II-A. INDUSTRIAL R&D PROMOTION PROGRAMME

1. OBJECTIVES

The broad objectives of the Industrial Research & Development Promotion Programme are to:

- Bring in-house R&D into sharper focus;
- Strengthen R&D infrastructure in industry and Scientific and Industrial Research Organisations (SIROs);
- Promote R&D initiatives of the industry and SIROs;
- Ensure that the contributions made by the in-house R&D centres and SIROs dovetail adequately in the overall context of technological and industrial development.

2. AREAS OF COVERAGE

The specific areas covered under the component scheme are:

- In-house R&D in Industry
- Scientific and Industrial Research Organisations (SIROs)
- Fiscal Incentives for Scientific Research

Activities and achievements in each of above areas are presented below:

3. IN-HOUSE R&D IN INDUSTRY

3.1 Recognition of In-house R&D Units

A strong S&T infrastructure has been created in the country. This covers a chain of national laboratories, specialised R&D centres, various academic institutions and training centres, which continuously provide expertise, technically trained manpower and techno-logical support to the industry. Various policy measures have been introduced from time to time, to meet the changing industrial and technological requirements of the industry. The Government has been giving special attention to promotion and support to industrial research in industry. Several tax incentives have also been provided which encourage and make it financially attractive for industrial units to establish their own in-house R&D units.

A scheme for granting recognition to in-house R&D units in industry is operated by the DSIR. A number of incentives and support measurs are made available to in-house R&D units.

The in-house R&D units qualifying for recognition are expected to be engaged in research and development activities related to the line of business of the firm, such as, development of new technologies, design and engineering, process / product / design improvements, developing new methods of analysis and testing; research for increased efficiency in use of resources, such as, capital equipment, materials and energy; pollution control, effluent treatment and recycling of waste products.

The R&D activities are expected to be separate from routine activities of the firm, such as, production and quality control. The in-house R&D units should have staff exclusively engaged in R&D and headed by a full-time R&D manager who would have direct access to the chief executive or to the board of directors depending upon the size of the unit. The in-house R&D units are also expected to maintain separate identity and R&D accounts.

Number of in-house R&D units recognised by DSIR increased steadily from about 100 in 1973 to about 275 by 1975, to over 700 by 1980, around 925 by 1985, over 1100 in 1990 over 1200 in 1995 and thereafter is hovering between 1200 to 1250; and was 1230 in December 2006. Of these, nearly 1145 are in the private sector and the remaining units are in public/joint sector. A revised and updated 'Directory of Recognised in-house R&D Units' was brought out during October 2006. This Directory lists 1212 recognised in-house R&D units, giving registration number, name and mailing address of the company, location of the in-house R&D unit(s) and validity of DSIR recognition. The data on these R&D units has been computerised and updated.

For the purpose of recognition, the R&D units have to apply to DSIR as per a prescribed proforma. The proforma and other details about the scheme are provided to the interested companies on request. The proforma and details of the scheme are also available at DSIR website (http://www.dsir.nic.in). The applications received are scrutinised for their completeness in the DSIR and are then circulated for comments to various other departments/agencies such as concerned administrative ministries, DCSSI, CSIR, ICAR, ICMR, ICAS, DBT, DCPC, DoT, DRDO, DIT and NRDC. The units seeking recognition are visited, if need be, by expert teams comprising of representatives of DSIR, as well as outside agencies, like, administrative ministries, CSIR, NRDC, DBT, ICAR, ICMR, DRDO, DIT, DoT, IITs and local educational and Research Institutions before they are taken up for consideration. In order to obtain first hand information on R&D activities of the applicant firms, discussions with the chiefs of the R&D unit and executives of the firm are also held in DSIR in many cases. During the discussions outside experts are invited and their comments are sought. The applications along with comments from outside agencies, visit reports, and the Department's own evaluation are considered by an Inter-Departmental Screening Committee constituted by the Secretary, DSIR. The Committee meets every month to consider the applications and makes recommendations to the Secretary, DSIR based on its evaluation of R&D infrastructure and R&D activities of the applicant firms.

During the year 2006, the Screening Committee met 12 times and considered 132 applications for recognition; 101 R&D units were granted fresh recognition and 31 applications were rejected.

The pendency at the end of December 2006 was 47, including 20 applications received during the month of December, 2006. A statement giving month-wise receipt, disposal and pendency of applications for recognition of in-house R&D units is given at **Annexure 1**.

During the year 2006, over 300 discussions/meetings were held with heads of in-house R&D units. Also, expert teams visited a number of in-house R&D units.

