

IV. PROGRAMME AIMED AT TECHNOLOGICAL SELF RELIANCE (PATSER)

1. OBJECTIVES OF PATSER

The objectives of the scheme on "Programme Aimed at Technological Self Reliance (PATSER)" include:

- (i) Supporting industry for technology absorption, development and demonstration.
- (ii) Building indigenous capabilities for development and commercialisation of contemporary products and processes of high impact.
- (iii) Involvement of national research organisations in joint projects with industry.

2. ACTIVITIES

The activities under PATSER include the following:

2.1 Financial Support to Research, Development, Design and Engineering (RDDE) Projects of Industry:

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

- a) Development and demonstration of new or improved product and process technologies including those for specialised capital goods, for both domestic and export markets.
- b) Absorption and Upgradation of imported technology.

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

The Department under PATSER Scheme has so far supported about 75 R&D projects of Industrial units. These projects cover products and processes in various important industries such as metallurgy, electricals, electronics, instrumentation, mechanical engineering, earth moving and industrial machinery, chemicals and explosives.

During the year, a number of new R&D projects of industry were supported on partial financial support basis. The Department had invited, through advertisements in leading news papers, project proposals for technology absorption, development and demonstration from industrial units whose in-house R and D Units had been recognised by DSIR. Consequently, over 300 responses from industrial units

seeking further details about the scheme, indicating their technology development projects were received by the Department. During the year, till December 1998, 28 projects were submitted for consideration of the Technical Advisory Committee to PATSER for partial financial support by DSIR. Some more projects are likely to be considered by TAC in the period January - March, 1999.

As a new initiative during 1998-99, the Ministry of Science and Technology has launched a novel programme "Technopreneur Promotion Programme" (TePP) jointly operated by DSIR under its PATSER Scheme and DST under its Home Grown Technology Scheme to tap the vast innovative potential of the citizens of India

The progress of various projects under PATSER Scheme during the year is given below:

2.1.1. M/s. Litex Electricals Pvt. Ltd., Pune and Society for Applied Microwave Electronics Engineering and Research (SAMEER), Mumbai

The project of M/s Litex Electricals Pvt. Ltd. for development of Xenon and Krypton filled lamps for laser pumping is being undertaken in association with SAMEER, Mumbai. This project involving DSIR support of Rs.8 lakhs out of total project cost of Rs.25 lakhs is in progress. The project has been completed.

2.1.2. M/s. CS Zircon, Kala Amb and Institute of Plasma Research (IPR), Ahmedabad

The project of M/s C.S. Zircon is for the development of Plasma based dissociation process to manufacture Zirconia, in collaboration with IPR, Ahmedabad, a research society under the Department of Science and Technology. This project, involving DSIR support of Rs.9.5 lakhs out of a total project cost of Rs.60 lakhs, has been completed.

2.1.3. National Fertiliser Ltd. (NFL), New Delhi and Centre for Study of Man and Environment (CSME), Calcutta

The project for bench scale development and field testing of Zinc Polyphosphate based Slow release micronutrient fertilizers was successfully undertaken by CSME with DSIR support of Rs.1.25 lakhs out of a total project cost of Rs.2.50 lakhs. CSME has also been successful in undertaking repeat trials for residual effects with a further support by DSIR of Rs. 1.10 lakhs out of a total cost of Rs. 2.20 lakhs. NFL has supported the remaining costs of both the phases of this project. The project has been completed.

