

## II - B. TECHNOLOGY DEVELOPMENT AND INNOVATION PROGRAMME

The programme has two sub-components, viz. Technology Development and Demonstration Programme to support technology development efforts of industry-R&D system and Technopreneur Promotion Programme (TePP) to nurture the innovative spirit of individuals.

### 1. TECHNOLOGY DEVELOPMENT & DEMONSTRATION PROGRAMME

#### 1.1 Objectives

The programme aims at catalyzing and supporting activities relating to technology absorption, adaptation and demonstration including capital goods development, by involving industry and R&D organizations. The specific objectives of the programme are:

- supporting industry for technology development, demonstration and absorption of imported technology
- building indigenous capabilities for development and commercialization of contemporary products and processes of high impact.
- involvement of national research organizations in joint projects with industry
- technology evaluation in selected sectors.

#### 1.2 Activities

The Department provides, on a selective basis, partial financial support to research, development, design and engineering (RDDE) projects proposed by industry in the following areas:

- Development and demonstration of new or improved product and process

technologies including those for specialized capital goods, for both domestic and export markets.

- Absorption and up-gradation of imported technology.

The partial financial support by DSIR in the above areas, primarily covers prototype development and pilot plant work, test & evaluation of products from such R&D, user trials, etc. Bulk of the cost of the project is met from industry's resources.

The Department, under this activity has so far supported about 190 R&D projects of Industrial units. These projects cover products and processes in various important industries such as metallurgy, electrical, electronics, instrumentation, mechanical engineering, earth moving and industrial machinery, chemicals and explosives, etc. 108 projects have so far been completed and over 35 technologies developed under the scheme have been commercialized or under commercialization. During the year, 56 Technology Development Demonstration projects supported under the scheme were reviewed for progress.

The details of the various projects of industrial units are given below:

#### Chemicals And Fertilizers

##### *Haryana Leather Chemicals Ltd, Haryana*

The Project of the company for "Development of Technology for Cross-linked Polyurethane Dispersions" has been supported by DSIR. The lab samples have been tested at CLRI. The pilot plant is operational and the product samples have also

been tested for the desired specifications. The project is completed.

#### ***Pennwalt Ltd. Mumbai***

The Project of the company for “Coating of Chemical Process Equipment with Fluoropolymer and other High performance Powders” has been supported by DSIR. The company has undertaken the coating trials of the fluoropolymer compositions, which do not have any inflammable solvents in ordinary oven. A specially designed Solvent Venting Oven has been utilized for the fluoropolymer coatings containing inflammable solvents. The performance trials and test runs are under way. The project is completed.

#### ***Engineers India Ltd., Gurgaon***

The project of the company for “Development of Membrane Technology for Natural Gas Separation” in collaboration with Indian Institute of Chemical Technology, Hyderabad and ONGC, Hazira has been supported by DSIR. The project aims to develop and commercialize the membrane technology for carbon dioxide separation from natural gas to meet the pipeline specification. Activities completed under this project include Laboratory facility set up/study at IICT, small scale set-up/study at EIL, Development of Mathematical Model and Design Engineering of pilot plant. This Pilot is being installed at ONGC-Hazira where commissioning/ test run would be carried out so as to generate adequate data for analysis. The project is under progress.

#### ***Haryana Leather Chemicals Ltd, Haryana***

The Project of the company for “Development of Technology for Polymeric Fat liquors for Upholstery Leather” has been supported by DSIR. The lab samples have been tested. The design of the pilot plant is

under preparation. The project is under progress.

#### ***Forest Research Institute (FRI), Dehradun***

The project of the institute for “Identification, Development and Utilisation of Natural Dyes from the Forest Plants of Uttranchal” has been supported by DSIR with a financial support of Rs.25.16 lakhs out of a total project outlay of Rs.61.32 lakhs. Ministry of Environment & Forests (MoEF), New Delhi is also supporting the project with an equal financial support, thus making total support of Rs.50.32 lakhs. The project is based on forest waste, which is available in plenty. Under the project, natural dyes are proposed to be extracted from 5 plant materials. The pilot plant has been installed and trial runs are being conducted by FRI. Natural dyes for use by textile manufacturers, dyers, paper and pulp industry etc. are the expected yield. The project is under progress.