3.2 Renewal of Recognition

Recognition to R&D units is granted for a period ranging from 1 to 3 years. The R&D units are advised to apply for renewal of recognition well in advance (3 months prior to the date of expiry of the recognition). Applications received for renewal of recognition are circulated to CSIR, NRDC and/or the concerned administrative department of Government of India for comments. The applications are examined in DSIR taking into account the inputs received from other agencies for taking suitable decision on their renewal. During the year

2006, 511 in-house R&D units were due for renewal of recognition beyond 31 March 2006; of which 453 applications were received. Based on the evaluation of the performance of the R&D units, renewal of recognition was granted to 448 R&D units. Recognition granted to 3 companies could not be renewed because their R&D performance was not up to the mark, one case is pending for visit and one case was advised to apply afresh. A statement showing month-wise receipt, disposal and pendency of the cases of renewal of recognition of the R&D units is given at **Annexure 2**.

3.3 Zonal Distribution of In-house R&D Units

The in-house R&D units are distributed throughout the country. There are around 190 units in the Northern Zone (Delhi, Haryana, Punjab, Uttar Pradesh, Jammu & Kashmir), around 110 units in Western Zone (Rajasthan and Gujarat), around 465 units in the Central Zone (Maharashtra, Madhya Pradesh and Orissa), around 380 units in the Southern Zone (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and around 85 units in the Eastern Zone covering Bihar, West Bengal, Assam and other north eastern states.

3.4 R&D Expenditure

The expenditure incurred by in-house R&D units in industry has steadily increased. During 1980-81 it was of the order of Rs.300 crores. In 1985-86, it was of the order of Rs.500 crores. It is estimated that the present R&D expenditure of the 1230 recognised R&D units is of the order of Rs.5900 crores. The share of public and joint sector is about 20% and that of private sectors about 80%. 148 In-house R&D units spend over Rs.5 crore each on R&D, 299 in-house R&D units spent between Rs.1 crore to Rs.5 crore each per annum on R&D. The lists of these R&D units are given in **Annexure 3 and 4** respectively.

3.5 R&D Infrastructure

The in-house R&D centres have created impressive infrastructural facilities for R&D including sophisticated testing facilities, laboratory equipment and pilot plant facilities. Analytical facilities such as HPLCs, IR spectrophotometers, UV-Vis spectrophotometers, NMR spectrometers, electron microscopes, particle size analyzers, portable particle counting systems; vibration test equipment, calorimeter and wind tunnel for complete evaluation of automobile air-conditioning system, ultra filtration equipment, smoking machine, sonicator, spectro fluorimeter, protein purification set up, digital viscometer, high temperature test and evaluation facilities, CAD-CAM facilities, rapid prototype building machines, greenhouse and tissue culture laboratory facilities are available with many in-house R&D units.

3.6 R&D Manpower

There has been a steady increase in R&D manpower employed by the in-house R&D units. By 1975-76, about 12,000 R&D personnel were employed by recognised in-house units, and by 1981-82, the figure was over 30,000. The present estimated manpower for the 1230 in-house R&D units is around 65,000, out of which around 20,000 R&D personnel are employed in public sector in-house R&D units and around 45,000 R&D personnel are employed in the private sector in- house R&D units. Of the total 65,000 R&D personnel, around 3500 are Ph.D's, 21,000 Post Graduates, 21,000 graduates and the rest are technicians and support staff.

3.7 Sectorwise Break-Up of In-house R&D Units

A broad sector-wise break-up of the recognised in-house R&D units is as below:

Chemical and Allied industries	515
Electrical and Electronics industries	285
Mechanical Engineering industries	185
Processing industries (Metallurgical, Refractories, Paper, Cement, Ceramics, Leather and others)	150
Agro and food processing industries And others	95

3.8 Achievements of In-house R&D Units

Some of the R&D achievements reported by the recognised in-house R&D units are listed below:

Chemical and Allied Industries

- Development and commercialisation of shanpoietin (erythro potetin) and shantetra (DT pro-Hepatitis B combination vaccine)
- Development of amlodipine besylate, lamotrigine IR, valacyclovir HCl, bacavirsulfate, lopinavir+ritonavir, allopurinol pravastatin sodium in tablet form; and, venlafaxien, duloxetine, lansoprazole in capsules form.
- Development of methyl isobutycyl acetate (raw material for the manufacture of atorvastatin calcium), losartan potassium (anti hypertension drug developed by replacing tributyl tin azide a hazardous material); 4-hydroxy carbazole (an intermediate used in the synthesis of carvedilol).
- Discovery of anti viral drug RECEPTOL for HIV, which has completed Phase I clinical trials in US and Phase II and III clinical trials in Africa.
- Development and commercialisation of non-infringing patent processes for the manufacture of drugs famotidine, desloratadine, glimepiride, ebastine and loxaprofen sodium.
- Development of veterinary drug molecules such as praziquental, clorsulon, 2-amino bi phenyl, amino acetal dehyde dimethyl acetal.
- Development and commercialisation of enzymes for leather and paper industries.
- Development of natural colour conductive primer for automobile components made of polypropylene plastic materials; universal adhesive promoter primers for variety of plastics such as ABS, nylon, polypropylene and high impact poly styrene.
- Development and commercialisation of import substitution items such as dyes and food colours for export market via cost effective technologies.
- Development of recombinant DNA based insulin and human growth hormones.
- Development and commercialisation of a novel echo friendly glucose based bleaching system for indigo dyed garments, probiotics and various organic acids used for feed supplement, and a unique dyeing system for yarns, knits and wovens.

