cochineal, kermes.

The major advantages for use of vegetable dyes are that:

- ☞ The raw materials for production of vegetable dyes are available in plenty in the country.
- ☞ The vegetable dyes do not cause any harm to human skin and no hazards are anticipated in their manufacturing, rather some of the dyes act as health care products.
- ☞ Chemical reaction is almost absent in the manufacture of vegetable dyes and no pollution problems. All these dyes are harmonized with the nature.

The limitations of vegetable dyes, which at times lead to bottlenecks in its development, are:

- ☞ The process of dyeing is complicated essentially due to non-availability of technical knowhow and trained manpower.
- ☞ The problem of these dyes is to get secondary colours, which is a big drawback and restricts its versatile use.
- ☞ The yield of color from the plant is very low.
- ☞ Due to use of heavy metals as mordants, the discharge from the unit is enriched with huge amounts of organic contents causing pollution and disposal problems.

In India, wide range of climatic zones has resulted in a rich diversity and thus many sources of natural dyes. There are about 200 dye yielding plants found in the country out of which around 50% are found in the Himalayan region. The most famous vegetable dyes are Madar,

Indigo and Majitha. In the report, 28 dye stuffs have been identified which can be commercially exploited for the manufacture of vegetable dyes for various uses ranging from food, pharmaceutical cosmetics and dying of fabrics like cotton, silk and wool.

The use of natural dyes has increased gradually during the years. The main users are hobby groups, designers, traditional dyers and printers, museums, academic institutes and research associations. In India, the major consumers of vegetable dye stuff are:

- ☞ Carpet Industry
- ☞ Silk sarees and cloth manufacturers
- ☞ Food industry
- ☞ Handicraft industry and others

The report has discussed state-wise consumption of vegetable dyes in the country and it has estimated a total vegetable dye consumption of about 35000 tons in the country.

The report has given following suggestions to promote production of vegetable dyes:

- ☞ Use of standard dyes both in the form of paste and powder manufactured by leading companies in our country be promoted through training and education to enable artisan to produce more qualitative and standard textiles in vegetable dyed form.
- ☞ Most of the dyers and dye manufacturers are tribals and village people who are practicing vegetable dyes since many generations. These people need to be given training in a phased

manner for vegetable dye manufacture in order to achieve standard results.

- ☞ Vegetable dye has tremendous scope for value addition particularly for use in food production, pharmaceutical and cosmetic industry. Appropriate R&D projects needs to be taken up in this field by various institutions.
- ☞ Public awareness may be generated through advertisement and holding of workshops and seminars etc. with regard to the benefits of using vegetable dyes vis-à-vis chemical dyes.
- ☞ Forward and backward linkages to resource base and market, are important aspects of promotion of this industry. It is suggested that organized farming of vegetable dye plants be encouraged.
- ☞ To develop this industry, vegetable dyeing units may also be set up which will use vegetable dyes exclusively to dye fabrics at commercial scale. In addition to this existing process houses may also be encouraged to use natural dyes in place of synthetic dyes.

2.3.2 A study on the status of “Technology Management Education in Select Countries” that was assigned to the Indian Institute of Technology, New Delhi has been completed. A gist of the study is as follows:

In the present era of open economy and rapid changes, corporate strategies the world over are being increasingly technology driven. Effective management of technology results in distinctive corporate technological competence, which can

become a primary tool for achieving competitive advantage. In this context, education and training in technology management assumes considerable significance. Information presented in the report is on the basis of details collected through publicity material of educational institutes, and those available on Internet.

The study has brought out a profile of the select programme in three major regions viz North America, Europe and Asia Pacific. The importance of technology management was first recognized in North America, followed by Europe and Asia-Pacific. The area of technology management has moved from a narrow focus on R&D Management to Strategic Technology Management and Innovation Management. Majority of the technology management related degree programmes are at the postgraduate level as master of Science or MBA programmes; very few institutes offer technology management at the undergraduate level.

The major areas of importance in these programmes are Management of Technology and Innovation, New Venture Management, Strategic Management of Technology and Management of Technology Transfer.

The majority of the institutes also offer executive programmes as short/medium – term certificate courses to long-term executive masters and executive MBAs. Distance education in Technology Management is also being explored to a limited extent.

The extension activities in Technology Management are taking place in the form of conferences, seminars and workshops.

Recommendations made in the study are on model technology management education, global networking of experts/ centres, short term programmes, e-learning, role of professional societies/ associations, industry-institute interaction, etc.

2.3.3 Technology has played a significant role in all round development of the country since independence. Generally there are two ways of acquiring technology. It can be developed through own research and development or it can be purchased from indigenous or imported sources. India has opted for a judicious mix of indigenous and imported technology. Purchase of technology is commonly called ‘Technology Transfer’ and it is generally covered by a technology transfer agreement.

With opening up of Indian economy more and more Indian companies are entering into technical, financial and other forms of collaborations. However, not all the collaborations are successful, even if, they are covered by proper technology transfer agreements. For a variety of reasons disputes arise in implementing the collaboration agreements. Keeping this in view, a study on “*Disputes in Technology Transfer Agreements*” was assigned to Consultancy Development Centre, New Delhi and has been completed.

Information presented in the report is on the basis of desk study on the subject and replies received against

questionnaire, which was followed by personal visits to industries involved in technology transfer.

Dispute is a very sensitive subject involving reputation of a company; hence many respondents were not open to information. Generally during the course of implementation of collaboration agreements, industries get into minor or major disputes. However most of the problems were resolved mutually through discussions at departmental or board level. In a number of cases legal processes were initiated but there were out of court settlements. Only in a small number of cases the matter reached court or arbitration council. However, some companies have been able to use litigation/legal notice to successfully bring the opposite side to negotiating table. One major factor for not pursuing the cases in court or arbitration council was the high cost of litigation and difficulty in enforcing the award in a foreign country.

The disputes mainly related to payment of fees/royalty, passing on of unproven technology, delay in completion of projects, receiving obsolete technology, licensor competing with the licensee with the latest models in India, lack of after sales back up, IPR issues like use of trade mark, quality and cost of product, supply of raw materials and components, technology upgradation, incomplete data/drawing, etc.

Recommendations made in the study report include emphasis on transparency and trust in dealings, creation of in-house technology development cell to keep track of the

latest technologies, willingness of licensor to share information on improvements and modifications on continuous basis to, clarity in defining agreement terms and others.

