



## II-C. Technology Management Programme

### 1. PREAMBLE

The Technology Management Programme continued its operations during the period under report and completed a number of activities that were targeted for the year.

### 2. OBJECTIVES

The major objective of the Technology Management Programme is to provide technical inputs and support mechanisms for efficient transfer and management of technology. The beneficiaries are from different spheres of society and include industry organizations, academic institutes, research organizations, executives, faculty and students, researchers, consultants, industry associations, financial institutions, entrepreneurs, small and medium enterprises, Government departments and agencies, innovators and the society at large.

### 3. ACTIVITIES

Several measures have been initiated to generate a knowledge base in technology issues, to facilitate awareness building and provide training and capability enhancement. These measures together effectively complement the other programmes of the Department in the attainment of technological excellence. The major activities undertaken are aimed towards:

- Enhancing knowledge base in respect of technologies specific to the nation;
- Providing information to industry, Government departments, researchers

through Research studies and policy research;

- Promoting industry-institute interaction through setting up resource centers on technology management in appropriate locations;
- Curriculum development exercises;
- Enhancing academic interest through active collaborations with academic institutes;
- Initiating state level agencies and research organizations to take up activities in the realm of Technology Management;
- Information dissemination on Technology Management related aspects;
- Promoting/understanding of Technology Management through case studies of manufacturing and research organizations;
- Conducting awareness programmes, focused training courses, seminars and management development programmes, and providing guidance to trainers.

### 4. WORK COMPLETED/ UNDERTAKEN DURING THE YEAR

During the year, in addition to the on-going work, some more need-based programmes and activities have been taken up.

#### 4.1 Analytical, Technology Status and Development Studies

These studies primarily cover sector-specific status of technology in the country, international trends,

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gaps in technology, research facilities and other such information; in respect of specific identified products and processes. There are also a number of region specific resources and other areas where there is need for indigenous development/upgradation of technology and for value addition, including rural-based technologies, in respect of which information collection and analysis is required, which are also taken up. Suggestions for implementation in areas of their concern relating to technologies can be taken to mitigate problems and enhance efficiency. The reports/findings of studies relating to Castor Oil, E-waste, beel fisheries and bamboo species which had been completed, were widely disseminated to the concerned.

### **Study on Honey and Leechi Industries in the State of Bihar**

The study was initiated in association with Technology Management Centre (TMC) at Institute of Entrepreneurship Development (IED) Patna, Bihar. Survey work was being carried out and the study was under progress.

### **Studies on Technology Management Needs of Flavour and Fragrance Floriculture, Pharmaceuticals and Essential Oils**

The studies were initiated in association with IHBT, Palampur to assess the TM needs of these industries in Himachal Pradesh and nearby regions. Survey work was under progress.

### **4.2 Studies on Technology and Innovation Management Issues**

Studies for harnessing value from knowledge leading to further knowledge creation on technology transfer issues, technology upgradation measures and of in other technology areas - have been taken up. Specific studies for the benefit of small and medium enterprises have also been taken up. The reports/findings of studies on Technology Audit of Fish Processing Industry in the Coastal Districts of Karnataka, Diagnostic and Cluster Development Studies related to Makhana and Rice Clusters in Bihar which had been completed, were widely disseminated to the concerned.

The following are underway:

### **Study on Appropriate Techniques of Cultivation, Processing and Value Addition of selected Herbal and Medicinal Plants in Narmada Satpuda Region**

The study was initiated in association with Technology Management Centre at Madhya Pradesh Council for Science and Technology, Bhopal. The survey work was completed and the report was under preparation.

### **Diagnostic and Cluster Development Study related to Handloom Cluster at Nalanda (Bihar Sharif) in Bihar**

The study was initiated in association with Technology Management Centre, Institute of Entrepreneurship Development (IED) Patna, Bihar. The survey work has been completed and the report was under preparation.

### **4.3 Targeted Research Studies on Specific Issues in Technology Transfer, Technology and Innovation Management**

These studies are to develop an objective understanding of complex situations demanding a focused direction. Such studies not only result in comprehensive information and data collection of a specific nature but also enable analytical decision making. During the period under report, some need based research studies were undertaken.

### **Research Study on Technology Adoption in Tea Industry with special reference to North East India**

The study was entrusted to IIT, Kharagpur with the broad objectives of studying present status of technology; both manufacturing and agricultural; in tea industry; identify competitive priorities in terms of cost, quality, delivery, flexibility, etc. for adoption of new technologies, identify critical success factors and to evolve and implement a framework for adoption of new technologies in the tea industry. The draft report of the study was evaluated by the Evaluation Committee. The final report was under preparation.