Electrical and Electronic Industries

- Development of dynamic elastic properties analyser (DEPA) for non-destructive inspection.
- Development and production of zoom stereoscope, night vision goggle, light weight night weapons slight and night vision monocular.

- Development and commercialisation of simulators for navigation, engine room, advanced crane and liquid cargo handling systems.
- Development of GPS based tracking control system; V-SAT products like antenna control unit, beacon tracking receivers, networking systems, data acquisition systems for space and defence applications.
- Development of blue tooth (wireless) technology for audio connectivity and inter phasing with DVD –players.
- Development and commercialisation of technologies such as numerical technology (Micro controller based), multi layer Printed Circuit Board, switched mode technology for power supply and surface mount technology and R&D projects on bus-bar protection and the AMR metering.
- Development and commercialisation of microprocessor based annunciation systems, commander M-Pump automation systems, EMS 2000 electronic motor starter, variable frequency AC drive Mini Drive and PROTOCOM-2 twin AC controller.
- Development of number of products such as synchronizing relay, load balancing relay, protocol converter, automatic mains failure relay.
- Development of 48 X152XCDR, 16XDVD-R, low cost and high productive DVDR line design and 8x DVD + RW.
- Development of marvel series 20"/21" CTV, 14" CTV with cordless FM head phone and different coloured cabinets, Oxygen and Poison Series CTV, home theatre 21"/ 29", TH enabled CTV series, slim CTV 21"/29".
- Development of new products such as low noise dot matrix printers, uninterrupted power supplies for specialised application, printer's head for laser printers.
- Development and commercialisation of non-contact power transfer, non-contact data transfer, power data modulator and ultra miniaturized signal conditioning and acquisition.
- Development and commercialisation of SR drive upto 5 KW.
- Development and commercialisation of microprocessor based power window regulator mechanism.
- Development and commercialisation of global positioning system based vehicle tracking system.

Mechanical Engineering Industries

- Indigenous design, development and testing of special valves for nuclear power plants and Indian Navy; cryogenic valves and low emission bellow seal valves.
- Development of replicast technology for manufacture of precision castings.
- Development and commercialisation of sintered friction material for brake and clutch application for heavy vehicles, aircraft and windmills.
- Design and development of a bio-reactor static rocket motor for instrumentation testing of Agni Missile.
- Design and development of 100 TPD twin bleaching plant and deordilization plant for export market.
- Design and development of moving column type CNC profile milling machine with X,Y,Z tranverse and roto head with swivel arrangement providing A&C axes for spindle.
- Design and development of TATA ACE Mini truck.

- Development and commercialization of fibre cement corrugated and plain sheets, sandwich panels, autoclaved aerated concrete blocks.
- Design, development and commercialisation of low energy dyeing machine for low and medium weight natural and synthetic fibre fabrics.
- Design development and commercialisation of a unique innovative product viz. multi level car parking system for light motor vehicles.
- Development of technology for commercialisation of high life performance brakes for axle housing and complete axle with wheel new generation trucks.
- Development of aluminium body vane type pump for both commercial and passenger vehicles, steering gear for Ford B-326 model, heavy duty steering gear for MUV's International Tractors Ltd. and for Tata Motors Ltd;
- Innovation in the design of struts, swing arm, silencers and exhaust systems using indigenous materials for motorcycle industry.
- Development of instruments cluster for Tata HCV, Tata Sumo Victa, M&M tractor, Daewoo Matiz car and Bajaj motorcycle application; electronic speedometer for TATA HCV/LCV, speedometer movements for motorcycle application, complete dash board cluster for Ashok Leyland vehicles.
- Development of multi-cavity moulds for automobile components such as brake shoe, levers for Honda Motors Ltd.; cylinder for saw cutter and brake shoe for motor cycle 124.
- Development of instruments such as hybridisation chambers, growth shakers, growth chambers, BOD incubators, 2D gel de-staining system for bio-technology industry.