2.3.4 A technology status study on “*Guar based industries in the country*” has been taken up and entrusted to UP Industrial Consultant Limited, Kanpur. The scope of this study involved analysis of production and distribution trends of Guar seed, sources and availability of raw materials consumed by the Guar gum industry, trends in the growth of Guar based industries in the country with specific reference to installed capacity, capacity utilization, product-mix, production, etc. Also to assess the performance of selected Guar based industries in the country so as to ascertain their problems relating to raw materials availability, technology available, need for development of better technology, the scope for expansion/ diversification, exports and likely growth of the market size during the next five years. The study would assess technological level of the existing manufacturers vis-à-vis the requirements so that a product range could be made globally acceptable and competitive. It is also required to assess gaps in technology in use and availability of suitable plants and machinery equipments, etc. The draft study report has already been discussed in the Evaluation Committee meeting. The study is being finalized.

2.3.5 A study on “*Women Representation in-Corporate R&D*” has been taken up and entrusted to Indian Institute of Management, Calcutta. The study

has been taken up with the objective to examine the determinants of women leadership in various corporates. The study is to analyse both socio-cultural factors relating to women leadership in Science and Technology areas as well as linkages between the national cultural and organizational processes and practices. Reasons for slow growth of women professionals in research and development fields, factors relating to organization culture and leadership that influence performance of a women, specific gaps in our industry, strength and weaknesses in these industries are among the issues that is required to be covered in the study. The study is being finalized.

- 2.3.6 A study for “*Development of a Model for Evaluation for Innovations in SMEs*” has been taken up in association with Indian Institute of Science (IISc.), Bangalore. The objective of the study is to develop a model of innovation in select entrepreneurial technology based small and medium enterprises. These SMEs would be drawn up from amongst information technology, precision tool engineering, and machine tool and pharmaceutical industry. The study, while investigating the status of innovation in entrepreneurial firms, will highlight the nature of innovation and strategy being followed overall. It would also provide a model that firms could use in analyzing their own innovation process and develop a long term innovation strategy. The objective of the study is to identify variables that facilitate innovation in a small technology based Indian entrepreneurial organizations; also to

develop a model that measures innovative pursuit in a small technology based such organizations also measuring them in the Indian context. The study is in progress.

- 2.3.7 A study on “*Aromatic Medicinal Plant Species in the State of Sikkim*”, their status and strategy for development has been taken up and entrusted to North Eastern Industrial Consultants Organisation Limited, Guwahati. The overall objective of the study is to assess the potential of aromatic and medicinal plant species in the State of Sikkim and to propose a strategy for its development. The study would collect information on the occurrence and availability of commercially important essential and medicinal plant species in the State of Sikkim. The study will lead to a systematic and scientific documentation of plants, which have already been identified as well as less or little known plants which are rare and endemic to the region with their botanical name, common name, parts used with medicinal and biocidal value. It will study the present collection, grading, and utilization for commercial purposes and economic benefits, pricing and marketing mechanism for these plants and suggest strategies to improve its effectiveness and suggest profiles of commercially viable projects based on them. It will also assess the export & indigenous market potential for these plant based products, assess the present level of technologies being used for preparation of medicines from the herbs or plants and identify suitable technologies for manufacturing these products also the technologies that need to be developed in this

respect and assess the viability of commercial plantation of these species, found suitable for commercial exploitation. To suggest ways and means to propagate and regenerate important plant species of the state. The study is in progress.

2.3.8 A study on “*Potential of Handloom and Spice Processing Industry with special focus on technology in the North East*” has been taken up. The study is being conducted by the North Eastern Industrial and Technical Consultancy Organisation Limited, Guwahati. The main objective of the study is to find out the interventions required for introduction of appropriate technology, equipment and up-gradation of skills which will enable the products produced in the region to get wider market acceptance at competitive prices. Interventions at appropriate levels will encourage value addition to products and also raw/semi processed products to go outside the region. This in turn, will develop and upgrade the socio-economic scenario of the region by generation of employment and income.

The study would involve survey of the existing units (both under household and commercial level operations), identification of concentrated areas of the skills involved, size of the units in terms of cost involvement (project cost etc.), their technical, financial and economic status, present market coverage, product pricing, marketing channel, willingness for expansion, modernization and diversification, constraints, assistance’s required etc. Also availability of raw materials (Yarns etc. for the handloom sector

and different spices for the spice processing sector) covering their quantitative and qualitative assessment, procurements, prices, nearest markets or sources of procurements. The study is in progress.

2.3.9 A Study on “*Status of Technology in selected Cottage and Tiny Industries of Madhya Pradesh and Chhattisgarh*” has been taken. It has been entrusted to Madhya Pradesh Consultancy Organisation Limited, Bhopal. The objective of the proposed study is to select two industry groups in the selected districts of Madhya Pradesh and Chhattisgarh to assess the following:

- ☞ The present status of technology in existing Cottage & Tiny industries.
- ☞ The need for technology upgradation in existing cottage and tiny industries
- ☞ The present potential for productivity enhancement and value addition in existing units.
- ☞ The present export potential of the products produced by existing cottage and tiny industries.
- ☞ The present status of import substitution in existing cottage and tiny industries.

The study will encompass selected units in Madhya Pradesh and adjoining Chhattisgarh State. In each selected industry group and selected district about 400 cottage & tiny industries will be covered with a presumption that at least 50% of these industries will provide relevant useful information. Thus in selected eight districts about 3200 cottage and

tiny units will be covered. The study is in progress.

- 2.3.10 The need for achieving synergies of the technology chain through integration of business strategies with technological strategies is one of the most critical challenges facing organizations towards pursuit of excellence in industrial supply chain management. It is not only important to have an adaptive approach towards the changes in technological strategies to meet the changing business environment, it is also equally, if not more, important to have a proactive approach towards the technological strategies through innovations and augmentations which can influence the business environment in favour of the organisations. Therefore a study on *“Influences of Integration of Technological Strategies with Business Strategies of Large Public Sector Organizations and their Small and Medium Scale Suppliers”* has been taken up with the objective of studying the influence of technology change on a large scale organisation and the resultant impact on the technology capabilities of its vendors/ancillaries. The study is under progress.