2.1.4. M/s. Central Electronics Ltd. (CEL), Sahibabad

The project for "Development of Hybrid (SPV-Diesel) Pilot power Plant was undertaken by M/s Central Electronics Ltd. with DSIR's support of Rs. 14 lakhs out of the total project cost of Rs. 21 lakhs. The project which was initially targetted at meeting the requirements of Defence Radio Relay (RRD) and the Deptt. of Telecommunication's Repeater Station for Rural and Remote Telecommunications Networks was reviewed. In order to meet the enhanced technical requirements and specifications of DOT, the system was upscaled and its demonstration has been successfully completed at DOT Microwave Repeater Station at Manesar, with remote control facility at Sanchar Bhawan. The project pertaining to Defence application, however, was not considered techno-economically feasible to implement. The project has been completed

2.1.5. M/s Mishra Dhatu Nigam Ltd. (MIDHANI), Hyderabad

The project by MIDHANI is for welding of Molybdenum wire to make 20 kg coil. A special welding machine has already been developed in the project for this purpose. Samples of welded wires have already been approved by user's both in India and abroad and more than 500 Kg of wires have already been prepared and delivered. DSIR support to this project is Rs. 10 lakhs out of a total project cost of Rs. 20 lakhs. The activities in the project have been completed.

2.1.6. M/s. Metallurgical & Engineering Consultants (I) Ltd.(MECON), Ranchi and M/s Durgapur Steel Plant (DSP), Durgapur

The project for development of Under Burden Probe for determination of temperature and chemical compositions of hot gases inside the stack of a blast furnace was undertaken by M/s MECON in association with Durgapur Steel Plant (DSP) with DSIR support of Rs.30.00 lakhs out of total project cost of Rs.82.00 lakhs. The underburden probe has been developed and installed on the blast furnace along with the related instrumentation. The project has been completed.

2.1.7. M/s T.Stanes & Company Limited, Coimbatore

The project of M/s T.Stanes & Company is for development of Digested Organic Supplement (DOrS) and its applications in a variety of crops involving a DSIR support of Rs.40.00 lakhs, out of a total project cost of Rs.131.00 lakhs. The pilot plant has been installed at Madurai and production of DOrS has started. The product has been tested in green house as well as IARI's Centres located in several States. The project has been completed.

2.1.8. M/s Central Electronics Ltd. (CEL), Sahibabad and CMS Traffic System Pvt. Ltd., New Delhi

The project for the "Experimental Design and Development of SPV Powered Traffic Signalling System" has

been taken up jointly by M/s CEL, Sahibabad and CMS, New Delhi, with DSIR's support of Rs. 9.50 lakhs, out of the total project cost of Rs. 19.52 lakhs. The Delhi Traffic Police has also provided financial support of Rs. 2 lakhs for the project. The system has been successfully demonstrated to Delhi Traffic Police and the project has been completed.

2.1.9. M/s. Padmavathy Panel Boards Ltd., Bangalore

The project for upgradation of Rice Husk based plant and development of new variant of reinforced boards and particle board & fire check doors is being undertaken by M/s. Padmavathy Panel Boards Ltd., Bangalore in collaboration with NRDC, with DSIR support of Rs. 23.65 lakhs out of project cost of Rs.95.00 lakhs for one year duration. The upgraded Rick Husk Board plant of 2000 TPD has been commissioned and development of fire check doors and new variants of reinforced boards have been successfully developed. The draft project completion report has been received. The project is expected to be completed by March, 1999.

2.1.10. M/s Triveni Structural Ltd. (TSL), Naini

M/s TSL is undertaking a project for development of various types of 400 KV and 765 KV Self supporting and Guyed type transmission line towers, with a DSIR support of Rs 20 lakhs out of the total project cost of Rs 86 lakhs. Structural Engineering Research Centre (SERC), Madras is assisting the firm in design and testing of the towers. One prototype of 400 KV guyed wire single circuit 6°-2° Transmission Tower has been developed and has successfully cleared the trials at SERC, Madras. Two more prototypes are under testing. The project is in progress.

2.1.11. M/s. Central Electronics Ltd. (CEL), Sahibabad

The project for "Development and Evaluation of Plasma Etching and Edge Grinding System for Edge Separation" was undertaken by M/s CEL, Sahibabad, with DSIR financial support of Rs. 50 lakhs out of the total project cost of Rs. 135 lakhs. The project is scheduled to be completed.