#### ***Schevaran Laboratories Pvt. Ltd., Mysore***

The project of the company for “Development of product for control of Psychrophilic and Psychrotrophic Food Spoilage Micro-organisms in Cold Storages” with the help of Central Food Technological Research Institute, Mysore has been supported with a grant of Rs.8 lakhs out of total project cost of Rs.23 lakhs. The company has developed an eco-friendly formulation especially for cold storages, cold storage carriers and refrigerators, which will be effective at temperature below 8<sup>0</sup>C and will not be toxic to human beings. The developed formulation will also be biodegradable. The product is being tested by CFTRI, Mysore.

#### ***T. Stanes and Company Ltd., Coimbatore***

The project of the company for “Establishing & Producing Bio Control Agents and their formulations on Pilot Plant Scale” has been

supported by DSIR with a grant of Rs.180 lakhs out of the total project cost of Rs.375 lakhs. The company will establish a pilot plant to produce bio control agents through submerged/diphasic fermentation. The formulations to be manufactured will be useful in insect and diseases control in various plant. The project is under progress.

## **Drugs & Pharmaceuticals**

### ***Bal Pharma Ltd., Bangalore***

The project of the company for “Process Development for the manufacture of 3-amino-3-azabicyclo [3.3.0] Octane” has been supported by DSIR with a financial support of Rs.50.00 lakhs out of a total project outlay of Rs.150.26 lakhs. The compound AAO is used as raw material for the production of anti-diabetic compound Gliclazide. The raw material AAO is presently imported from China, which is expensive. The project is under progress.

### ***TTK Healthcare Ltd., Bangalore and Sree Chitra Tirunal Institute for Medical Sciences and Technology, (SCTIMST), Trivandrum***

This joint project for “Development of Improved Tilting Disc Heart Valve Prosthesis” has been supported by DSIR with a financial support of Rs.40 lakhs out of a total project outlay of Rs.90.42 lakhs. The company in collaboration with SCTIMST, Trivandrum intends to develop improved tilting disc heart valve prosthesis. The improvements in the valve will provide better performance characteristics (functional and durability); the new valve will be MRI compatible with improved thrombo resistance and with presence of radio-opaque marker for fluoroscopic visualization. The reduction in the production cost is expected to make the

product more cost-effective. The project is under progress.

### ***Punjab Chemicals & Crop Protection Ltd., (formerly known as Punjab Chemicals & Pharmaceuticals Ltd.), Chandigarh***

The project of the company for “Development of Process for the manufacture of Ethyl 2-(2-aminothiazol-4-yl)-2-methoxyiminoacetate and 2-formylamino-4-thiazole acetic acid ethyl ester in Pilot Plant” has been supported by DSIR with a financial support of Rs.65.00 lakhs out of a total project outlay of Rs.141.00 lakhs. It is proposed to develop process for manufacture of Ethyl 2-(2-aminothiazol-4-yl)-2-methoxyiminoacetate and 2-formylamino-4-thiazole acetic acid ethyl ester. These two are key raw materials for the manufacture of a large number of cephalosporins based antibiotics. The project is under progress.

### ***SMS Pharmaceuticals Ltd., Hyderabad***

The project of the company for “Development of Active Pharmaceutical Ingredients (API), API Intermediates and Metal Acetylacetonates” has been supported by DSIR with a financial support of Rs.135.00 lakhs out of a total project outlay of Rs.475.00 lakhs. The company intends to scale up processes for manufacture of Active Pharmaceutical Ingredients (API), API Intermediates and Metal Acetylacetonates. The API proposed to be developed are: Diltiazem Hydrochloride (API), Zolmitriptan (API) and Taxol C-13 side chain (API intermediate). The process makes use of heterogeneous catalyst developed by IICT, Hyderabad, which is recoverable and reusable. Diltiazem is used for hypertension and anti-angina. Zolmitriptan is used for alleviating migraine. Metal Acetylacetonates are used as catalysts, glass coating agents, paints, ink etc. The project is under progress.