#### **2.4 Programme Focusing on Collaborative Work in the Area of TM with Academic Institutes**

In order to give a thrust to TM related aspects in academic institutes, efforts were intensified. Quite a number of institutes are taking deep interest in TM related issues. Quite a few of them have conducted orientation programmes for their faculty and students and others have

organized specific interaction meets and discussion forums for participants drawn from industry, research institutes and other organizations. Active collaboration has been established with a few of these institutes to catalyse their efforts in the sphere of TM.

The work is being carried out with IIT, Bombay, IIM Calcutta, IIT Delhi, ASCI Hyderabad, Regional Engineering Colleges and other academic institutions covering many areas like modules and sessions on TM aspects, specific industry case studies, newsletters, research work etc.

The division has organized specific programmes with RECs, other Universities and Technical Management Institutes during the current year. In the process, it has sensitized importance for need based course modules on TM issues through their specific interactions with these academic institutes.

Research/ case studies have been assigned to different institutes on various aspects of TM inclusive of BITS Ranchi, XLRI Jamshedpur, TAPAI Management Institute, Manipal, PSG Institute of Management, Coimbatore etc.

#### **2.5 Training Programmes on Various TM Related Issues for the Benefit of Industry, Academia R&D Organizations and Others**

There has been adequate focus on imparting training on specific issues of TM and creating awareness for technology related issues in every aspects of decision-making. In this



endeavour, different packages tailor-made to suit individual needs of seeking organizations has been one of the major features of the training packages offered. During the year training programmes have been organized in association with different academic institutions, research organizations and others. Some of them are given below:

- ☞ A one day training programme for trainers was organized in association with Karnataka Council for Technological Upgradation at Mysore. Delegates were mainly from institutions in Karnataka.
- ☞ A Management Development Programme on R&D Management was organised at IIM, Calcutta for the fourth time this year.

## 2.6 Case Studies Covering TM Aspects in respect of Manufacturing and Research Organizations

It is important to study and analyze the manner in which technology is managed in companies in the Indian scenario. Such studies are important firstly for pedagogic use. Management institutions that have ventured to teach specific modules in Technology Management have very little Indian case material to bank upon. These studies also provide useful inputs to consultants and executives from industry. As such a number of case studies relating to different manufacturing and research organizations have been taken up in recent years.

These studies *inter-alia* cover the specific technology strategy of the

company studied, the manner in which the technology strategy is dove-tailed with its business plans continually, the manner in which technology scanning and forecasting is done, its R&D management strategy, the methodology it adopts for acquisition of new technology, the schemes employed for protection of technology, its strategic decision making on issues relating to acquisition or development of new technology, technology decisions in its marketing strategies and other such issues revolving around technology management.

During the year, following three case studies have been completed.

- ☞ Study on “*Leveraging Technology in Supply Chain Management*” – A case study of Bharat Petroleum Corporation Limited, Mumbai.
- ☞ Study on “*R&D Effectiveness in Indian Industry*”.
- ☞ Study on “*Organizational Implications of Implementing New Technologies*”: A case study of Mahindra & Mahindra Limited, Mumbai.

## 2.7 Industry-Institute Net-Working

Under a Memorandum of Understanding (MOU) with the Karnataka Council for Technological Upgradation – a joint effort of the Government of India and the State Government of Karnataka – a number of activities related to Technology Management have been initiated. The programme is currently in its first phase. The activities include specific cluster study reports, bringing out a periodic publication, organization of training

programmes and workshops on specific Technology Management related issues and awareness generation programmes.

A TM Centre has been established at PSG Institute of Management, Coimbatore. The objective of the Centre is mainly to act as a resource base for TM related activities for furthering knowledge in the field of TM. The Centre would thus serve to provide information on an on-going basis in respect of TM related issues. An industry focus has been selected for the purpose so that close linkages between industry, technical, management and research organizations can be forged effectively.

A number of activities are being taken up at the Centre which include: counseling and training for development of human resources for implementation of TM programmes; undertaking of studies focusing on specific industry related issues; providing services and guidance to small and medium enterprises in business innovation and TM; conducting seminars and workshops to enable interaction between different interest groups; enhance TM capabilities in select SME clusters and introduction of TM related modules at the post graduate level at the institute to enable fresh students imbibe essential aspects of TM so that they are better equipped to cope up with the competitive situation they would face; publication on different TM aspects for increased knowledge sharing and others.

Apart from enhanced awareness of

TM issues through periodic newsletters, focused training programmes and guided lectures, practical implementation of TM aspects addressing the specific needs of local industry are also being taken up at the Centre.

## **2.8 Industrial Technology**

The industrial technology activities have historically been dealt by DSIR wherein proposals received from Secretariat for Industrial Approvals (SIA) for grant of Letter of Intent (LOI) and / or Foreign Collaborations (FC) with or without import of capital goods, extension of Foreign Collaboration by Indian entrepreneurs, foreign entrepreneurs/ organizations, from Non-Resident Indians (NRIs) and those willing to set up 100% Export Oriented Units (EOU). During the postliberalisation period, this is continued based on proposals received. The following are the highlights:

### **2.8.1 Industrial Licensing**

About 110 proposals for grant of Letter of Intent/ Carry-on-Business, Extension of Letter of Intent, etc. were received during the year and 8 meetings of Licensing Committee were held by SIA during 2002.

### **2.8.2 Meetings Concerning Foreign Collaborations and Others**

The Department received around 520 proposals from Secretariat for Industrial Approvals. These excluded such proposals involving foreign investment, which were directly considered by the Foreign Investment Promotion Board.

During the year, the Department participated in the 8 meetings of the Project Approval Board and 8 meetings of the Board of Approvals for 100% Export Oriented Units held by SIA.

### 3. TRANSFER AND TRADING IN TECHNOLOGY

The Transfer and Trading in Technology (TATT) taken up during the year 1986-87 has been mainly aimed at documenting technological expertise and capabilities, preparation of technology profiles of select developing countries, and enhancing export efforts in the area of technology transfer through seminars/workshops, and video films. Since the beginning of Ninth Plan period, programmes have been evolved mainly to project our technology related capabilities. These included compilation and dissemination of technology export related publications and encouraging exporting organisations including R&D institutions to participate in international trade fairs in India and abroad. It is presently an activity under the component SEETOT of TPDU.

#### 3.1 Objectives

The TATT scheme mainly aims to promote technology intensive exports including export of technologies, projects and services. The measures adopted include:

- ☞ Supporting studies aimed at documentation and analysis of India's technology export capabilities in select sectors, technological requirements of other countries, technology export related policies and associated IPR issues, etc.
- ☞ Creating awareness about India's technological capabilities through workshops, trade fairs, delegations

and video films.