Processing Industries

- Scale up process development for production of fungisome I.v. lipsomal amphotericin B.
- Development of an automatic process for plating automotive components with improved quality and low cost; redesigning of spot welding process line.
- Process development of glassy phosphate, water treatment polymer and methylene bis thiocyanate.
- Process development for manufacture of para ethoxy ethyl benezoate; para isopropoxy ethyl benzoate, 4 methoxy benzoic acid, 2 ethoxy benzoic acid.
- Process development for reducing consumption of cement by using fly ash in fibre building products.
- Development of process for the manufacture of high abrasion resistance glazed ceramic tiles.

Agro and Food Processing Industries

- Development of two intra hirsutum cotton hybrids viz. Ajeet-33 and Ajeet – 11.
- Development and commercialisation of free flowing powders of dehydrated onion; cost effective process of ripening of fruits.
- Development of new research hybrids in crops like cotton, maize, sunflower, sorghum, pearl millet and chillis.
- Development and commercialization of soil probiotics, water probiotics, grow aqua culture farms etc.
- Development and commercialisation of trichoderma viride 1% WP (A fungi for control of soil borne diseases),

pseudomonas fluorescence 0.5% WP (for control of air borne diseases), beauveria bassiana 1.5% WP (for control of sucking pest and other insects and for control of bacterial diseases).

- Development of new products such as acid lac W liquid for avian influenza and other viral diseases, lysoforte (a biosurfactant for enhancing absorption of nutrients from gut) and inhibitor products designed to maintain shelf life of baked yeast.
- Development of Tetley flavoured black tea in ginger, masala, cardamom, lemon; Tetley flavoured green tea in plain, lemon-honey, lemon-ginger-mint and instant tea for export market.
- Development of non-conventional feed supplements for poultry and cattle feed by utilizing grape waste and chicken manure resulting into improvement in body weight, reduction in feed consumption, reduction in mortality rate for poultry industry.
- Development of probiotic strains like L Sporogenes for human; probiotics for poultry, cattle and aqua culture; and L (Lactobacillus) acidophilus and succhanomyees boulardi for human health care.
- Development and commercialisation of ammonium glyphosphate formulation for controlling weeds in Agricultural sector.
- Development of LPG based cobb drying unit with technology.

3.9 Imports Made by In-house R&D Units

The recognised in-house R&D units have imported a variety of equipment, raw materials and samples for their R&D activities. These include: NMR, GLC, IR Spectro Photometer, HPTLC, GC-FTIR system, FT-NMR spectrometer, inverted phase contrast fluorescence microscope, microsheen digital opacity reflectometer, colour image analysis system, laser based particle size analyzer, laser scanning microscope, dionex ion chromatography system, mass emissions analysis system, digital distortion analyser, dielectric loss analyser, X-ray fluorescence spectrophotometer system, portable particle counting system, ultra filteration equipment, probe sonicator, protein purification set up digital viscometer, stereo zoom microscope, Auto Titrator, UV-Vis dual beam spectro-photometer, trinocular phase contrast microscope, cryptometer, elisa system, mass emission analysis system, prototyping machine, electrophoresis unit, microprocessor double ended inertia dynamometer, logic analyser, fibre optics evaluation kit, intelligent universal programmer, reference standards for chemical raw material testing purpose, microwave accelerated acid digestion system, pump for ultra filtration system and auto hardness tester, fuel ratio analyser, ignition timing meter, paper permissibility meter.

3.10 Other Benefits Availed by the Recognised R&D Units

The Department provides assistance to recognised in-house R&D units in a number of ways, such as cases of industrial R&D units requiring allotment of special controlled materials for R&D, permission to export of specialised products reserved for small scale industries by medium scale industries for test marketing in other countries and disposal of imported R&D equipment/instruments and pilot plant produce are examined for making suitable recommendations to concerned agencies.

A number of cases regarding locational clearance with respect to expansion of R&D have been dealt with. A number of

applications regarding disposal of R&D equipment and also, pilot plant produce; and permission for allotment for controlled materials required for R&D were examined and the decisions of the Department conveyed.

3.11 Conference, Awards and Publications

20th National Conference on in-house R&D in Industry

DSIR organised the 20th National Conference on in-house R&D in Industry, in association with the Federation of Indian Chambers of Commerce and Industry (FICCI) during 16-17, November 2006 in New Delhi. The theme of the Conference was "Enhancing India's Manufacturing Competitiveness by Leveraging Indian R&D". The Conference had two technical sessions viz. "Attaining excellence in manufacturing"; and "Achieving global heights in auto components manufacturing". Attended by over 500 delegates from industry, National laboratories, IITs and universities, Scientific and Industrial Research Organisations (SIROs), Consultancy organisations, Government Departments, the Conference was inaugurated by Dr. V. Krishnamurthy, Chairman, National Manufacturing Competitiveness Council who also presented the DSIR National Awards for Outstanding in-house R&D Achievements (2006) to seven industrial units. Dr. V. Sumantran, Consultant-Adviser, Automotive and Manufacturing Industries, Chennai delivered the valedictory address on 17th November 2006.