***Central Institute for Research on Goats (CIRG), Mathura***

The project of the company for “Development of inactivated vaccine using native isolates of Mycobacterium avium subspecies paratuberculosis against Johne’s disease in goats and sheep” has been supported by DSIR with a financial support of Rs.4.00 lakhs. It is proposed to develop a vaccine for Johne’s disease in Goats and Sheep. The project is under progress.

***FDC Ltd., Mumbai***

The project of the company for “Development of a manufacturing process for a new product for the treatment of Thalassemia” has been supported by DSIR with a financial support of Rs.22.50 lakhs out of a total project outlay of Rs.45.00 lakhs for Phase-A of the project. The company intends to undertake development of a product (formulation) for preventing iron accumulation in patients with thalassemia. The project is under progress.

***Arch Pharmalabs Ltd., Mumbai***

The project of the company for “Scale up studies for Polymorphic Form-I of Clopidogrel Bisulphate Process” has been supported by DSIR with a financial support of Rs.57.50 lakhs out of a total project outlay of Rs.119.268 lakhs. The compound is used as drug for reducing ischemic strokes, heart attacks, etc. Clopidogrel is more effective than Aspirin even at much lower dosage. The project is under progress.

**Electrical, Electronics & Communications**

***Coral Telecom Limited, Noida***

The project of the company for “Development of STM-1 based customer premises equipment (CPE)” has been approved with a

financial support of Rs.80 lakhs out of a total Project outlay of Rs.227 lakhs. The broadband access terminal as per TEC specifications has been developed. The project is successfully completed.

***Goldstone Teleservices Ltd., Secunderabad***

The project of the company for “Development of technology for manufacture of EHV Composite Insulator for application in 132KV, 220KV and 400KV electrical power T&D lines” has been supported with a grant of Rs.202 lakhs out of a total project outlay of Rs.404 lakhs. A new generation insulator for power transmission and distribution utilities greatly minimizing the breakdowns due to insulator failure/replacement has been developed. The project is successfully completed.

***MIC Electronics Ltd., Hyderabad***

The project of the company for “Development of Fraud Management and Control Centre” has been supported with a grant of Rs.33 lakhs out of a total project outlay of Rs.76 lakhhs. CDR collection system has been developed and demonstrated. The project is closed.

***Transasia Biomedicals Ltd., Mumbai***

The Project of the company for “Development of Fully Automatic High Speed Blood Chemistry Analyser, Model XL-100” has been supported with a grant of Rs.90 lakhs out of a total project outlay of Rs.226 lakhs. Three prototypes have been developed and demonstrated. The project is successfully completed.

***Rajasthan Electronics & Instruments Ltd., Jaipur***

The project of the company for “Development of Animal Identification system through RFID” has been supported with a grant of Rs.20 lakhs out of the total project cost of Rs.52.75 lakhs. The project will help dairy farmers. The prototypes have been developed along with the animal identification system. The project is successfully completed.

***Abacus Softech Limited, New Delhi***

The project of the company for “Development of upgraded digital voice logger with 32 channels, E-1 and FAX compatibility” has been approved with a support of Rs.75 lakhs out of total project cost of Rs.215 lakhs. This equipment meets the needs of security agencies. The project is under progress.

***Aptech Limited, Mumbai***

The project of the company for “Development of Learning Content Management System (LCMS)” in collaboration with Indian Institute of Information Technology, Allahabad has been supported with a grant of Rs.60 lakhs out of a total project outlay of Rs.260 lakhs. The alpha version of LCMS has been developed and is under testing. The project is nearing completion.

***NED Energy Limited, Hyderabad***

The project of the company for “Development of High Energy Density Valve regulated Lead acid batteries” in collaboration with Indian Institute of Science, Bangalore has been approved with a financial support of Rs.40 lakhs out of total project cost of Rs.122.63 lakhs. Prototype has been developed and field test has been carried out at M/s REVA Electric Car Co.Ltd., Bangalore. The project has been completed successfully with more

than the target scope and followings are the outcome of the project.