### Research Study on Analysis on Resource Use Management of Small Scale Industry in Adoption of recommended Technologies

The study has been entrusted to Tamil Nadu Technology Development and Promotion Council, Chennai. The broad objectives of the study are *inter-alia* to develop a scale to measure the usage of resources by industries and to suggest strategies for effective resource use management for enhancing the productivity of small-scale industry. The draft report of the study was under preparation.

### Project on Venture Capital: Life Support Source for Development of Innovative Technology, Products and Services

The study has been entrusted to IIT, Roorkee. The broad objectives of the study are to study the current pace of venture capital/private equity in India. The report would cover details pertaining to the total number of the deals taking place annually with total investment, sector-wise and industry-wise; would identify the priority areas of investment for venture funds in the past compared to the present with reasons and foresee any change in the priorities in the future. A study of international practices in the process of providing venture funds for the development and marketing of new technologies, products and services would be included. The survey work has started and the study was under progress.

#### 4.4 Case Studies covering Technology Management Aspects

The objective is to generate learning from best practices and to study and analyze the manner in which technology is managed in Indian enterprises. Apart from being useful for pedagogic use, these case studies also provide useful information to consultants and executives from industry.

### Case Study on Scientific Evaluation of Market Availability and Export Potential of 10 Selected Medicinal and Aromatic Plants

The study was initiated for local people in the Narmada Satpuda Region of Madhya Pradesh in association with Madhya Pradesh Council for

Science and Technology. The survey work has been completed and the report was under preparation.

#### 4.5 Collaborative Work with Academic and Research Institutes

In order to give the necessary thrust to formal education and develop a base of teaching tools on technology management aspects, the Division has been collaborating with academic institutes, especially those concerned with technical and management education. Different activities, inclusive of management development programmes and projects on technology and innovation management in association with IIM Ahmedabad, IIM Kolkata and IIM Indore are under progress. Work taken up at IIT Bombay, IIT Kanpur, IIT Delhi, IIT Madras, IIT Kharagpur had progressed. Projects undertaken in partnership with other institutes, including IMI, New Delhi, IHBT, Palampur and others have also progressed.

#### 4.6 Industry-Institute Networking with Industry Associations, State-level Research and other Agencies on Technology Management

During the year, the Division has continued its interaction with several State level bodies across the country with increased vigour, apart from its continued collaboration with research institutions. Collaborative activities have been taken up in partnership with Madhya Pradesh Council of Science and Technology, IED Patna, CII Gurgaon, FICCI New Delhi, Indian Council of Small Industries, Kolkata and Tamil Nadu Technology Development and Promotion Centre, Chennai etc.

#### 4.7 Centres for Technology Management (CTM)

Centres for Technology and Innovation Management have been set up by the Division in different locations of the country where there is access to information on aspects concerned with the subject that are of specific interest to the region of concern, expertise to advise and provide guidance on issues concerned with technology management, and generate long-term as well as short-term solutions. The activities taken up have

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been wide ranging: training, research, cluster development studies, case studies, scouting innovation, manpower development, interfacing between academia and industries, data generation, sharing of knowledge and providing solutions to industries, preparation of technology related policy studies, developing training tools and modules. The following Centres continued their operations with enhanced activities.

### **Centre for Technology and Innovation Management at IHBT, Palampur in Himachal Pradesh**

With the objective of developing technology management capabilities in the State of Himachal Pradesh and adjoining areas to serve as a resource center, this Technology Management Centre was set up at IHBT, Palampur in Himachal Pradesh. The progress of the project is being continuously reviewed by the Project Review-cum-Guidance Committee. To assess the TM needs of the industry in Himachal Pradesh, an extensive survey and diagnostic studies in relation to flavoured fragrance and other features covering the area of floriculture, pharmaceuticals and essential oils were under progress. A Workshop on Technology and Innovation Management was also organized. A data base on industrial and entrepreneurial technological needs and capabilities was created and was launched on website of TIM.

### **Centre for Technology and Innovation Management at IED Patna, Bihar**

With the objective of developing technology management capabilities in the State of Bihar and to serve as a resource center, this Technology Management Centre is being set up at Institute of Entrepreneurship Development at Patna in Bihar. The Project Review-cum-Guidance Committee identified priority activities/areas for the first year of implementation based on the need and relevance of the State of Bihar and accordingly work was initiated. The targets of the first year activities were already achieved in the previous year and during 2<sup>nd</sup> year, 4 Short-term Training Programmes of 5 days duration, one each on 'Post Harvest Technology for Rice and Milling', 'Packaging Technology for Food Processing',

'Hygienic Clean Milk Production and Processing' and 'Technology for Handloom Production' were organized and a total of 117 trainees were trained, a 3-months training programme for 30 participants was organized on technologies for Herbaceuticals, Herbal Cosmetology and Aromatic, 6 Technology Management Awareness Workshops were being planned. In addition, one diagnostic and cluster development study report on Handloom Cluster as well as a research study on honey and leechi industries in the state of Bihar are underway. The portal development, publishing of newsletters as well as consultancy/guidance to industry/entrepreneurs were also being implemented.