- ☞ Supporting demonstration of exportable technologies, overseas as well as within India.
- ☞ Supporting Small and Medium Enterprises (SMEs) in their efforts towards value addition and export production.
- ☞ Facilitating linkages between R&D/academic institutions and industry in hi-tech areas for technology trade and exports.

#### 3.2 Projects/Activities

Details of some of the projects/activities completed or in progress during the year are given below:

##### 3.2.1 *Publication on Technology Exports and Exportable Technologies*

The publication contains information on technologies actually exported as well as technologies having potential for exports. The publication analyzes the data on technology exports and exportable technologies and highlights export trends in terms of sectors, destinations etc. Besides containing details such as brief company profile, details of exportable technologies available with the company, preferred mode of technology transfer, preferred export destinations etc, there is a separate section giving details of technologies actually exported. The publication serves as a ready source of reference to foreign customers who are looking for technology business partners from India. The target audience for the publication includes foreign embassies/missions in India, Indian embassies/mission abroad, foreign business delegations visiting India and Indian delegations going abroad,

exporting organisations and consultancy companies. The publication is being brought out annually, in association with Indian Institute of Foreign Trade, New Delhi. Publication containing information and data on 250 technology intensive organisations, pertaining to the year 1999-2000, was brought out during the year.

### **3.2.2 *Newsletter on Technology Exports***

A quarterly Newsletter on Technology Exports, initiated during the year 1998-99 was continued. The Newsletter is being compiled by IIFT under the guidance of an Editorial Board, comprising of representatives from DSIR, IIFT, EXIM Bank, Ministry of External Affairs, ITPO and Waterfalls Institute of Technology Transfer. The Newsletter includes a lead article, details on technology export related policies, technology developments – globally as well as within the country, joint-ventures abroad, India's achievements in technology related exports, technology offers & requests etc. The Newsletter has been greatly appreciated by industry, embassies/missions, export promotion councils and other international bodies. The Quarterly Newsletter on Technology Exports was continued during the year.

### **3.2.3 *Technology Trade Pavilion 2002 at India International Trade Fair, New Delhi, November 14-27, 2002***

The objective of setting up a Technology Trade Pavilion is to promote display and dissemination of information related to technological capabilities, high value added

products and technologies of companies and organisations including R&D laboratories, academic institutions, product design institutions, consultants etc. The Technology Trade Pavilion was setup jointly by DSIR and India Trade Promotion Organisation (ITPO) for the sixth year in succession since 1997. The space in the Technology Trade Pavilion was offered free (cost shared equally by DSIR & ITPO) to the R&D laboratories and other small and medium scale organisations engaged in technology intensive business. A space of 1000 sq. mtrs. was reserved in Pragati Maidan this year for the Technology Trade Pavilion.

Around 55 organisations, both from public and private sectors including national R&D laboratories participated in the Technology Trade Pavilion. These included Council of Scientific and Industrial Research, Central Mine Planning and Design Institute Ltd., Shriram Institute for Industrial Research, Central Electronics Limited, HEG Limited, Central Ground Water Board, National Research Development Corporation, Mecpro Heavy Engineering Ltd., Bharat Heavy Electricals Ltd., Technology Export Development Organisation, HMT Machine Tools Ltd., MR Morarka GDC Research Foundation, NCCBM, TIFAC, Shyam Telecom etc. The participating organisations in the Pavilion displayed their technological capabilities through models, prototypes, interactive computer based displays, charts, machinery/product samples, etc. Awards for Best Display and Technology Innovation were given.

The Pavilion helped in promoting one-to-one interactions and business negotiations between the participating organisations displaying their technology intensive products, technologies, machinery, services, etc. and the potential customers of Indian technology and services. These interactions, including those between R&D system and industry, generated many business enquires, besides creating awareness about technological capabilities of various institutions and industries.

### **3.2.4 Seminar on International Technology Trade, October 10, 2002, Pragati Maidan, New Delhi**

DSIR in collaboration with ITPO organized a seminar on “International Technology Trade” to:

- ☞ discuss perceptions and experiences of select industries, R&D establishments, foreign embassies, international trade promotion agencies etc. on international technology trade; and
- ☞ evolve facilitating mechanisms for promoting international technology trade.

The seminar was attended by around 150 delegates from industry, consultancy organisations, export promotion agencies, R&D laboratories & institutions, government departments, academic institutions, including representatives from around 10 foreign embassies/missions. The inaugural address was delivered by Dr. R.A. Mashelkar, Secretary, DSIR. Dr. George Assaf, UNIDO Representative & Regional Director gave the keynote address. Dr. Mashelkar said that countries around the world could be plotted in

one of the four quadrants determined by two variables viz. scientific capacity and economic strength. It may be recognized that India lies in the quadrant associated with high scientific capacity but moderate economic strength and would have to formulate different strategies for technology transfer to countries in different quadrants. He urged that IPR laws need to be modulated to suit our needs and industry may take advantage of Indian brain-power, which is one of the best in the world. Dr. Assaf talked about UNIDO’s report on industrial development and the industrial development score board of 87 countries. He highlighted that while China improved its position from 61 to 37 on the scoreboard between 1985 and 1998, India’s position has remained unchanged at 50. Dr. Bischoff, Director, APCTT said that Germany has established a strong innovation infrastructure and set up innovation centres to promote international technology trade. Mr. Kang, DG, KOTRA said that composition of Korea’s trade has shifted towards technology intensive products such as semiconductors, telecom equipment, aeronautical products, computers etc. recording an average growth rate of 9.4% and a share of 32% in Korea’s exports. He classified modern technologies into six major sectors, viz. Information Technology, Biotechnology, Environmental Technology, Nanotechnology, Space Technology and Cultural Contents Technology and described Korea’s status and performance in each sector. He mentioned that there are strong possibilities of joint ventures between Indian and Korean

companies. M/s. Panacea Biotech, S.K. Dynamics, IICT and C-DAC shared their experiences in developing and transferring internationally tradable technologies. The seminar also included presentations by NID, IIFT, NISTADS, NRDC, CDC and EXIM Bank aimed at facilitating international technology trade.