National Awards for Outstanding In-house R&D Achievements

In order to provide recognition to the efforts of industry towards innovative research and technological development, the National Awards for R&D Efforts in Industry were instituted in 1987 by the DSIR. These awards are in the form of silver shields and are presented along with citations at the inaugural session of the annual National Conference on in-house R&D in Industry. So far, 162 companies have won the DSIR National R&D Awards for Outstanding in-house R&D achievements. The list of the award winners in the year 2006 is as follows:

* ***Biotech Industries***

  Shantha Biotechnics Ltd., Hyderabad

* ***Electronic / Opto Electronic Industries***

  Jagdish Electronics, Bangalore

* ***Computer Software***

  Applied Research International Pvt. Ltd., New Delhi

* ***Mechanical Engineering Industries***

  Audco India Limited, Chennai

* ***Agro and Food Processing Industries***

  Ajeet Seeds Ltd., Aurangabad

* ***Technology Absorption (of Imported Technologies)***

  PTC Industries Ltd., Lucknow

* ***Successful Commercialisation of Technologies Acquired from Others***

  Lifecare Innovations Pvt. Ltd., Gurgaon

3.12 Publications

Outstanding In-house R&D Achievements - 2006

The DSIR publication "Outstanding in-house R&D Achievements (2006)," covering the award winning achievements of 7 companies, was released during the inaugural session of the 20th National Conference on in-house R&D in Industry.

In-house R&D in Industry – An Information Update

As the number of in-house R&D Centres has increased while the activities of DSIR have also diversified significantly with respect to in-house R&D units, it was felt appropriate to devise a quick communication system between DSIR and in-house R&D units. Accordingly, the DSIR started bringing out a quarterly Information Update on in-house R&D in industry on a regular basis since April 1988. The Information Update intended to provide a fast communication link between DSIR, in-house R&D units and SIROs and serve to disseminate useful and important information relevant to R&D in Industry. During 2006, three issues of in-house R&D in Industry were brought out in April, July, October 2006. These have been widely disseminated to industry, SIROs, Government Departments, missions abroad and others and are well received.

Research and Development in Industry : An Overview

A publication entitled *"Research and Development in Industry : An Overview"* was brought out on the occasion of the 20th National Conference on in-house R&D in Industry (November 2006). The publication gives details of resources devoted to scientific and technological activities, international comparison of S&T indicators, fiscal incentives and support measures available for research in India, promotional schemes for R&D operated by DSIR and other Government Departments and important achievements of the in-house R&D units.

4. SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATIONS

4.1 Recognition of Scientific and Industrial Research Organisations (SIROs)

The DSIR had launched a scheme of granting recognition to SIROs in 1988. SIROs recognised by DSIR are eligible for Customs Duty Exemption and Excise Duty Waiver in terms of notification Nos. 51/96-Customs dated 23.7.1996 and 10/97-Central Excise dated 1.3.1997 respectively.

The DSIR has brought out Guidelines for Recognition of SIROs, which give procedural details and application proforma for seeking recognition under the SIRO Scheme. Functional SIROs having broad based governing council, research advisory committee, research personnel, infrastructural facilities for research, well defined, time bound research programmes and clearly stated objectives of undertaking scientific research, are considered eligible for recognition by DSIR. The investments of surplus funds not needed for immediate research should be in accordance with the Income-tax Act, 1961.

Applications for seeking recognition under the SIRO scheme are considered in DSIR by an Inter- Departmental Screening Committee with members from Council of Scientific and Industrial Research (CSIR), Indian Council of Medical Research (ICMR), Indian Council of Agricultural Research (ICAR), Indian Council of Social Sciences Research (ICSSR) and University Grants Commission. The recommendations of the Screening Committee are put up for approval of Secretary, DSIR. The recognition is effective from the date of approval of Secretary. Retrospective approval is not granted.

During the period January 2006 to December 2006, the Screening Committee met 5 times and recommended 33 cases for recognition as SIROs under 1988 Scheme of DSIR. These include cases in the natural and applied sciences, agricultural, medical sciences and social sciences. List of these SIROs is furnished at **Annexure 5**.

Recognition granted to SIROs is for duration ranging from 1 to 3 years. The SIROs are advised to apply for renewal of recognition well in advance (3 months prior to the date of expiry of recognition). Such applications received for renewal of recognition are examined by Research Review Groups by involving representatives from ICAR, ICMR, CSIR and ICSSR depending on the area. Based on the evaluation made by the Research Review Groups, renewal of recognition is granted to SIROs.