2.1.12. M/s. IBP Co. Ltd., Gurgaon

Four projects for (a) Development of Site Mixed slurry (SMS) Explosives for deep bore-hole applications. (b) Adaptation and upgradation of Emulsion Explosive Technology (c) Development of Detonating Card for shaped charges used for perforation of wells in oil fields and (d) Development of Heat Resistant Explosives (with the assistance of CMRI, Dhanbad) were undertaken by M/s IBP, Gurgaon with DSIR support of Rs.41.50 lakhs out of total project cost of Rs 137.00 lakhs. The project on Detonating Card for shaped charges has been completed and the firm has started selling the product to ONGC. The firm has filed an Indian patent on the Detonating card. The field trials on Site mixed slurry have also been completed. The other two projects are in progress.

2.1.13. M/s. FACT, Cochin

The project for development of slow release fertilizers and their application on Paddy, Banana, sugar cane and Coconut crops is being undertaken by M/s FACT in association with Kerala Agricultural University, Thrissur and Tamilnadu Agricultural University, Coimbatore with a DSIR support of Rs. 12.00 lakhs out of a total project cost of Rs.46.00 lakhs. The sixth and final crop of paddy has been harvested and trial on other long duration crops such as sugarcane, banana, coconut are in progress.

2.1.14. M/s Mishra Dhatu Nigam Ltd. (MIDHANI), Hyderabad

MIDHANI has taken up a project to produce clean steel through filtration. Several filters have been identified for the project and trials are being conducted on them. Trials have demonstrated the effectiveness of the filter in some type of steels. DSIR's support to the project is Rs. 37.00 lakhs out of a total project cost of Rs. 74.00 lakhs. The project is in progress.

2.1.15. M/s Mishra Dhatu Nigam Ltd. (MIDHANI), Hyderabad

The project for production of wires with high surface finish has been taken up by MIDHANI with a DSIR support of Rs. 12 lakhs and project cost of Rs. 36 lakhs. Such wires find extensive use in spark plugs and electrostatic precipitators. One batch of wires have already been produced and accepted by BHEL with some comments. Second improved batch is undergoing trials at BHEL.

2.1.16. Central Power Research Institute (CPRI), Bhopal and M/s G.K. Electricals, Bhopal

The joint project of CPRI and M/s G.K. Electricals, Bhopal is for development of 12 KV load break switches for use in Electrical Sub-Stations involving a DSIR support of Rs.5.5 lakhs out of total project cost of Rs.50.00 lakhs. Second prototype is under testing. The project is in progress.

2.1.17. M/s Semiconductor Complex Limited, (SCL), Chandigarh and C- DAC, Pune.

The joint project of M/s SCL and C-DAC is for development of ASIC (Application Specific Integrated Circuit) for Indian languages computing system GIST-II and the related card involving DSIR support of Rs. 30 lakhs out of total project cost of Rs. 50 lakhs. The project is in progress.

2.1.18. M/s Semiconductor Complex Limited, (SCL), Chandigarh and Electronic Research & Development Centre, Thiruvananthapuram.

The joint project of M/s SCL and ER&DC is for development of ASIC for microprocessor based power controller involving DSIR support of Rs. 50.50 lakhs out of total project cost of Rs. 93 lakhs. The project is in progress.

2.1.19. M/s Semiconductor Complex Limited, (SCL), Chandigarh and Electronic Research & Development Centre, Thiruvananthapuram.

The joint project of M/s SCL and ER&DC is for development of ASIC and the related STD PCO machine involving DSIR support of Rs. 18.00 lakhs out of total project cost of Rs. 65 lakhs. The ASIC developed is under evaluation. The project is in progress.

2.1.20. M/s Semiconductor Complex Limited, (SCL), Chandigarh and M/s Indchem Research and Development Laboratory (IRDL), Madras.

The project for the development of ASIC for MPEG-2 (Motion Picture Export Group) Decoder was undertaken jointly by M/s SCL and IRDL with DSIR support of Rs. 70 lakhs out of the total project cost of Rs. 225 lakhs. The project is in progress.

