



DRDO Newsletter

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In This Issue

खण्ड 26 अंक 9



Transfer of Technologies
 CFEES Transfers Technologies to Industry Partners
 Portable Non-lethal Laser Dazzlers

XIV Prof DS Kothari Memorial Oration

Book Released on Herbal Drugs: A Twenty-first Century Perspective

Personnel News

- Superannuations
- Appointments
- Promotions
- Awards

Human Resource Development Activities
 Courses/ Conferences/Seminars

Sports Round-up
 DRDO Inter-Zonal Table Tennis Tournament 2006-07

Visitors to DRDO labs/estts

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Transfer of Technology

CFEES Transfers Technologies To Industry Partners



Shri Pahlada CC R&D (SI); Shri M Natarajan, SA to RM; Shri Sivathanu Pillai CC R&D (NS&ACE); Shri VK Kapoor, Director, CFEES, and Maj Gen Umang Kapoor, Director, DTRL at the Inaugural Session of TOT Ceremony

Centre for Fire, Explosive & Environment Safety (CFEES), Delhi, has developed various technologies pertaining to fire, explosives, and environment safety. The six of these technologies have been handed over by Shri M Natarajan, Scientific Adviser to *Raksha Mantri* to the industry partners on 30 August 2006, in a function organised at the Kothari Auditorium, DRDO Bhawan, New Delhi. The function was graced by the CC R&Ds, Corporate Directors from DRDO HQrs, and Directors from Delhi based laboratories .

The respective technologies and the recipient firms are as follows:

- ▶ Intelligent Fire Sensor, handed over to M/s Southern Electronics Pvt Ltd, Bangalore.
- ▶ Multipurpose Dry Chemical ABC Powder, handed over to M/s KV Fire Chemicals Pvt Ltd, Mumbai.
- ▶ Disposal of Toxic Heavy Metals (THM) by Cement/Polymer based Stabilization/Solidification Process, handed over to M/s Quality Water Management Systems Pvt Ltd, Chennai.
- ▶ Advanced Oxidation Process, handed over to M/s Quality Water Management Systems Pvt Ltd, Chennai.
- ▶ Hepta-fluoro-propane (FM-200), handed over to M/s Mechvac Fabricators (I) Pvt Ltd, Navi Mumbai.
- ▶ Upscaling of Activated Carbon Spheroids, handed over to M/s Hindustan Electro Graphite Ltd, Bhopal.

■ ■ ■ Transfer of Technology

Portable Non-lethal Laser Dazzlers



▶ Short-range Hand-held Laser Dazzler

Laser Science and Technology Centre (LASTEC), Delhi, has developed two variants of *Portable Non-lethal Laser Dazzlers* (PNLD) suitable for counter-insurgency operations. The hand-held and weapon-mounted versions of PNLD have maximum operational ranges of 50 m and 500 m, respectively. Short-range Laser Dazzler with integrated red laser beam in weapon-like package has maximum operational range of 50 m. All the variants are completely non-lethal and produce randomly flickering green laser output sufficient to cause a temporary dazzling effect and have an in-built safety interlock to prevent misuse. Under a MoU with SDS Electronics Pvt Ltd, Panchkula, transfer of technology of the two variants of PNLD has been finalised.

Salient features of Short Range Laser Dazzler

Type of laser	: Diode Pumped Solid State Laser
Wavelength	: 532 nm
Weight	: 850 g

XIV Prof DS KOTHARI MEMORIAL ORATION

Defence Laboratory (DL), Jodhpur, organised the XIV Prof DS Kothari Memorial Oration on 20 July 2006. Padma Vibhushan Dr VS Arunachalam, Former Scientific Adviser to Raksha Mantri was the Chief Guest and delivered the oration titled, Prof DS Kothari, the Man and His Mission. Shri Chand Mal Lodha, Former Chief Justice, Rajasthan High Court presided over the function and in his presidential address narrated vision, life style, philosophy, and simplicity of Prof Kothari. Faculty members and scientists of various academic and research institutes and industries of the Jodhpur city and family members of Dr Kothari were present on this occasion.



Dr VS Arunachalam delivering the Prof DS Kothari memorial oration

Dr VS Arunachalam gave away *Lifetime Achievement Awards* to Shri PK Bhatnagar, Sci G, and Dr Narendra Kumar, Sci G for their contribution in the field of science and technology. Dr Narendra Kumar and his team were also awarded *Vikas Puraskar* for the development of radome paint. Shri PK Bhatnagar, Associate Director and Chairman, Organising Committee proposed the vote of thanks.

BOOK RELEASED

Herbal Drugs: A Twenty-first Century Perspective

A book entitled, *Herbal Drugs: A Twenty-first Century Perspective* was released by Dr W Selvamurthy, Distinguished Scientist and Chief Controller R&D (LS&HR), on 13 July 2006 at Defence Research Laboratory (DRL), Tezpur. Dr Rakesh Kumar Sharma, Sci F and Addl Director, DRL, Tezpur; and Dr Rajesh Arora, Sci D, INMAS, Delhi, are the editors of this book which has been published by Jaypee Brothers Medical Publishers Pvt Ltd, Delhi.