- Technical paper “A low-cost, High Energy Density Lead acid battery” published in Electrochem sold-state Lett., 7 (2004)A66
- A low cost Lead-Acid Battery with High Specific Energy – US Patent, 2004 (applied)
- A Rapid Coating Process and its Application to Lead Acid Batteries – US Patent Application publication no: US 2004/0151982 a1, dated Aug 05, 2004.

***SM Telesys Limited, Noida and Atal Bihari Vajpayee Indian Institute of Information Technology and Management, Gwalior***

This joint project for “Development of CTI (Computer Telephony Integration) based Call Centre Software” has been supported with a grant of Rs.30 lakhs out of a total project outlay of Rs.85 lakhs. The software package will facilitate adoption of customer friendly marketing practices by small businessmen and professionals. The software package has been developed and its integration with hardware is to be carried out. The project is under progress.

***BEL Optronics Limited, Pune***

The project of the company for “Development of SUPERGEN Image Intensifier tube” has been approved with a financial support of Rs.71 lakhs out of a total project outlay of Rs.353 lakhs. The project is jointly supported by DRDO, DSIR and BEL. Significant benefits have accrued from the process spin-offs. The project is under progress.

***Aishwarya Telecom Private Limited, Hyderabad***

The project of the company for “Development of Optical Time Domain Reflector (OTDR)” in collaboration with Indian Institute of Technology, Chennai has been approved with a financial support of Rs.35 lakhs out of a total project outlay of Rs.87.19 lakhs. Prototype has been developed and is under testing. The project is nearing completion.

***Ardee Business Services Private Limited, Rourkela***

The project of the company for “Development of 19mm dia aluminium granules cored wire and for faster wire feeder” has been approved with a financial support of Rs.70 lakhs out of a total project outlay of Rs.183.50 lakhs. Prototype cored wire has been developed and awaiting for testing of wire feeder at the Rourkela Steel Plant. The project is under progress.

***Celestial Labs Ltd., Hyderabad***

The project of the company for “Development of Toxicity Prediction Module and integration with CELSUITE – A Computer Aided Drug Design Tool” has been approved with a financial support of Rs.75 lakhs out of a total project outlay of Rs.291.15 lakhs. The project is going as per schedule.

***Zen Technologies Ltd., Secunderabad***

The project of the company for “Design and Development of 6 DoF Electrical Motion Platform” has been approved with a financial support of Rs.200 lakhs out of a total project outlay of Rs.467 lakhs. A prototype for 5 DoF has been developed and three Indian patents also has been filed. The project is going as per schedule.

***HBL NIFE Power Systems Ltd., Hyderabad***

The project of the company for “Development of Tactical Digital Radio Relay” has been approved with a financial support of Rs.154 lakhs out of a total project outlay of Rs.458 lakhs. The project is going as per schedule.

***Park Controls and Communications Limited, Bangalore***

The project of the company for “Development of Telemetry Receiver” has been approved with a financial support of Rs.125 lakhs out of a total project outlay of Rs.365.13 lakhs. A typical telemetry station consists of a tracking antenna system, a high performance low noise radio receiver, a bit synchronizer, a demodulator and Telemetry processing software. Through this project the firm thus far developed bit synchronizers, demodulators, and telemetry processing software. The project is under progress.

***Radiant Cables Private Limited, Hyderabad***

The project of the company for “Development of (a) low loss RF cables for higher frequency above 10 GHz and (b) databus cable with fire survival, low capacitance dielectric properties” has been approved with a financial support of Rs.62 lakhs out of a total project outlay of Rs.155 lakhs. The project completed successfully within the budget of Rs.136.80 Lakhs where DSIR’s support is Rs.50 Lakhs. Data Bus Cables has been developed for the first time in the world combining the properties of fire survival and pressure tightness up to 10 Kg/cm<sup>2</sup> (Pneumatic, Hydrostatic and steam Pressure) by retaining the electrical properties like characteristic impedance and Insertion loss. The product is mainly used by the Indian Navy. Electron Beam Cross Linked Jacket is used in Low Loss RF Cables to enhance mechanical properties making it suitable for

hostile environments and demanding applications. The project is completed.