2.1.21. M/s Semiconductor Complex Ltd. (SCL), Chandigarh and M/s Bharat Heavy Electricals Ltd. (BHEL), Bangalore

The joint project of M/s SCL and M/s BHEL is for development of the Application Specific Integrated Circuit (ASIC) and ASIC based 3 Phase multifunctional electronic energy meter for industrial applications involving DSIR support of Rs.23.00 lakhs out of total project cost of Rs.43.00 lakhs. The project is in progress. The ASIC design has been completed and the ASIC has been sent for prototyping. The ASIC will be integrated with the rest of the meter.

2.1.22. M/s Bharat Earth Movers Ltd. (BEML), Bangalore

The project for development of Cast Crank Shaft used in their heavy duty engines was undertaken by M/s BEML with DSIR support of Rs.27.00 lakhs out of total project cost of Rs.65.00 lakhs. The prototype of the S.G. Iron Crank Shaft has been developed and will be fitted in a engine for testing. The prototype of Austempered Ductile Iron (ADI) Crank shaft is under development. The project is in progress.

2.1.23. M/s Turbotech Precision Engineering Pvt. Ltd. (TPEL) and National Aerospace Laboratories (NAL), Bangalore

The project being executed by M/s TPEL in collaboration with NAL, and Sakthi Sugars, Erode is for the development of low cost gas turbine (LCGT) generator set of 500 KW power class, with multi fuel capability (biogas, piped natural gas and diesel fuel) involving DSIR support of Rs.73 lakhs out of total project of Rs.238 lakhs. The sub-systems of the Gas Turbine system such as turbine, compressor, combustor and planetary gear box etc. have been successfully developed. The LCGT system is under testing at full 30,000 rpm speed at Turbotech's turbine testing centre, Nelamangla and full load test will be carried out shortly and thereafter the

LCGT system for endurance testing at Sakthi Sugar will be undertaken. The project is in progress.

2.1.24. M/s Tamilnadu Petroproducts Limited (TPL), Madras and Indian Institute of Petroleum (IIP), Dehradun.

The project for development of technology for Long chain (C10-C14) Alcohols by oxidation of n-Paraffin arising in the production of Linear Alkyl Benzene (LAB) with a DSIR support of Rs. 55 lakhs out of total project cost of Rs. 144 lakhs is being undertaken by M/s TPL, in collaboration with Indian Institute of Petroleum, Dehradun. Use of a novel catalysts system has given 40-45% conversion of n-paraffins into secondary alcohols, per pass, at a selectivity of about 95%. Work at IIP Dehradun is completed. Basic engineering package is ready. TPL is now putting up pilot plant based on IIP Dehradun technology. The project is in progress.

2.1.25. M/s Encon Thermal Engineers and Indian Institute of Petroleum (IIP), Dehradun

The project of M/s Encon Thermal Engineers in collaboration with IIP, Dehradun, is for development of Natural Gas Fired Industrial Gas Burners having a capacity of 50 and 100 cu. m. of natural gas per hour and involves financial support from DSIR and M/s Gas Authority of India Ltd. (GAIL), New Delhi of Rs. 11 lakhs each out of a total project cost of Rs.30 lakhs. Three types of burners have been designed and fabricated. LPG Storage and handling facility has been set up for trials of burners. The project is in progress.

2.1.26. M/s Electronic Corporation of India Ltd. (ECIL), Hyderabad and Central Road Research Institute (CRRI), New Delhi

The joint project of M/s ECIL, Hyderabad and CRRI, New Delhi is for the development of a microprocessor controlled Nuclear Moisture and Density Gauge with a DSIR support of Rs.18 lakhs out of a total project cost of Rs.28 lakhs. 5 prototypes of moisture and density gauges will be given to user agencies such as Border Road Organisation and State PWDs for user's trials in construction projects and based on the feed back of the performance of the prototypes, CRRI and M/s ECIL would modify the gauges, if required. The first prototype of Moisture and Density Gauge has been demonstrated. The second prototype is likely to be ready in May, 1999. The project is in progress.