At present there are 571 SIROs duly recognised by DSIR; of these, 191 are in the area of natural and applied sciences, 191 are in the area of medical sciences, 35 are in the area of agricultural sciences, 107 are in the area of social sciences and 19 are universities/colleges. Of these 571 SIROs, the renewal of recognition beyond 31.3.2006 of 28 SIROs is under consideration for want of further information/ clarification. DSIR has brought out a directory of recognised SIROs in November 2006.

The SIROs have employed qualified scientists and researchers and have also established good infrastructural facilities for research. They have developed new processes, procedures, techniques and technologies and also filed several patents. They have also organised seminars/ symposiums/ workshops and published research papers / reports / books.

5. FISCAL INCENTIVES FOR SCIENTIFIC RESEARCH

Government has evolved, from time to time, fiscal incentives and support measures to encourage R&D in industry and increased utilisation of locally available R&D options for industrial development. New incentives to encourage investments in R&D by industry are announced in the Union Budget.

Fiscal incentives and support measures presently available include:

- Income-tax relief on R&D expenditure;
- Weighted tax deduction U/s 35 (2AA) of IT Act 1961 for sponsored research programs in approved national laboratories, universities and IITs;
- Weighted tax deduction u/s 35(2AB) of IT Act, 1961 on in-house R&D expenditure in chemicals, drugs, pharmaceutical (including clinical drug trials, obtaining approvals from any regulatory authority under any Central, State or Provincial Act and filling an application for a patent under Patent Act, 1970), bio-technology, electronic equipment, automobiles and its components; computers, telecommunication equipment and manufacture of aircrafts and helicopters as approved by the Prescribed Authority (Secretary, DSIR)
- Customs duty exemption on capital equipment, spares, accessories and consumables imported for R&D by approved institutions/SIROs;
- Customs duty exemption on specified goods (comprising of analytical and specialty equipment) for use in pharmaceutical and biotechnology sector;
- Excise duty waiver on indigenous items purchased by approved institutions/ SIROs for R&D;
- Ten year tax holiday for commercial R&D companies;
- Excise duty waiver for 3 years on goods produced based on indigenously developed technologies and duly patented in any two of the countries out of India, European Union (one country), USA and Japan;

- Accelerated depreciation allowance on plant and machinery set-up based on indigenous technology;
- Customs duty exemption on imports for R&D projects supported by Government.

Information on some of these fiscal incentives is given in the following paragraph.

5.1 Depreciation Allowance on Plant and Machinery Setup Based on Indigenous Technology

Secretary, DSIR, Ministry of Science and Technology, is the Prescribed Authority to certify expenditures where higher rate of depreciation is to be allowed for the plant and machinery using indigenous know-how as per provisions of rule 5(2) of IT Rules. Guidelines have been issued for making applications for obtaining the aforesaid certificate. All such applications received are examined in the department, and discussions and visits by experts to verify the claim are made to the plants by expert teams. Based on a detailed examination, certificates in deserving cases are issued for eligible expenditure.

During the year 2006, 7 certificates involving Rs.3464.12 lakhs on cost of plant and machinery were issued by DSIR. Details are given at **Annexure 6**.

5.2 Reference Under Section 35(3) of Income-Tax Act, 1961 Regarding Scientific Research

In the implementation of various incentive schemes for the promotion of research and development, the Income-tax Act, inter-alia, provides that expenditure made on capital equipment and related to research activities are allowed to be written off 100% in the year in which the expenditure are incurred. The Government has provided that if a question arises under section 35 of Income-tax Act, 1961 as to whether and, if so, to what extent any activity constitutes or constituted or any asset is or was being used for scientific research the Central Board of Direct Taxes would refer the question to the Prescribed Authority. Director General Income-tax (Exemptions) in concurrence with Secretary, DSIR is the Prescribed Authority for deciding such cases. However, w.e.f assessment year starting 1-4-2000, the Prescribed Authority for such reference pertaining to sub-sections 35(1)(ii) and 35(1)(iii) is Central Government. On receipt of the reference in DSIR, the department collects information/background regarding the description of the activity claimed as scientific research, date of commencement of the relevant projects, date of completion of research work as also the results obtained from the specific project. After obtaining all these details, the matter is examined in DSIR. In case where it is considered necessary, a team of technical experts is constituted for on the spot appreciation of the research work done at the premises of the company. After receiving the technical assessment report from the visiting team, a discussion is also normally held so that the point of view of the Company is taken into account before arriving at a decision. After completing the processing of the case in the above fashion, the case file is placed before the Secretary, DSIR for giving a decision. The Secretary, DSIR gives his decision by setting out a reasoned order duly signed by him, which is communicated, to Director General (Income-tax Exemptions).