### 3.2.5 *Technology Export Development Organisation*

The main objective of the Technology Export Development Organisation (TEDO) - a Cell jointly setup by DSIR and CII in April 2000, is to promote and support technology and technology intensive exports through collaborative efforts of government, industry, research & academic institutions, financial institutions and other export promotion agencies. TEDO focuses on four areas, namely Agro/Food Processing, Light Engineering, Indian System of Medicines & Homeopathy and Chemicals & Pharmaceuticals. The nature of activities planned include studies, training & awareness programmes, missions, fairs and seminars, technology demonstrations, etc. Programmes undertaken by TEDO during the year include: a study report on *export potential of agro food processing*; expansion and maintenance of TEDO website at <http://www.techbizindia.com>; participation in 'CII's Made in India Show', Kabul, September 26-29, 2002, 'China Hi-tech Fair', Shenzhen, October 12-17, 2002, 'IITF - 2002', and 'IETF - 2003'; and preparation of exportable technology profiles.

### 3.2.6 *Fourth SAARC Trade Fair, Kathmandu, Nepal, October 25-29, 2002*

The Fourth SAARC Trade Fair was organized by the SAARC secretariat in association with His Majesty's Government of Nepal (Ministry of Foreign Affairs) at Kathmandu during October 25-29, 2002. The Ministry of External Affairs and the Ministry of Commerce & Industry of Government of India coordinated India's participation at the SAARC Trade Fair. The India Trade Promotion Organisation (ITPO) was assigned the responsibility to plan and organize the participation of concerned Indian organisations and agencies in the fair. SAARC member countries, viz. India, Nepal, Pakistan, Bangladesh, Sri Lanka and Bhutan participated in the fair. Maldives did not participate. As regards the India Pavilion, around 50 organisations, including export promotion councils and CSIR laboratories participated, covering a wide range of sectors such as pharmaceuticals, leather, food & food processing machinery, specialty chemicals, herbal products, building materials, road construction, plastics, telecommunication, thermal & hydro power, automobiles, bicycles, electrical goods, etc. The DSIR supported the participation of 5 CSIR laboratories viz. National Chemical Laboratory - Pune, Central Food Technological Research Institute - Mysore, Central Leather Research Institute - Chennai, National Botanical Research Institute - Lucknow and Central Road Research Institute - New Delhi in the fair. India was the only pavilion in the SAARC Trade Fair to showcase technology, hi-tech products,

industrial design and R&D. The visitors seemed to be fascinated by display of products incorporating innovative design features and R&D facilities. Although the CSIR laboratories which participated in the fair received a good number of inquiries, some suggestions for improving the response in future are: (a) samples, prototypes, etc. of products developed in laboratories may be carried in bulk for giving away to visitors/business delegations. This would not only help in popularization of lab-based products but may also result in identification of entrepreneurs interested in commercialization of R&D output; and (b) the laboratories may participate along with industrial units which have commercialized the technology sourced from the laboratory, thereby demonstrating the linkages between R&D and industry.

### **3.2.7 *Newsletter on IPR for Export Oriented Industrial Sectors***

Waterfalls Institute of Technology Transfer (WITT), New Delhi was commissioned to bring out 24 monthly Newsletters: "IPR for Industry", focusing on 6 areas viz. leather, sports goods, foundry, knocked down furniture, machine tools and locks. The objective of these newsletters is to create awareness about Intellectual Property Rights among technology based Small and Medium Enterprises (SMEs). It is hoped that the newsletter would help SMEs in taking advantage of the latest technological trends contained in patents, designs, etc. for improving their technological capabilities and enhancing their export production.

Publishing of the monthly newsletters started in June 2000 and the last issue under the project was brought out in May, 2002. A proposal for continuation of the Newsletter is being pursued.

### **3.2.8 *Enhancing Awareness on Industrial Property Information through Workshops – Appraisal and Assessment Meeting on October 24, 2002***

The objective of this project was to disseminate the knowledge and information compiled in the Newsletter – "IPR for Industry" through workshops, involving the concerned industry sectors. A curtain raiser workshop was held on October 19, 2001 at New Delhi to sensitize the concerned industry associations. Workshop on Machine Tools was held on November 9, 2001 at Bangalore. This workshop was organized in association with Central Manufacturing Technology Institute (CMTI), Bangalore and was attended by about 50 participants. Workshop on Foundry was held on November 24, 2001 at Coimbatore. This workshop was organized in association with Institute of Indian Foundrymen and Coimbatore District Small Scale Industries Association (CODISSA) and was attended by around 80 participants. Workshop on Leather was held on December 6, 2001 at Chennai. This workshop was organized in association with Central Leather Research Institute and was attended by around 80 participants. Other three workshops on sports goods, locks and furniture were held on January 11, 2002 (at Meerut), February 6, 2002 (at New Delhi) and March 6, 2002 (at New Delhi)

respectively. The project was concluded with an Appraisal and Assessment Meeting, held at New Delhi on October 24, 2002. Recommendations made in the meeting include enhancing awareness about IPRs, linking R&D activities to IPR creation, promoting and facilitating use of patented technology etc.

### **3.2.9 *Awareness Programme on Technological Needs of SMEs for East African Students***

The objective of the programme being organized by All India Management Association (AIMA) is to create awareness among African students studying engineering in India about the opportunities available for setting up their own enterprises back home based upon the Indian SMEs experience, technology and machinery. It is expected that the students undergoing these programmes would emerge as Indian goodwill ambassadors upon return to their countries. The African Embassies are being requested to sponsor the students for the programme.

### **3.2.10 *Feasibility Study for Export of Indian Technical Know-how in Institution Building & Manpower Training for Construction Industry in Sri Lanka***

The study aimed at identifying the potential for export of Indian expertise and know-how in institution building and manpower training for the construction industry in Sri Lanka. The conclusions drawn from the report prepared by NICMAR are: Sri Lanka has well

developed institutional mechanism for training construction workers which has excess and unutilized capacity; export of construction training technology from India to Sri Lanka is not a feasible option. The recommendations of the report are: co-operation and collaboration between India and Sri Lanka in areas of construction manpower training, construction technology and building materials; undertaking R&D projects jointly by CISIR( Sri Lanka) and CSIR(India); explore possibilities for establishing joint ventures for manufacturing construction machinery and new building materials. The report was finalized in a meeting of the Project Evaluation Committee.