2.1.27. M/s National Aluminium Company Limited (NALCO), Bhubaneswar

NALCO has taken up a project to develop technology for the production of Special Aluminas and Hydrates which are used in a variety of diverse applications such as grinding wheels, tooth paste, etc. DSIR is supporting the project with a financial grant of Rs. 100 lakhs. Customer evaluation of the

product is under progress. The project is nearing completion.

2.1.28. M/s Central Electronics Ltd. (CEL), Sahibabad and Centre for Development of Advanced Computing (C-DAC), Pune

The joint project of M/s CEL and C-DAC is for "Development of a Solid State Interlocking (SSI) System for Railways" with DSIR support of Rs. 70.00 lakhs out of the total project cost of Rs. 95.00 lakhs. The project is in progress.

2.1.29. M/s Bharat Earth Movers Ltd.(BEML), Bangalore

The project of M/s BEML is for the design and development of 460 HP Wheel Dozer. This project was approved with a DSIR's support of Rs. 20 lakhs out of a total project cost of Rs. 85 lakhs. The prototype of the Wheel Dozer has been fabricated and is under testing. The project is progressing satisfactorily.

2.1.30. M/s JSL Industries Ltd., Vadodara

The project of M/s JSL Industries Ltd. Vadodara for upgradation of Air Circuit Breakers in collaboration with Electrical Research and Development Association (ERDA), Vadodara was approved with a DSIR support of Rs. 13.75 lakhs out of total project cost of Rs. 34 lakhs. Prototypes with 50 KV Short Circuit rating were successfully developed and tested. The project is in progress.

2.1.31. M/s INTRA Industries Pvt. Ltd., Pune

The project of M/s INTRA industries Pvt. Ltd., Pune for development of 14.5 KVA Inverter for Railways was approved with a DSIR support of Rs. 21.80 lakhs out of total project cost of Rs. 62 lakhs. The prototypes are under testing. The project is in progress.

2.1.32. M/s Central Electronics Ltd. (CEL), Sahibabad

M/s CEL has undertaken a project for "Upgradation of the Process Technology for the Production of Single Crystalline Silicon Solar Cells in the existing SPV Plant" with DSIR's support of Rs. 264 lakhs out of the total project cost of Rs.539 lakhs based on laboratory scale technology developed by Inter- University Micro Electronic Central (IMEC), Belgium. The project is nearing completion.

2.1.33. M/s Central Electronics Ltd. (CEL), Sahibabad and Electronics Research & Development Centre (ER&DC), Thiruvananthapuram

The joint project of CEL and ER&DC is for "development and design of SPV Charger for Ni-Cd batteries using Smart charging technology" with DSIR's support of Rs. 24 lakhs (Phase I) out of the total project cost of Rs. 71.80 lakhs. The SPV chargers will find applications for charging the batteries of man-pack/portable Radio sets of the Military and Para-military forces. The project is nearing completion.

2.1.34. Gujarat Narmada Valley Fertilisers Limited (GNFC), Bharuch, Gujarat and Engineers India Ltd., New Delhi

A project to develop the process for removal of Hydrogen sulphide and recovery of sulphur from sour gases was assigned to Gujarat Narmada Valley Fertilisers Limited (GNFC), Bharuch, Gujarat and Engineers India Ltd., New Delhi. The DSIR support for the project is Rs. 100 lakhs, out of total cost of project Rs. 207 lakhs. The catalyst for removal of Hydrogen sulphide and recovery of sulphur has been demonstrated at ONGC Complex at Hazira. The project is in progress.

2.1.35. ABR Organics Limited (ABROL), Hyderabad

The project for Technology upgradation of polyimide resins and their applications by M/s ABR Organics Limited (ABROL), Hyderabad has been taken up with DSIR support of Rs. 35 lakhs out of a total project cost of Rs. 150 lakhs. The project is in progress.

2.1.36. M/s Southern Petrochemical Industries Corporation Ltd., Chennai and Indian Institute of Chemical Technology, Hyderabad.

