

V. SCHEME TO ENHANCE THE EFFICACY OF TRANSFER OF TECHNOLOGY (SEETOT)

The "Scheme to Enhance the Efficacy of Transfer of Technology (SEETOT)" covers the following programmes:

- A) National Register of Foreign Collaborations (NRFC)
- B) Industrial Technology
- C) Transfer and Trading in Technology (TATT)
- D) Promotion and Support to consultancy Services (PSCS) which also includes the Consultancy Development Centre (CDC).

Activities and achievements of each of the above programmes are presented here. Although, Industrial Technology is not a part of the plan scheme, SEETOT, the information emanating out of the activities under Industrial Technology is mainly useful for SEETOT and hence it is covered here.

V (A). NATIONAL REGISTER OF FOREIGN COLLABORATIONS

1. PREAMBLE

The "National Register of Foreign Collaborations (NRFC)", which is an ongoing plan scheme, continued its operations during the year 1998-99. It has completed a number of programmes that were targeted for the year.

2. OBJECTIVES AND ACTIVITIES

The main objective of scheme is to facilitate acquisition and management of technology in the country, efficiently. The following major activities are carried out under NRFC & TM:

- Compilation and analysis of data on approved foreign collaborations.
- Undertake studies in select areas.
- Provide assistance in the effective transfer of technology process and efficient management of technology.
- Coordinate with Ministries and other organisations .
- Organise interaction & awareness programs on technology related issues.

Activities undertaken, under the NRFC scheme can be put into following broad categories :

- Compilation and analysis of basic data on foreign collaborations (FCs) approved.
- Studies in selected areas.
- Organisation of Interaction meets to enhance effectiveness of technology transfer process.
- Programmes for enhancing technology management capabilities.
- Programmes for enhancing awareness of Intellectual Property Systems.

3. FOREIGN COLLABORATIONS DATA COMPILATION

The work of in-house compilation of primary data on foreign collaborations approved, continued during the year. The compilation for the year 1997 was brought out. It contained information such as names of Indian companies, the names of foreign collaborators, products covered under the collaborations, duration, nature etc. The compilation for the year 1998 is in progress.

4. STUDIES

A project to study the Market and Development Prospects of Fruits and Vegetables Processing industries in Eastern and North Eastern Regions and Andaman & Nicobar Islands was entrusted to West Bengal Consultancy Organisation Ltd., Calcutta. The main objective of the study was to analyse the growth, performance and bottlenecks of fruits and vegetables processing industries in the region; sources, availability and prices of various raw materials with reference to production and marketable surpluses of different types of fruits and vegetables in the region and identifying potential project opportunities with sources of appropriate technology for ready guidance to prospective entrepreneurs. The report has been finalised. The broad findings of the study are as given below.

India enjoys the first position in the world in production of fruits and second position in vegetables after China. World fruits production is estimated at around 370 million tonne, out of which, India accounts for about 8% (30 million tonne). On the other hand, in vegetables out of 456 million tonne of world production, India produces about 13% (59 million tonne). Inspite of such a high level of production in horticulture sector, only around 1% of the total fruits and vegetables are presently bring processed. However, the total installed capacity of fruits and vegetable processing industry

has been increasing steadily and is estimated around 16.0 Lakh TPA, in Dec, 1995.

The export accounts for around 55% and the domestic consumption 45% of the output of processed fruits & vegetables, of which Defence is the largest consuming Sector. Export of processed fruits and vegetables has also been steadily increasing both in terms of quantity as well as value.

On present reckoning, it is estimated that the fruits and vegetable processing units in the state of West Bengal are 265, in the state of Bihar 22, in Orissa 17, and in the seven states, of North Eastern region, only 38. Although different types of fruits and vegetable are available in the Eastern and North Eastern region, this region accounts for only 9% of total number of units that have obtained FPO licence in the country.

The total production of processed fruits and vegetables in this region for the year 1995 was 41.715 thousand tonne as against the national figure of 11.34 Lakh tonne during the same year. Lack of transport facility affects horticulture because fruits and vegetables are highly perishable, it is specially true for the North Eastern region. This problem is compounded by the lack of an organised market network, due to which much of the produce is sold in the local market. Also because of inadequate storage facilities, a grower tends to involve in "distress sale", not allowing a competitive climate in the market.

The processing units scattered all over the region suffer from the lack of technical knowledge. They are not equipped with well-trained technical staff. As a result of which the quality of finished products is inferior and fetches low return and most of the time they do not find the market.