During the year 2006, request of one company has been under consideration.

5.3 Approval of Commercial R&D Companies

In order to promote research and development activities in the commercial research and

development companies, the Finance Act, 2000 provided for a ten-year tax exemption from income-tax under section 80-IB(8A) of the Income-tax Act, 1961, to approved companies, whose main objective is scientific and industrial research. Secretary, DSIR is the Prescribed Authority vide Gazette notification no. S.O.85 (E) dated 31 January, 2001, issued by Department of Revenue, Ministry of Finance for granting approval under section 80IB(8A) of the IT Act.

The approval to commercial R&D companies is given initially for a period of 3 years, which can be extended up to 10 years based on evaluation of its performance.

The tax exemption is available to a company, which is accorded approval by the Prescribed Authority at any time after the 31st day of March 2000 but before the 1st day of April 2007.

So far, 32 R&D companies have been approved including 5 approved during the year 2006; and the requests of 9 more companies are under consideration.

5.4 Customs Duty Exemption to Recognised SIROs

All SIROs recognised by DSIR are eligible for Customs Duty Exemption on the import of scientific equipment, instruments, spares, accessories as well as consumables for research and development activities and programmes.

The procedure for issuing the essentiality certificates to SIROs for obtaining the customs duty exemptions has been formalised. A Committee has been set up in DSIR to examine the applications received from SIROs. The committee meets periodically to examine the requests. The recommendations of the Committee are put up to the Head of the Industrial R&D Promotion Programme, for approval.

During the year 2006, around 576 essentiality certificates were issued for claiming customs duty exemption on import of scientific equipment, accessories and components, including consumable items. The value of imports covered by the certificates was about Rs.50 crores.

5.5 Central Excise Duty Exemption to Recognised SIROs

All SIROs recognised by DSIR are eligible for Excise Duty Exemption on purchase of scientific and technical instruments, apparatus, equipment (including computers); accessories and spare parts thereof and consumables; computer software, Compact Disc - Read Only Memory (CD-ROM), recorded magnetic tapes, micro films, microfiches; and prototypes for research and development activities and programmes.

This provision was introduced by Ministry of Finance (Department of Revenue) vide notification No. 10/97-Central Excise dated 1st March, 1997. A Committee has been set up in DSIR to examine the applications received. The Committee meets periodically and essentiality certificates are issued with the approval of Head of RDI Scheme.

During the year 2006, 75 essentiality certificates for a total amount of about Rs.390 lakhs were issued for claiming Excise Duty Exemptions.

5.6 Registration of Public Funded Research Institutions, Universities, Etc.

Public funded research institutions, universities, IITs, IISc., Bangalore; Regional Engineering Colleges (other than a hospital)

are eligible for availing customs duty exemption on import of equipment, spares and accessories and consumables for research purposes through a simple registration with the DSIR. The head of the public funded research institutions / organisations duly registered with DSIR can certify the R&D goods for duty free import as per the notification No. 51/96-Customs dated 23 July 1996. As per the Government notification No. 10/97-Central Excise dated 1.3.1997, the above Public Funded Research Institutions registered with DSIR are also eligible for Central Excise Duty Waiver on purchase of indigenously manufactured items for scientific research purposes.

Coinciding with the presentation of Union Budget for the year 2004, Ministry of Finance amended the notification No. 51/96-customs vide notification No. 28/2003-Customs dt. 1.3.2003. As per the amendment, departments & laboratories of central government and state governments (other than a hospital) are not required to register with DSIR for availing the customs duty exemption. They can clear the consignments by producing a certificate from the Head of the institution certifying that the said goods are required for research purposes only. Another significant change in the notification is that regional cancer centres (cancer institute) have been included in the list of institutions eligible for DSIR registration for importing goods for research purposes at a concessional rate of customs duty of 5%.

The registration of above institutions is recommended by an inter-departmental Screening Committee constituted by the department for considering the requests from various institutions. The Committee met once during the year and considered 9 applications from various public funded research institutions.

During the year 2006, six registration certificates were issued to such public funded research institutions for availing customs duty exemption on import of scientific equipment, spares and accessories, consumable items and Central Excise Duty exemption on indigenous purchases for Scientific Research Purposes.

The registration to public funded research and other institutions mentioned in the notification is granted for maximum period of five years. The registered institutions are advised to apply for renewal of registration well in advance of the date of expiry of the registration.

During the year 2006, 254 institutions were due for renewal of registration. The department received 241 renewal applications. These were processed on individual files and approval of Secretary was obtained and 225 renewal certificates were issued. The remaining applications are under process.