Southern Petrochemical Industries Corporation Ltd., Chennai, and Indian Institute of Chemical Technology Hyderabad have jointly undertaken a Project for development of Process for manufacture of Pyrazinamide using catalytic route. The project involves DSIR support of Rs. 195.00 lakhs in a total project cost of Rs. 466.00 lakhs. The project is in progress.

2.1.37. M/s Indus Natural Products Pvt. Ltd., Pune and National Chemical Laboratory, Pune

Joint project of M/s Indus Natural Products Pvt. Ltd., Pune and National Chemical Laboratory, Pune is for 'Development of Technology for L(+) Tartaric Acid, and Salts or Derivatives thereof, Pectin and Fruit Sugar from the Fruit of Tamarind' with DSIR support of Rs. 16.5 lakhs out of total project cost of Rs. 33.00 lakhs. Tartaric acid finds extensive application in beverages, emulsifiers, pharmaceuticals, foods, electro-chemical industry and development and purification of chiral compounds. Most common fruit from which tartaric acid is produced worldwide is grape, whereas in the present project tartaric acid is proposed to be manufactured from a totally new raw material-tamarind. The process has been developed by National Chemical Laboratory, Pune and will be scaled up to a pilot plant scale of 350 kg. raw material per batch basis. Blank trial run have been taken. The project is in progress.

2.1.38. M/s HMT Ltd., Bangalore

The project for the development of CNC Machining Centre is being undertaken by HMT Ltd., Bangalore and Pinjore with the aim of bringing out a new generation machine

tool comparable to international standard. The DSIR's support is Rs. 75 lakhs out of the total project outlay of Rs. 197 lakhs. The machine has been displayed at IMTEX-98. The metal cutting trials are in progress.

2.1.39. M/s ACE Designers Ltd. and CMTI, Bangalore

The joint project for the development of PC Based CNC System is being undertaken by M/s ACE Designers Ltd., Bangalore in collaboration with Central Manufacturing Technology Institute, Bangalore with DSIR support of Rs. 35 lakhs, out of the total project cost of about Rs. 99 lakhs. The aim of the project is to develop a cost effective, advanced open architecture PC based CNC System for the machine tools. One PC Based CNC System has been interfaced with the lathe machine and its trial is in progress. Another prototype of the system is likely to be fitted with machining centre in January, 1999. The project is in progress.

2.1.40. M/s Innovation Communications Systems Pvt. Ltd. (ICS), Hyderabad

The project for "Development of Interactive Voice Response System with Multilingual Capability" was undertaken by M/s Innovation Communication with DSIR support of Rs. 7.00 lakhs out of total project cost of Rs. 23.80 lakhs. The project is planned to be completed.

2.1.41. M/s Webel Mediatronics Ltd. (A Govt. of West Bengal Undertaking), Calcutta.

The project for "Development of Computerised Braille Transcription System" was undertaken by M/s Webel with DSIR support of Rs. 16.00 lakhs out of the total project cost of Rs. 32.00 lakhs. The project is in progress.

2.1.42. M/s Enercon Systems Pvt. Ltd., Bangalore

The project for the "Development of Centralised Electrical Energy Management System" has been undertaken by M/s Enercon System with DSIR support of Rs. 20.00 lakhs out of the total project cost of Rs. 48.80 lakhs. The system was successfully demonstrated at Vasavadatta Cements plant at Sedam, Karnataka and the project has been completed.

2.1.43. M/s National Aluminium Company Limited (NALCO), Bhubaneswar

NALCO has taken up a project to setup a plant for recovery of 1 T/annum of 5N purity Gallium from their sodium aluminate liquor. DSIR support to the project is Rs. 2.17 crores. The project is in progress.

2.1.44. M/s PMT Machine Tool Automatics Ltd., Pune

The project for the development and demonstration of 5-axis CNC internal grinding machine has been undertaken by PMT Machine Tools Automatics Ltd., Pune with DSIR support of Rs. 46 lakhs out of total project cost of Rs. 98 lakhs. The project is in progress.