Fruits/Vegetables either in fresh form or processed are perishable in nature. They require proper packaging. Proper packaging constitutes a major component of cost even to the extent of 60-65 percent of the cost of production depending upon the nature of the products. Packaging materials of proper quality are also not available in some of the states. High cost of packaging materials and its cost of transportation make the products uncompetitive in the market, at the same time, low cost substitute packaging material are yet to be developed in the country.

To give the report a wider dissemination, a meet of industries, entrepreneurs & others was held, where the report was released.

A project to study the Status of Minor Forest Produce (MFP) Based Industries in the state of Madhya Pradesh is being taken up. This is being entrusted to Madhya Pradesh Consultancy Organisation Ltd, Bhopal. The main objective of the study is to gather information and analyse the occurrence and availability of commercially important MFP in each agro climatic zone of the state. It would also analyse the present methods of collection, grading, pricing and

marketing mechanism for the MFP and suggest how to improve its effectiveness and identify commercially viable enterprises based on available MFP. It would also assess the export & indigenous market potential for MFP based products, identify suitable technologies for manufacturing MFP based products and assess the viability of commercial plantation of MFP species, found suitable for commercial exploitation. The study would also identify potential project opportunities with sources of appropriate technology for ready guidance to prospective entrepreneurs.

A project to study the Status and Prospects of Electronics Industry in Eastern and north Eastern States is being taken up. This would be entrusted to West Bengal Consultancy Organisation Ltd, Calcutta. As the production of electronics goods in the region particularly the north Eastern region is very low, the main objective of the study is to analyse the present and future prospects of this industry in the region. It would analyse the trend of growth of electronics industry in the region and identify the constraints if any and assess the growth opportunities in the major products groups, identify sources of technology and also the development efforts required. The study would also contain Project profiles including investment range on the identified opportunities for ready guidance of the prospective entrepreneurs.

A project to study the Essential and Medicinal Plant Species in the North Eastern Region—their present Status and Strategy for Development is being taken up. This study would be entrusted to the North Eastern Industrial and Technical Consultancy Organisation (NEITCO) Guwahati. The basic objective of the study is to collect information on essential and medicinal plant species, their present status with regard to their availability, production, commercial utilization etc. The study would cover identification and systemization of plants with potential medicinal and biocidal value, listing their uses, estimate the available quantity, their commercial utilization and estimation of the present level of technology being utilized for preparation of medicines from the herbs or plants and sources of improved technologies and equipments both indigenous and imported. The study would also suggest strategies for utilization of plants species for commercial purposes and for economic benefit of the region as a whole.

5. TECHNOLOGY MANAGEMENT

The importance of technology management is increasingly being realised by industry, R&D organisations and others. Considering the need for enhancement of the awareness of the subject, knowledge and skills in this area, the DSIR has initiated a number of multifaceted programmes and activities on the subject. The programmes and activities cover organisation of awareness programmes, undertaking studies, undertaking research reports, organising training programmes etc. These were taken in close association with industry, R&D organisations, institutes of management &

technology, consultancy organisations, Government Departments and others.

Case studies on how technology has been managed in corporate settings had earlier been brought out in respect of two manufacturing organisations. Two more such studies are in progress. These studies cover several aspects such as strategy for developing corporate plans for technology, its suitable integrations with business plans, R&D management, organisational structures, factors responsible for technological growth in the organisations, make or buy decisions on technology, methodologies for induction and implementation of new technologies etc. Such case studies have provided useful inputs to decision makers and researchers apart from being very useful pedagogical tools, for academicians & trainers in management and technical institutes including those of industry and others.

Managing technology in research organisations being also of considerable significance, two studies on the subject were brought out. This year two organisations which are oriented towards new technology development were taken up for study. The reports are being completed. These studies have carried out a holistic analysis of the organisational behavior based in numerous issues such as, decision making mechanism, organisational structure, formal and informal mechanism of information exchange, team work, motivation methods, user interaction, communication methods & others. These studies provide useful inputs to similar organisations, apart from researchers, academicians and others.

As bibliographies provide useful sources of information, two bibliographies were brought out during the year. One bibliography relates to books and is grouped under various broad categories such as Research and Development, Management of Innovation, Technology and Society, Science & Technology, Technology Forecasting, Managing Innovation, Technology Transfer, Technology Diffusion and Appropriate technology. The other bibliography is an annotated one covering recent anecdotes and papers on Technology Management published in reputed national and international journals. Again, this is grouped under different categories as the former one. These have been found very useful by the users.