***Poona Health Services Private Limited, Pune***

The project of the company for “Development of implants for knee joints” has been approved with a financial support of Rs.120 lakhs out of a total project outlay of Rs.290 lakhs. The first surgery was made on August 20, 2005 with the prototype developed under this project. So far, 173 surgeries have been carried out in SIOR, Pune and 5 surgeries in Laud Clinic, Mumbai. The project is under progress.

***Bharat Electronics Ltd., Bangalore***

The project of the company for “Development of Piezoelectrically Actuated Micro Mechanical Switch for RF Applications” has been approved with a financial support of Rs.20.00 lakhs out of a total project outlay of Rs.50.00 Lakhs. This project aims at developing the RF-MEMS switch with actuation voltage of 5V. The project is under progress.

**Mechanical Engineering**

***Central Electronics Ltd., Sahibabad***

The Project of the company for “Development of Digital Axle Counter” has been supported with a financial support of Rs.70 lakhs out of a total Project outlay of Rs.146 lakhs. Single section digital axle counter has been completed and approved by RDSO. The complete system now is being supplied to Indian Railways. The prototype of the multi section axle counter has been developed and field trials has been completed.

***Parag Fans and Cooling Systems Ltd.***

The Project of the company for “Development of Energy Efficient Fan

System” has been supported with a financial support of Rs.28 lakhs out of a total Project outlay of Rs.72 lakhs. The prototype fans of 1400 and 1600 mm sizes have been designed and fabricated using the FRP. Both the fans have been tested on the conventional fan systems. The fabrication of 1400 mm fan system has been completed and tested in-house and fabrication of 1600 mm fan system has also been completed and tested in-house. The completion report is awaited.

***Mecpro Heavy Engineering Ltd., New Delhi***

The project of the company for “Design, development and demonstration of Technology for continuous Hydrogenation system in the Fatty Acids and Oleo Chemical Plant” has been supported with a financial support of Rs.75 lakhs out of a total project cost of Rs.145 lakhs. The project aims at developing a new continuous hydrogenation process technology to improve upon the conventional process, its process efficiency, savings in energy and consumption of vehicle catalysts and reducing the wastes generated in the process besides improving product quality and productivity. The design of equipment and system has been completed. The critical equipment for the plant has been fabricated. The project is under progress.

***Priya Klay Pvt. Ltd., New Delhi***

The project of the company for “Developing a manufacturing system at par with international technologies for production of large diameters (600-1000 mm) and long stoneware / vitrified pipes of 1.5 to 2.5 meters” has been supported with a financial support of Rs.60 lakhs out of a total project cost of Rs.148 lakhs. This involves design, prototype development and fabrication of pipe extruder, pipe-trimming attachment, and pipe handling units, pan mill and electric control panels. Specifications and engineering

designs for extruder and the pan mill have been completed. The castings for shafts, gearbox housing and other components have been fabricated. Sub-assembly design details for extruder and other equipments have been finalized and procured. The project is under progress.

***Process Pumps Engineering (India) Limited, Bangalore***

The Project of the company for “Development of Energy Efficient Pumps” has been supported with a financial support of Rs.14.50 lakhs out of a total Project outlay of Rs.48.00 lakhs. The design of the pump using Tangent Arc method and point by point method have been completed and prototypes have been developed & tested. The project is under progress.

***Bull Machines (Pvt.) Ltd., Coimbatore***

The project of the company for “Design, Development & Demonstration of Innovative Equipments for improved organic manure from municipal solid waste at a pilot scale” has been supported with a financial support of Rs.85 lakhs out of total project cost of Rs.195.85 lakhs. Some of the prototypes have been successfully developed. The project is under progress.