### **3.2.11 *A Strategic Approach to Strengthening the International Competitiveness of Knowledge Based Industry***

The objectives of the research proposal are to study India's export structure in terms of its knowledge intensity compared to some of the South East Asian countries; emerging patterns of FDI inflows and the participation of MNCs in knowledge based industries; outward investments by Indian enterprises in knowledge based industries; export oriented manufacture by MNCs; etc. and draw up strategies for strengthening the international competitiveness of knowledge based industries in the country. It is also envisaged under the proposal, to conduct detailed industry studies in 5 knowledge based sectors. The project is being carried out in four phases. The Phase I focuses on collection of secondary data and carrying out



preparatory work for quantitative analysis. Phase II focuses on quantitative analysis of published literature. Phase III focuses on field survey. Phase IV focuses on final analysis and report writing. Discussion papers were prepared based on Phase I and Phase II and discussed in a meeting.

### 3.2.12 *Centre for International Trade in Technology*

The main objective of the Centre is to conduct research on the emerging issues relating to technology trade agreements of WTO and other international arrangements such as, TRIPs, TBT, GATS, etc. and to identify specific technology related export opportunities for India and to develop training expertise in the area of technology export management. The Center is being projected to act as a “Think Tank” for research and policy related issues on technology transfer and trade. An agreement on the Centre between DSIR and IIFT was signed on June 4, 2001. Under the Agreement, DSIR would provide grant-in-aid to the Centre for a maximum period of three years for salary of faculty/staff and programmes/activities. Activities carried out under the Centre during the year include:

- ☞ Open House Discussion on Union Budget 2002-03 and Exim Policy 2002-07.
- ☞ A study on “*Policies and Incentives for Accelerating Technology Intensive Exports – Exporter’s Perspective*”.
- ☞ An appraisal report on “Industrial Delegations/Missions undertaken by Industry Associations and

Trade Promotion Bodies”.

- ☞ A seminar on “Foreign Direct Investment and Technology Exports” held on September 20 2002 at IIFT, New Delhi.
- ☞ A workshop on “Global Marketing Strategies for R&D Services” held on November 27, 2002.
- ☞ A seminar on “Implications of TBT Agreement of WTO on Exports” held on January 7, 2003.
- ☞ A workshop on “Valuation of Invisible in Technology Intensive Industries” held during February 2003.

### 3.2.13 *Exportable Technologies from Small and Medium Enterprises of Maharashtra*

Maharashtra Industrial & Technical Consultancy Organisation Ltd. (MITCON), Pune was entrusted to prepare a report on comprehensive profiles of exportable technologies from SMEs in the State of Maharashtra. The draft report contains profiles of around 25 exportable technologies in electrical, engineering, food processing, pharmaceuticals and chemicals sectors. The information in these profiles have been compiled based on circulation of questionnaire to the units and one-to-one discussions with them during field survey. The draft report also contains brief profiles of eight African countries and seven CIS countries, which have been prepared based on desk based research of published literature. These countries, according to the draft report, seem to be the potential markets for the exportable technologies. The draft report was

discussed and finalised in an Evaluation Committee Meeting.

### 3.2.14 *Miscellaneous*

Interactions with technology related organisations were continued and strengthened and advisory services were rendered as required. During the year, technology related exports increased in absolute terms as well as a percentage of exports.

## 4. PROMOTION AND SUPPORT TO CONSULTANCY SERVICES

### 4.1 Objectives

The objectives of the Scheme include:

- ☞ Promote and strengthen consultancy capabilities for both domestic and export markets.
- ☞ Support to Consultancy Development Centre (CDC) and other promotional organisations related to consultancy.
- ☞ Human Resource Development including fellowships to bright and promising engineers as apprentices with eminent consultancy organisations, arrange training etc.
- ☞ Support R&D efforts of consultancy organisations and commercialisation of indigenous technologies.
- ☞ Organise Seminars, Workshops, etc. and document consultancy capabilities.
- ☞ Create awareness among users of consultancy.

### 4.2 Activities

Some of the programmes/activities carried out during the year till

December 2002, are briefly indicated below:

### 4.2.1 *Documentation of Consultancy Capabilities and Experience*

As many as 38 reports on consultancy capabilities in specific industrial sectors and at state level have been printed so far under the scheme including two specific reports on (i) *Study of Consultancy Services in India* and (ii) *Policies and Incentives available to Consultants in another countries*. These reports have been widely disseminated.

In addition to above, the following studies were at various stages of implementation.

#### *Study on role of Consultants in R&D and Innovation “Leveraging Knowledge – Consultancy Capabilities and Needs of CSIR”*

With a view to enhance the interactions of R&D laboratories in CSIR system with consultants and widely disseminate their technological and consultancy capabilities to industry and also to explore nature and extent of involvement of external consultants in R&D and Innovation activities of CSIR labs, this study was commissioned at NISTADS. The study has been completed and the final report titled “Leveraging Knowledge – Consultancy Capabilities and Needs of CSIR” is published. The study examines potential of R&D through consultancy and consultancy development in R&D organisations, and in nutshell covers – specific

technical areas, nature of services provided, Intellectual property generated, period of consultancy, amount involved, nature of clients, export of R&D services, R&D collaborations and future prospects, etc. Information on issues related to the involvement of consultants in R&D and Innovations have been collected through a structured questionnaire. One of the findings of the study is that CSIR labs have developed considerable consultancy capabilities in areas of their core competencies and are able to provide consultancy services in these areas.

***Study on Consultancy Needs for improving performance/upgradation of Textile Industry in UP***

With a view to have an assessment of consultancy capabilities available in the state of Uttar Pradesh for Textile Industry and to study consultancy needs for improving performance and upgradation of this sector, this study was assigned to UP Industrial Consultants (UPICO), Kanpur. The study is expected to suggest a total package in terms of consultancy needs for revival and improving performance of Textile Industry in the state, so that it can face the global competition. The draft report of the study has been received.

***Study on Consultancy Capabilities for Small Hydro Power Development in India***

With a view to have an assessment of Consultancy Services in terms of capacity and opportunities for Small Hydro Power Development in the country, the study was assigned at IIT, Roorkee. The study is expected

to give an overview of the status of consultancy services in small hydro-power plants, and study the needs and opportunities in importing and exporting consultancy services, identifying gaps in consultancy etc. The study is under progress.