5.7 Approval of In-house R&D Centres u/s 35(2AB) of I.T. Act 1961

Finance Act 1997 introduced a sub-section (2AB) in Section 35 of the IT Act 1961. This sub-section was introduced in order to encourage research & development in drugs, pharmaceuticals, electronic equipment, computers, telecommunication equipment, and chemicals. The sub-section provided for weighted tax deduction of a sum equal to one and one-fourth times of any expenditure incurred on scientific research (not being expenditure in the nature of cost of any land building). The weighted tax deduction was further raised to 150% by the Finance Act, 2000. The in-house Research and Development facilities of the companies engaged in the business of manufacture or production of the above said items should be approved by the 'Prescribed Authority' i.e. Secretary, DSIR. Also, the company should

enter into an agreement with the Prescribed Authority for co-operation in such research and development facility and for audit of the accounts maintained for that facility. Through a separate notification, manufacture of aircrafts and helicopters was included in the list eligible under this section.

The provision was introduced for expenditure on R&D incurred up to 31st March 2000. The Ministry of Finance, Department of Revenue, Central Board of Direct Taxes, notified the provision vide Notification No. S.O.259 (E) dated 27 March 1998. Finance Bill 1999 introduced in Lok Sabha on 27 February 1999 extended this provision till 31 March 2005. The provision was further extended upto 31.03.2007 by the Finance Act 2005. The sub-section was amended by the Finance Bill 2001, to include expenditure on in-house R&D by units engaged in the business of biotechnology, as well as cover expenditure on clinical trials, filing of patents under Indian Patent Act (1970) and obtaining regulatory approvals, for weighted tax deduction @ 150% under section 35(2AB) of Income-tax Act. During the year 2004, CBDT has notified automobile including automobile components as an article or thing eligible for the weighted deduction under the section 35(2AB) of IT Act.

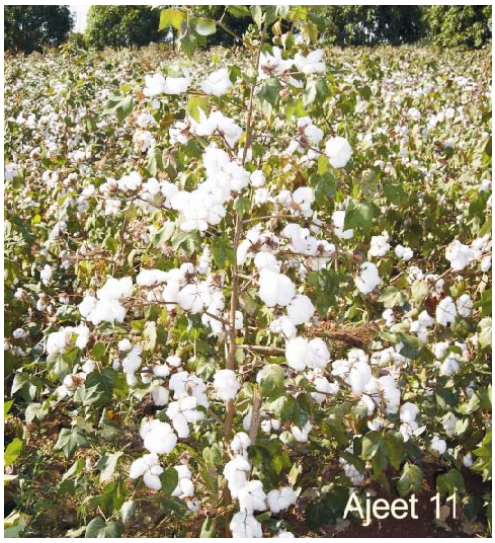
During the year 2006, 44 applications were received from eligible companies. Secretary, DSIR who is designated as the Prescribed Authority under section 35(2AB) of Income-tax Act, 1961, approved in-house R&D centres of 37 companies and renewed 48 cases, which were approved earlier. These approvals were communicated in Form 3CM, after Agreements of cooperation for research & development were signed with these companies on behalf of the Secretary, DSIR. Further, the detailed R&D expenditures of the approved companies have also been examined by DSIR and 64 reports have been sent to DGIT(E) in Form 3CL as required under the IT Act.

Dr. R.A. Mashelkar, Secretary, DSIR Inaugurating the 20th National R&D Conference

An Award Winner Receiving the DSIR National R&D Award (2006)

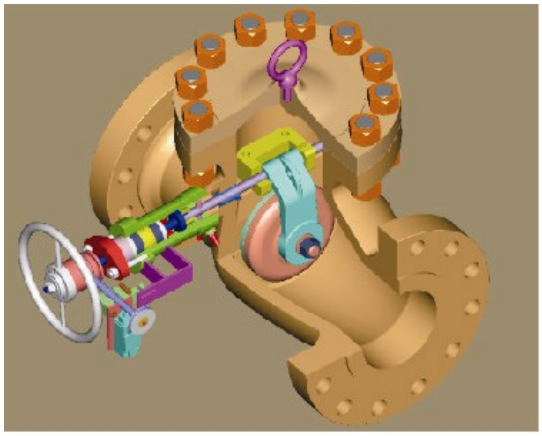
Dr. V. Krishnamurthy, Chairman, NMCC and Shri S.K. Poddar, President, FICCI Releasing the DSIR Special Publication

Dr. R.A. Mashelkar, Secretary, DSIR Felicitating Dr. V. Sumantran, Consultant-Adviser, Automotive and Manufacturing Industries, Chennai During the Valedictory Session



Cotton Hybrid, Ajeet 11 (AHH-90-1) for Rainfed Cultivation

Full Mission Ship Maneuvering Simulator



Cut Section 3D Model of TCV Operating Mechanism

Mammalian Cell Culture Fermentor