***Metallurgy***

***Fluidtherm Technology Pvt. Ltd., Chennai***

The project of the company for “Developing a Novel Heat Treatment Furnace” has been supported with a financial support of Rs.50 lakhs out of the total project cost of Rs.149.30 lakhs. For design and development of a versatile heat treatment/ carburising furnace, which will combine the advantages of both batch, sealed quench furnaces and continuous

conveyor belt furnaces. The fabrication of the furnace and its trials has been completed.

***Orient Software Pvt. Ltd., Bangalore***

The project for the Company for “Development of System (Cast Design) for aiding the intelligent Computer Aided Design of Castings” in collaboration with Indian Institute of Science, Bangalore has been supported with a financial support of Rs.25 lakhs out of the total project outlay of Rs.53.68 lakhs. The project is to develop a CAD/AI System for the quantitative assessment of the manufacturability at the design stage itself of near net process (NNP) cast components. The project is near completion with thermal analysis modules completed and the detailed integration work progressed.

***Sankar Sealing Systems (P) Ltd., Chennai***

The project of the company for “Development and Indigenising of Asbestos Free Cylinder Head Gaskets for TATA Indica Diesel Cars” has been supported with a financial support of Rs.22 lakhs out of a total Project outlay of Rs.69.70 lakhs. For the project, the graphite sheets are being manufactured and supplied by ARC-I, Hyderabad, to Sankar Sealing Systems (P) Ltd., who in turn are developing the gaskets. The gaskets have been successfully developed.

***Tamilnadu Zari Ltd., Kancheepuram***

The project of the company for “Establishment of a Technology Demonstration Facility for Super Fine Wire Drawing of Silver Alloy for ZARI Application” in association with NFTDC, Hyderabad has been supported with a financial support of Rs.19 lakhs out of a total Project outlay of Rs.69.96 lakhs. The technology and the design of the stands has



been provided by NFTDC. NFTDC has also fabricated the stand and has transferred the same to Tamilnadu Zari for trials and for training of manpower. The project is under progress.

### **Miscellaneous**

#### ***Maharashtra State Seeds Corporation Ltd. (MSSCL), Akola and National Chemical Laboratory (NCL), Pune***

The project for “Development and Testing of Mini Dry HCL Gas Cotton Seed Delinting Plant” had been supported with a financial support of Rs.31 lakhs out of total project cost of Rs.93 lakhs. The fabrication of the plant is completed. The delinted seeds are under test marketing. The project has been completed.

#### ***Bharat Heavy Electricals Ltd. (Ceramic Business Unit), Bangalore and National Chemical Laboratory, Pune***

The project for “Design and manufacture of prototype Ceramic Filtration Unit for production of safe domestic drinking water” has been supported with a financial support of 70 lakhs out of the total project cost of Rs.149 lakhs. The work involving optimisation of the testing procedure and the process parameters for fabrication of support membrane has been completed. The project has been completed.

#### ***MATA Foundation, New Delhi and CFTRI, Mysore***

The project for “Integrated pilot demonstration plant for fruit processing” has been supported with a financial support of Rs.100 lakhs out of the total project cost of Rs.319.79 lakhs. North-Eastern states grow a variety of quality fruits namely oranges, pineapples, passion fruits etc. Machinery

based on CFTRI’s technology has been delivered on site and the erection and commissioning of the same is underway. The project has been completed.

### **1.3 Customs Duty Exemption Certificate**

In pursuance to Customs Notification No.50/96 Customs dated July 23, 1996 for Customs Duty Exemption on components, consumables, equipments etc. used in R&D projects supported by Government, 2 Customs Duty Exemption certificates for nearly Rs.17.83 lakhs worth of components and consumables under two technology development projects supported under Technology Development and Demonstration Programme of DSIR have been issued.