**4.2.2 *Promotion of Design Engineering Service Centres and Consultancy Clinics***

Though India has developed considerable consultancy capabilities in several areas, consultants need to develop design and engineering capabilities in specific industrial sectors, particularly in the context of globalization, and thus become more competitive. These capabilities would also be useful in commercialising and marketing of indigenous technologies. Also, consultants and consultancy services need to be utilised optimally not only by big and medium industries, but by the small-scale industries as well. Keeping these objectives in view, DSIR has evolved programmes for promotion of design and engineering facilities in specific sectors, such as food processing, textile etc. and consultancy clinics to support SMEs particularly those located in clusters.

***Food Processing Technologies and Services Centre (FPTSC) at Kanpur***

Keeping in view the large concentration of food grain production and food processing industries particularly the SMEs in the state of Uttar Pradesh, this centre has been set up by U.P. Industrial Consultants Ltd. (UPICO), a technical and commercial consultancy organisation of U.P. In

technical collaboration with CFTRI, the centre would help the food processing industries in the North Western region of the country. The centre is functional at Kanpur and is rendering services to the existing entrepreneurs or the new ones desiring to set up food related industries, on payment basis. Some revenues have also been generated by UPICO through the services of the Centre. UPICO-CFTRI has carried out an in-depth survey on potential and availability of raw materials for Food Processing Industry in the state of Uttar Pradesh. This report is printed and is widely disseminated. The pre-operative phase of the project is completed and support for post-operative phase for 3 years has been approved. The pilot plant facilities are being created at CFTRI, Lucknow and laboratory testing facilities at FPTSC, Kanpur, for the use of clients.

#### ***Consultancy Clinic for Textile Industry at Bhilwara***

With a view to provide doorstep professional services for textile industry in particular and other industries in general, this consultancy clinic is set up by Rajasthan Consultancy Organisation Ltd. (RAJCON) at Bhilwara. The clinic started operations, and clients started availing the services of the clinic. However, the progress slowed down due to management problems at RAJCON. DSIR reviewed the project and it was decided to utilise the services of the Institute for Labour Development (ILD), Jaipur which was also an IFCI supported organisation for developing skills and provide

consultancy in the textile sector. However, it could not materialise because of their internal administrative aspects. Now RAJCON is making efforts to reactivate the clinic.

#### ***Consultancy Clinic for Lime Kiln Industry at Katni***

With a view to provide doorstep professional services for lime kiln industry in particular and other industries in general, this consultancy clinic is set up by Madhya Pradesh Consultancy Organisation Ltd. (MPCON) at Katni. The clinic has started operations. Awareness campaigns have been started for clients, and clients are availing services of the clinic. The clinic has also started revenue generation by way of its services.

#### ***Other Proposals***

Similar proposals from other organisations such as National Productivity Council, Gandhi Nagar; AADHAR, Agra; ITCOT, Chennai; etc. were under consideration for consultancy clinics for different SME clusters. A few proposals for setting up of design & engineering and consultancy services centres for areas such as small hydropower development etc. were also under consideration.

#### **4.2.3 Institutional Programme Support**

DSIR has been supporting capital and recurring needs of Consultancy Development Centre (CDC) set up to promote consultancy and implement

programmes towards strengthening our consultancy capabilities.

#### 4.3 Reports / Publications / Papers

The following technical papers/reports relating to technology and consultancy, were prepared and presented in various technical fora.

- ☞ A paper on “*Leveraging Consultancy Services for Industrial and Economic Development: Indian Scenario*” for TCDPAP International Workshop on “Sustainable Development and Poverty Alleviation: Challenges and Opportunities for Consultants” held in Vietnam in November, 2002.
- ☞ Report on “*Leveraging Knowledge: Consultancy Capabilities and Needs of CSIR*”.
- ☞ A draft report on “*Consultancy Needs for Improving Performance/Upgradation of Textile Industry in UP*”.

#### 4.4 Advisory Services

Advisory services were made available to various consultancy related organisations, and Departments in relation to their programmes and activities. Following are examples of participation.

##### 4.4.1 Committees

- ☞ Governing Council, Executive Committee, Membership Committee, Awards Committee for Excellence in consultancy, Review and Technical Committees of Sixth National Consultancy Congress of CDC, Bye-laws and CDPA committees of CDC
- ☞ Consultancy Committee of FIEO

- ☞ Boards of Directors of U.P. Industrial Consultants Ltd., Kanpur and Rajasthan Consultancy Organisation Ltd., Jaipur
- ☞ Ministry of Commerce Committee on WTO negotiations Trade in Services
- ☞ Governing Council of CEAI

#### 4.5 Seminars/Workshops/Meetings

- ☞ Technical and organising committees for Sixth National Consultancy Congress to be organised by CDC at New Delhi in January 15-16, 2003
- ☞ Seminar Committee for International Seminar on Integrity Management and Capacity Building for National Development to be organised by CEAI, at New Delhi in January, 2003
- ☞ Various Committees of IIFT, New Delhi
- ☞ EDP Programme on Dehydration of Fruits & Vegetable organised by Food Processing Technologies and Services Centre (FPTSC), Kanpur
- ☞ TCDPAP International Workshop on “Sustainable Development and Poverty Alleviation: Challenges and Opportunities for Consultants” held in Vietnam, in November 2002

### 5. CONSULTANCY DEVELOPMENT CENTRE

The Consultancy Development Centre (CDC) came into being as a registered society in January 1986, and is functioning from its office at India Habitat Centre Complex since May 1994. The centre is managed and guided by a

Governing Body, the Chairman of which is Secretary, DSIR or his nominee. The Governing Body consists of representatives of consultancy organisations, R&D institutions, Government Departments, academic institutions, public sector units etc. CDC had a membership of 238 as on March 31, 2002, representing various types of consultancy organisations and individuals connected with the consultancy. The CDC has concentrated mainly on development of human resources, providing computerised data/information services, and strengthening of technological and managerial consultancy capabilities through a scheme known as "Consultancy Development, Promotion and Assistance (CDPA)" Scheme. CDC is providing consultancy/training in ISO-9000 and 14000 Quality Management Systems.