Under the Distinguished Technologists Lecture Series of the DSIR, two Lectures were held during the year. Under this Series, leading technologists, scientists, managers from varied field of technology are being involved to deliver lectures on their experiences in managing technology in the organisations nurtured by them. One of the lecturers specifically covered the subject in a small/medium scale setting.

A module on Technology Management as part of MS Course run by the Consultancy Development Centre in association with Birla Institute of Technology & Science,

Pilani was developed and implemented during the year. The course covered important subjects like, key issues in technology management, technology transfer, technology information, Intellectual Property Rights, Role of Consultants and others.

Assistance has been rendered to IIT Delhi in respect of a Module on 'Technology Transfer' which is a part of a course on MBA with focus on Technology Management. The module has been conceptualized and relevant topics identified. A few sessions were also taken and Guest Lectures by experienced persons from industry & R&D organisations arranged. The IIT was also assisted in the evaluation of the programme.

The DSIR has been conferring awards to industrial organisations to recognise the efforts of industry towards innovative research, technological development and commercialisation of research results. These are awarded in different sectors/areas of industry. With a view to carry out a comprehensive analysis of the studies of technology growth in these DSIR National R&D Award Winning Companies, a study has been undertaken. The study inter-alia covers the performance of award winning technologies and companies in the various segments over the years (1988 till 1996), especially with a view to assess the continuous technological upgradation, economic benefits, survival in a competitive environment, factors leading to technological innovation, upgradation, growth or decline of the technologies awarded, impact of the technology on the total operations of the company, strategy of managing technology and other related issues. The report in the draft form has been prepared and is now under finalisation.

The DSIR has provided inputs to a Workshop on 'Training of Trainers' in the field of Technology Management held at IIT Bombay. Specific Sessions were also taken.

Realizing the need for sustained joint efforts to enhance awareness of Technology Management issues and promote effective utilization of technology management methods, through a networking of the industrial needs, the academic and R&D inputs, a Core Group on the subject has been set up in which industry R&D and Department of Education and the AICTE are closely involved with the DSIR.

The main objective is to suggest strategies for enhancing the knowledge in, and skills in the practice of, Technology Management in educational and industrial systems; to meet the emerging needs of industry, R&D organisations and others in this discipline.

To achieve the above objective in the area of TM, the group is inter-alia working on:

- a) Identification of thrust areas needing attention in the area of TM
- b) Assessing the programmes and courses on TM currently being offered in the country

- c) Identification of the state-of-art in the area of TM, in select industrially advanced countries.

6. INTERACTION MEETS AND AWARENESS PROGRAMMES

With a view to enhance awareness and knowledge in the field of technology management, programmes on the subject were organised. The basic objectives of these programmes have been to apprise organisations, managers, R&D personnel and others of the importance of managing technology efficiently and the intricacies involved there in. Various subjects such as technology strategy, issues in technology acquisition, R&D management and others are covered. During the year, 5 programmes were held as under:

For Shri Guru Gobind Singhji College of Engineering and Technology at Nanded on April 16, 1998.

For Maharashtra Chamber of Commerce and Industries at Pune on May 13, 1998.

For ADOR Thermal Engineering on 13th May 1998 at Pune

For Institute of Entrepreneurship Development on September 22-25, 1998 at Bhubaneswar

For PSG Institute of Management, on August 28-30, 1998 at Coimbatore

Considering the importance of Intellectual Property Rights in the current scenario, three awareness programmes on the subject were organised. These were held at National Academy of Sciences (J&K Chapter) Jammu on 27 April 1998, Administrative Staff College of India on 27 June 1998 at Hyderabad, Consultancy Development Centre on 20 Nov 1998 at New Delhi. A two days Workshop on Patent Writing and Patenting was held at Calcutta on 9-10 July 1998 in association with IIT Kharagpur. The workshop was designed to provide an in-depth information on several aspects involved in patent writing and patenting. Experts on the subject were the resource persons. Institute of Chartered Secretaries was also assisted in organising an awareness programme for their members. The basic objective of these programmes has been to generate greater awareness of the issues relating to Intellectual Property Rights and to sensitize, industry R&D organisations, academia, consultancy organisations and others about the various issues involved in IPR, subjects such as Basic Issues and International Trends in IPR Systems & Procedures etc.

A Seminar cum Exhibition on Opportunities in the Agro Industry was organised on 5th & 6th Nov. 1998, at Calcutta with CII Eastern Region where in the Final report on Market and Development Prospects of Fruits & Vegetables processing Industry in the Eastern and North Eastern Region and Andaman and Nicobar Islands was released.