## **2. TECHNOPRENEUR PROMOTION PROGRAMME (TePP)**

Department of Scientific and Industrial Research (DSIR) under its Technology Development and Innovation Programme of TPDU Scheme and Technology Information Forecasting and Assessment Council (TIFAC) of Department of Science and Technology (DST) jointly operate “Technopreneur Promotion Programme (TePP)”. It endeavours to tap the vast innovative potential of the citizens of India. Financial support is provided to individual innovators having original ideas to convert them into working models, prototypes etc. As many as 12 projects supported under the programme were completed and 39 projects were under various stages of implementation. In addition, 35 project proposals were approved during the year. The list of projects supported/approved are given in **Annexure – 7**.

## **3. OTHER ACTIVITIES**

**3.1** To expand the reach of TePP among common mass, **6 TePP Outreach Centres** of

DSIR were set up at Sponsored Research and Industrial Consultancy (SRIC), IIT Kharagpur (W.B.), Society for Innovation and Entrepreneurship (SINE), IIT Bombay, ERDC-Hartron, Ambala Cantt., Kerala Rural Development Agency (KRDA), Kollam (Kerala) and VidyaDeep Foundation, Satara (Maharashtra), Hi-Tech Computers Education & Training Centre, Pondicherry.

**3.2** With a view to sensitize larger mass, 9 TePP Innovation Funding Camps were organised at Ambala Cantt., Gurgaon, Bangalore, Davangere, Belgaum, Vadodara, Patiala, Pune and Hissar.

**3.3** DSIR participated/organised number of exhibitions/workshop to showcase the strengths and capabilities of R&D projects supported under TePP as well as to sensitize academia and network partners about the philosophy of TePP during the year.

- TePP Orientation Programme for Representatives of TePP Outreach Centres at SINE-IIT Bombay, July 15<sup>th</sup>, 2006.
- 2-day workshop on “Taking Innovations into Market” at Indian National Science Academy (INSA), New Delhi, September 1-2, 2006.
- 3<sup>rd</sup> “Inventors of India: Knowledge Network for Incubating Innovations into Enterprises” at Centre for Innovation, Incubation and Entrepreneurship, Indian Institute of Management Ahmedabad, October 25-28, 2006.
- 2<sup>nd</sup> Global Forum on Business Incubation at Hyderabad (November 6 – 10, 2006)

- 2-day training programme on “Creativity and Problem Solving” at New Delhi, December 13-14, 2006.
- “Pride of India-Science Expo 2007” during Indian Science Congress at Chidambaram from 3<sup>rd</sup> – 7<sup>th</sup> January, 2007

The aim of these activities were to disseminate information on TePP to its clientele. A number of innovators supported under TePP scheme are exhibiting their achievements with the help of prototype/models, charts etc. during the Science exhibitions being held during the Indian Science Congress at Chidambaram.

**3.4** To diffuse the achievements of TePP innovations, a publication entitled “CREATIVE INDIA, Vol. I” consisting 46 profiles of innovators was published and distributed among concerned groups.

#### **4. EXPECTED OUTPUTS AND BENEFITS**

The completed technology development projects supported have resulted in significant technological and commercial returns to the industries concerned such as cost reduction, higher quality, improved products and processes as well as foreign exchange savings, while building up the R&D capabilities of the industrial units. The on-going projects are expected to result in high commercial / societal impact and will lead to commercialisation and utilisation of ‘state of the art’ technologies. There have been useful interactions and linkages with other concerned Government departments, National Research Organisations and users during evaluation, approval and implementation of various projects supported under the scheme.



**Pilot Plant for Polymorphic Form-I of Clopidogrel Bisulphate Undertaken by Arch Pharmed Labs Ltd., Mumbai**



**Innovative Equipment for Improved Organic Manure from MSW at a Pilot Scale Undertaken by Bule Machines Pvt. Ltd., Coimbatore**



**Rotary Variable Compression Ratio Internal Combustion Engine**



**Table Top Manual Operated Metal Cutter / Shear Press**



**Mineral Water Vending Machine**



**Intrauterine Distending System**



**Solar Water Harvester**



**Bicycle Weeder**



**Continuous Positive Airway Pressure (CPAP) Device**



**Micro Windmill Generator**