2.1.45. M/s Praj Industries Ltd., Pune

The project for "development and demonstration of energy efficient drying system" has been undertaken by M/s Praj Industries Ltd., Pune with DSIR support of Rs. 24.00 lakhs out of the total project cost of Rs. 49.50 lakhs. The project is in progress.

2.1.46. M/s Priya Bricks Pvt. Ltd., Calcutta

The project for the "development and demonstration of stiff extrusion technology for extruding solid perforated & hollow building blocks" has been undertaken by M/s Priya Bricks Pvt. Ltd. with DSIR support of Rs. 45.00 lakhs out of the total project cost of Rs. 97.80 lakhs. The project is in progress.

**2.1.47. M/s Delta Agro Chemicals Ltd.,
Serinarasannapalem, Krishna district, A.P.**

The Project for the development of process for manufacture of furfuryl alcohol by hydrogenation of Furfural was undertaken by M/s. Delta Agro Chemicals Ltd., Serinarasannapalem, Hanuman Junction, P.O. Krishna District (A.P.) with DSIR support of Rs. 18.5 lakhs out of a total project cost of Rs. 45.0 lakhs. The firm is engaged in manufacture of Furfural from agricultural wastes, such as rice husk, corn cobs, sugarcane bagasse, etc. The firm has proposed to put up a pilot plant to produce 250 Lt. per day of the product with the help of IICT, Hyderabad in order to generate data required for further scaling up to commercial plant. Detailed engineering package for the pilot plant and assistance in the erection and commissioning and operation of the pilot plant and down stream processing will be rendered by IICT. Although this project is aimed at developing process for furfuryl alcohol, the pilot plant will be designed in such a way that it can be used for any other catalytic process for similar nature in future. The project is in progress.

2.1.48. M/s. General Exports & Credits Ltd., New Delhi

The project for development and demonstration of Azadirachtin-A Technical from neem seeds kernels and its formulations was undertaken by M/s. General Exports & Credits Ltd., New Delhi in collaboration with Dalmia Centre for Biotechnology(DCBT), Coimbatore and Indian Institute of Chemical Technology(IICT), Hyderabad, with DSIR support of Rs. 65.0 lakhs out of a total project cost of Rs. 248.97 lakhs. The project envisaged setting up of a pilot plant in which 300 kg/day neem seeds kernels will be processed to produce 100 gm. Azadirachtin-A of 60-70% purity per day in District Hardoi (Uttar Pradesh) based on lab scale technology developed by DCBT. IICT, Hyderabad has been entrusted with the task of designing and engineering of the pilot plant. National lab such as IARI centres will carry out field trials of pesticides. The project is in progress.

**2.1.49. M/s. National Fertilizers Ltd., New Delhi and
Raman Centre for Applied and Interdisciplinary
Sciences, Calcutta**

The project for "pre-pilot plant trials of slow release zinc polyphosphate fertilizer" was undertaken by Raman Centre for Applied and Interdisciplinary Sciences (RCAIS), Calcutta in collaboration of M/s National Fertilizers Ltd. (NFL), New Delhi, with DSIR support of Rs. 4.15 lakhs out of a total project cost of Rs. 8.9 lakhs. M/s. NFL has extended its support of Rs. 4.765 lakhs to RCAIS. DSIR had extended its support for upscaling and field testing of this fertilizer in the past which has been patented. DSIR had also supported study of residual effect of this fertilizer on various crops. The field trials of this fertilizer at three major national centres had shown encouraging results. However, the production of zinc polyphosphate had certain technical/engineering problems. In order to scale up at pilot plant, NFL and RCAIS have plans to have plant trials in some of the existing industrial plants, hoping that this trial will result in solving the problem being encountered at various stages of production of zinc polyphosphate fertilizer at lab scale. During this plant trials, the fertilizer produced could be used for trials to generate data for FCO clearance. After the success of these trials, pilot plant project would be taken up by NFL. The project is in progress.