### **Support to the existing Centre of Innovation and Technology Management at IMI, New Delhi**

With a view to develop technology management capabilities and create a greater awareness about Technology and Innovation Management, targeted training programmes for trainers and awareness programme were supported at IMI, New Delhi to be carried out by the existing Centre for Innovation and Technology Management at the institute. A workshop on Creation and Dissemination of Knowledge and a training programme on Interfacing Social Sciences with Management Education were organized.

### **Centre for Technology Management at Madhya Pradesh Council of Science and Technology (MPCST), Bhopal**

After successful completion of Phase-I activities under the Technology Management Centre, Phase-II activities were started. Based on the suggestions made by the Project Review Committee, the work was taken up on the activities based on the need and relevance of the industry for the State of Madhya Pradesh in consultation with the State functionaries and organizations. The Centre has organized 2 workshop-cum-awareness programmes and an exhibition on 'Commercial Cultivation, Value Addition and marketing of Medicinal as well as Aromatic Plants' and 'Strategic Planning for value added commercial cultivation', etc. in the State of Madhya Pradesh, and 2 training programmes on 'Scientific Techniques of Cultivation, Processing and Market Potential of



MFPs and Aromatic Plants'. The Centre continued providing technical consultancy services to the industries, in addition to bringing out newsletters on TM Issues.

#### 4.8 Information dissemination

To enhance understanding and appreciation of the importance of aspects concerned with management of technology, mechanisms for information dissemination on technology management aspects have been initiated. These include: Newsletters, Manuals, Paper contests on specific technology related issues, Compilations of articles, Audio-visual aids, Portals and others. Information that is region specific, or relating to globally world wide emerging aspects, or nationally important issues, or sector specific information and even general educative articles are all included to impart the requisite information and value, depending upon the actual medium or product, and its specific use.

##### Newsletters

The Division has been bringing out newsletters on specific technology management aspects in association with TM Centres at MPCST Bhopal and IED Patna.

##### Portals for information dissemination

Portals and other interactive media have been developed in association with TM Centres at IED Patna, MPCST Bhopal and IHBT, Palampur, to provide contemporary information on a periodic basis. Other portals that had been developed in different regions with the support of the programme continued to remain functional.

#### 4.9 Training/Interaction meets/Seminars/Management Development Programmes

- 4 Management Development/Training Programmes of 5 days duration each on 'Post Harvest Technology for Rice and Milling' at Patna, 'Packaging Technology for Food Processing' at Patna, 'Hygienic Clean Milk Production and Processing Technologies' at Patna and 'Technology for Handloom Production' at Bhagalpur were

organized under Technology Management Centre by IED Patna, Bihar.

- 3-months Technology Management Training Programme on 'Herbaceuticals, Herbal Cosmetology and Aromatic' was organized at Patna under Technology Management Centre by IED Patna, Bihar.
- 2, two days Workshop-cum-Exhibition on 'Commercial Cultivation, Value Addition and Marketing of Medicinal and Aromatic Plants as well as on Strategic Planning for these plants' were organized at Jabalpur and Indore, respectively under Technology Management Centre by MP Council of Science and Technology, Bhopal.
- 2 training programme-cum-exhibitions on 'Scientific Techniques of Cultivation, Processing and Value Addition of Medicinal and Aromatic Plants' were organized at Betul and Pipariya in Madhya Pradesh under Technology Management Centre by MP Council of Science and Technology, Bhopal.
- A Workshop on 'Technology and Innovation Management Issues in North West India' was organized at Shimla under Technology Management Centre by IHBT, Palampur.
- A three-days Workshops on 'Creation and Dissemination of Knowledge' was organized at New Delhi under Technology Management Centre by IMI, New Delhi.
- A training programme on 'Interfacing Social Sciences with Management Education' was organized at Goa under Technology Management Centre by IMI, New Delhi.
- A workshop on 'Technology Needs of Ancillary Industries to survive in competition' was organized at Durgapur in association with ICSI, Kolkata.
- A workshop on 'Technology Needs for Transforming Identified Forest Items basically non-wood herbal species into pharmaceutical ones' was organized at Shillong in association with ICSI, Kolkata.