### **5.1 DSIR Support**

In accordance with the recommendations of Fifth Report of Expenditure Reforms Commission dated March 7, 2001, pending the approval of the competent Authority for CDC as an Autonomous Body of DSIR, an amount of Rs.39.5 Lakhs was provided as grant to CDC during 2001-02 to meet its essential expenses. Releases for 2002-03 have not been considered so far. However, till the Cabinet approval is sought, DSIR is considering to allow CDC to utilize its reserve funds amounting to Rs. 62.50 lakhs for essential commitments. Besides office space at IHC, the capital assets at CDC include computer systems with peripherals and accessories as well as some software. This facility is used for collection, analysis and dissemination of data, for training of engineering graduates and for small consultants. It is estimated that these investments have resulted in useful

activities for nurturing consultants and users of consultancy for better returns on investments and enhanced earnings of foreign exchange directly and indirectly, besides several other qualitative advantages bringing long term benefits to the country. The centre is equipped with library facilities for consultants.

A Committee was constituted by DSIR to review MOA and formulate Bye-laws, Service Rules etc. of CDC, under the chairmanship of Shri S.B. Krishnan, the then Secretary, TDB. The committee has submitted its report to DSIR which is now under consideration. Against this report, CDC has now submitted its revised MOA, Rules and Regulations, Bye-laws etc. to DSIR for approval, which are under examination.

### **5.2 Technical Consultancy Development Programme for Asia and Pacific**

In order to enhance technological and managerial capabilities as well as the export capabilities of consultants, interactions with international organisations – such as World Bank, Asian Development Bank, African Development Bank, International Trade Centre (ITC), UNIDO, ESCAP, APCTT, have been developed and programmes have been arranged for consultants at national and international levels which have proved to be useful to promote consultancy business. CDC has been identified to be a nodal agency for Technical Consultancy Development Programme for Asia and the Pacific (TCDPAP) by ESCAP. CDC was again nominated

to function as secretariat for TCDPAP upto 2000 AD during its second meeting of Advisory/Promotional Committee. The first general council meeting of TCDPAP held in October 1997 in Dhaka recommended that TCDPAP should be developed as an independent UN identity. The second general council meeting of TCDPAP was held in Kuala Lumpur, Malaysia during April 2000 in which CDC was retained as secretariat for TCDPAP for another 4 years w.e.f. September 1, 2000. The third executive committee and general council meetings of TCDPAP were held in November 2002, in Vietnam.

### 5.3 Activities of CDC

The salient features of the activities carried out by CDC during 2001-02 are as under:

#### 5.3.1 Training/ Skill Upgradation Programme

- ☞ CDC organised 3 short term specially structured training programmes on ISO-9000 Quality Management Systems and ISO-14000 Environmental Management System for consultants and small industries managers, to train them in design, development and implementation of ISO-9000 and ISO-14000 systems.
- ☞ One programme on Marketing of Technologies was organized for R&D labs and consultants.
- ☞ The fifth batch of MS Programme which commenced in January 2001 was continued with 11 students, in collaboration with BITS, Pilani.

#### 5.3.2 Consultancy and Facilitation in ISO-9000 QMS

CDC completed ISO-9000 Facilitation Project of Central Road Research Institute, Roorkee (CRRRI). The project of UP State Bridge Corporation (UPSBC) and Delhi Development Authority (DDA) were continued

#### 5.3.3 Study/Assignments

- ☞ A study commissioned by DSIR on Technology Status and Prospects of Bio-Degradable Plastics in India was completed and final report of the study was submitted to DSIR.
- ☞ A project assigned by DSIR on Development of TQM Web site was completed. This 'TQM' Website is developed as an Indian portal containing different techniques/tools/concepts etc. of TQM and related Management System. It would provide answer to questions and queries from Industry and trainers, etc. through discussion forums and frequently asked question sections. It would also provide a gateway to other related information resources on TQM of standard bodies/certification agencies.
- ☞ The Directory of Consultants, Energy Auditors etc. for Energy Efficiency and Conservation Sector is assigned by Indian Renewable Energy Development Agency Ltd. (IREDA) was completed.
- ☞ The study on Disputes in Technology Transfer Agreements - Case Study awarded by DSIR was under progress.

### 5.3.4 *Database and Information Services*

The database of Consultants and Consultancy Organisations was further augmented during the year, and their profiles were updated on a regular basis.

### 5.3.5 *Developmental Services*

#### ☞ *Contact / Interaction Programmes:*

Two interaction meets each on “Sustainable Development through Energy Efficiency” and “Reconstruction of Afghanistan” were organized. Besides, 10 monthly meets on various aspects of consultancy were also organised.

☞ During the year, CDC had close interactions with the Technical Consultancy Organisations (TCOs).

☞ The centre continued with the scheme for R&D experts as Associates, to utilise their expertise in various developmental activities useful to consultants.

☞ The centre continued the scheme for business developments for consultants through a fortnightly bulletin on Consultancy Business Opportunities – A fast Announcement Service, which gives information on project opportunities likely to emerge in India and in global markets for consultants and professionals.

☞ The Centre continued to provide referral services to clients on nominal cost.

### 5.3.6 *National Consultancy Congress*

The Fifth National consultancy Congress was held on January 15-16,

2002 at New Delhi, with its theme as “Implications of GATS in the Service Sector”.

The Congress was attended by about 350 Indian and foreign consultants, exporters, policy makers, industry representatives, R&D personnel, and others relevant to consultancy. National Awards for excellence in consultancy were given away to three consultants.

Preparations were being made for the Sixth National Congress scheduled to be held on January 15-16, 2003 at New Delhi with its theme “Global Partnering in Consultancy”.

### 5.3.7 *Scheme for Skill Upgradation of Consultants*

Three consultants were provided financial assistance for attending International Workshop in Overseas countries under the skill upgradation scheme, during the year.

### 5.3.8 *International Cooperation*

The second General Council Meeting of TCDPAP was organised in Kuala Lumpur, Malaysia during April 2000. The Second Executive Committee meeting of TCDPAP was held in October 2001, in Three Gorge, China which was followed by an International Workshop on “Ushering in a New Era of International Cooperation between Engineering Consultancy Industry in Asia and the Pacific Region. The Third meeting of General Council and Executive Committee of TCDPAP was held in November 2002 in Vietnam which was followed by an International Workshop on



“Sustainable Development and Poverty Alleviation: Challenges & Opportunities for Consultants.

### **5.3.9 Publications/Brochures of CDC**

One issue of Newsletter “*TCDPAP Focus*” and four issues of Quarterly Newsletter “*Consultancy Vision*” were brought out, and were widely circulated.

## **5.4 Revenue**

CDC has earned a revenue of about Rs. 74.32 lakhs during the year 2001-02 as against Rs. 93.24 lakhs during 2000-01 from services rendered to various agencies, membership, etc.