2.1.50. Autopal Industries Ltd., Jaipur

The project for the development of Metal Halide Lamps was taken up by M/s Autopal with DSIR support of Rs. 50 lakhs out of total project cost of Rs. 145 lakhs. The project is in progress.

2.1.51. SM Electronics & Services Ltd., New Delhi

The project for development of Multilingual pager was undertaken by SM Electronics & Services Ltd., with CDAC, Pune with DSIR support of Rs. 36 lakhs out of total project cost of Rs. 80 lakhs. The project is in progress.

2.1.52. Bharat Earth Movers Ltd., Bangalore

The project for development of unified Electronic controller for off-high way Dump Trucks was undertaken by Bharat Earth Movers Ltd., Bangalore, with ER&DC, Thiruvananthapuram with DSIR support of Rs. 16.5 lakhs out of total project cost of Rs. 34 lakhs. The project is in progress.

2.1.53. Shree Pacetronix Ltd., Indore

The project for development of implantable Pacemaker with indigenous ASIC and programming unit was undertaken by Shree Pacetronix Ltd., Indore with Semi Conductor complex Ltd., Chandigarh with DSIR support of Rs. 40 lakhs out of total project cost of Rs. 90 lakhs. The project is in progress.

2.1.54. M/s. Usha India Ltd., (Electronics Division), Faridabad

The Project for "Design & Development and packaging of high power converter grade Thyristor chips and devices; and optimization of related manufacturing technology" was undertaken by M/s. Usha India Ltd., (Electronics Division), Faridabad with DSIR financial support of Rs.40.00 lakhs out of the total project cost of Rs.147.00 lakhs. The project is in progress.

2.1.55. M/s. Semiconductor Complex Ltd., (SCL), Chandigarh and M/s. Bharti Telecom Ltd., (BTL), Gurgaon.

The project for the "development of telephone instrument based on the Single Chip telephone ICs" was undertaken by M/s. Semiconductor Complex Ltd., Chandigarh and M/s. Bharti Telecom Ltd., Gurgaon with DSIR support of Rs.35.00 lakhs out of the total project cost of Rs.89.00 lakhs. The project is in progress.

2.1.56. M/s. Karnataka Hybrid Micro Devices Ltd., Bangalore

The project for the "Development of Thick Film Hybrid Micro Electronic circuit Technology for Automobile underhood applications" was undertaken by M/s. Karnataka Hybrid Micro Devices Ltd., with DSIR support of Rs. 38.00 lakhs out of total project cost of Rs.101.00 lakhs. The project is in progress.

2.1.57. M/s TCM Ltd. (TCML), Bangalore

The project for development of Technology for production of different grades of Barium Carbonate (heavy/light, powder/ granules) has been taken up with DSIR support of Rs.30 lakhs out of a total project cost of Rs.140 lakhs.

2.1.58. M/s Targof Pure Drugs Ltd., Hyderabad

Targof Pure Drugs Ltd., Hyderabad have undertaken a Project for Development of Synthetic Route for manufacture of Bi-Naphthyl Crown Ethers. The project involves DSIR support of Rs. 40.00 lakhs in a total project cost of Rs. 133.50

lakhs. The project is in progress.

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, 17 Essentiality certificates for nearly Rs.300 lakhs worth of components and consumables under technology development projects supported under "Programme Aimed at Technological Self Reliance" scheme of DSIR, have been issued.

4. TECHNOPRENEUR PROMOTION PROGRAMME (TePP)

As a new initiative during 1998-99, the Ministry of Science and Technology has launched a novel programme "Technopreneur Promotion Programme" (TePP) jointly operated by DSIR under its PATSER Scheme and DST under its Home Grown Technology Scheme to tap the vast innovative potential of the citizens of India. The activities under TePP will include providing financial support to individual innovators having original ideas and convert them into working models, prototypes, etc. It is planned that 30 projects would be supported during 1998-99 under TePP activities.

5. EXPECTED OUTPUTS AND BENEFITS

The completed technology development projects supported under PATSER Scheme 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 PATSER scheme.