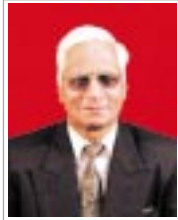


Dr W Selvamurthy releasing the book on Herbal Drugs: A Twenty-first Century Perspective

Personnel News

Superannuation

Dr Haridwar Singh



Dr Haridwar Singh, Emeritus Scientist joined Armament Research and Development Establishment (ARDE), Pune, on 5 April 2004 after retirement as Director, High Energy Materials Research Laboratory (HEMRL), Pune, and completed his tenure at ARDE on 31 March 2006.

Dr Haridwar Singh made immense contributions towards the establishment of indigenous technologies for a variety of propellants and for high performance, thermally stable high explosives. He has more than 160 research papers, 8 patents, and a book on Rocket Propellants to his credit. Dr Singh is a recognised guide for postgraduate research at several universities.

A two-time recipient of *DRDO Scientist of the Year Award*-1983 and 1993, he received the *DRDO Cash Award* for Development of Power Plant for Missile Target, and *Agni Award for Excellence in Self Reliance*-1998.

Dr AV Namboodiri

Dr AV Namboodiri, Sci G, joined ARDE as Sci B in 1975 after a short tenure at IAT (now DIAT), Pune. A PhD in Mathematics, Dr Namboodiri headed the Air Pilot Plant and was involved in the design and development of air armament stores such as power cartridges and canopy severance system for LCA, and was Group Director for Ballistics, MMD, and Warhead groups.

Shri S S Prasad



Shri S S Prasad, Director, Institute for Systems Studies & Analyses, Delhi (in which the Centre for Aeronautical Systems Studies & Analyses (CASSA), Bangalore, was merged in 2003) and Defence Terrain Research Laboratory, Delhi, superannuated on 31 July 2006. He has been an alumnus of St. Xavier's, Ranchi, and IIT, Kanpur. He started his career in 1967 with ballistic computations at ARDE, Pune. In 1977 he was invited by UPSC where he developed and implemented Civil Services Examination Processing System, making pioneering use of OMRs in the country. On completion of tenure in 1980, he planned setting up of DRDO Computer Centres and their networking based on OSI Reference Model. Besides the operational management of the PRIME computers at Delhi, he was also responsible for software development for simulation and image processing. In 1989, he was invited to head the only CRAY supercomputer centre in India and was responsible for upgradation of the CRAY XMP to its full configuration, complete system integration to predict medium-range weather forecasts and their dissemination using VSATs developed by C DOT.

He joined DRDO HQrs in 1997 as Director, Information Systems, and held additional appointment of Director Training and Sponsored Research during 1998-2000, and Director, RAC from May 2000 to July 2003.

He is Fellow of Institution of Electronics & Telecom Engineers (IETE), Professional Member of ACM (USA), Member, IEEE Computer Society (USA) and Senior Member, Computer Society of India. One of his papers entitled, *Computer-aided Design of Optimal Pattern Layouts* has been included as part of a book published in North Holland.

DESIDOC Bids Farewell to Shri Limaye

Shri KU Limaye, Distinguished Scientist and CC R&D (ECS) retired from service on superannuation on 31 August 2006. Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, bid a farewell to its Chief Controller on 12 August 2006 and thanked him for the concern and guidance given by him from time to time. Shri Limaye visited the Centre and took keen interest in the activities carried out by its various divisions. Directors of the DRDO labs at Metcalfe House and Shri GS Malik, Director, DECS, DRDO HQrs were present on the occasion.

Born on 17 August 1946, Shri Limaye obtained his BE from IISc, Bangalore in 1968 and MTech from IIT, Kharagpur, in 1976. He joined DRDO in 1968 and served at the Electronics and Radar Development Establishment (LRDE), Bangalore, till September 1996. He also served as Director, Microwave Tube Research and Development Centre (MTRDC), Bangalore, during 1996-2003. He took over additional charge as Director, Centre for Airborne Systems (CABS), Bangalore, in April 2002 and was there till 31 March 2004. He was appointed CCR&D (ECS) wef 1 March 2005. He had been holding additional charge as Director, LRDE, Bangalore, where he has been Director since 1 May 2003 to February 2005.

His work has led to significant achievements in self-reliance in advanced radar systems and travelling



Shri Limaye being felicitated during his visit at DESIDOC by Dr AL Moorthy

wave tubes for radars and electronic warfare systems. Areas of his research include: Radar system design, electronically scanned phased array, airborne radars, microwave antennas, and travelling wave tubes, etc.

The various defence systems technologists developed during his time were published in 3 issues of Technology Focus (2000-2003) published by DESIDOC.

He is the recipient of *DRDO Scientist of the Year Award-1986*, *JC Bose Memorial Award-1995*, *IETE-IRSI Award-1995*, and *Silicon Trophy for LRDE as Best Systems Lab-2002*,

He is Fellow of Indian National Academy of Engineering, Institute of Electronics and Telecommunication Engineers, Member IEEE, and Associate of National Institute of Advanced Studies.

Appointments

Director, ISSA



Shri HV Srinivasa Rao has been appointed Director, Institute for Systems Studies and Analyses (ISSA), Delhi, wef 1 August 2006. He obtained BE from National Institute of Engineering, Mysore, and ME from IISc, Bangalore. His areas of interest

include: Systems analysis, modelling and simulation

of military systems, electronic and information combat, network-centric warfare, electronic warfare systems modelling and analysis, and concepts evolution strategies.

Shri Rao joined DRDO at the Defence Research and Development Laboratory (DRDL), Hyderabad, in September 1974 where he worked in the area of missile guidance. He joined Defence Electronics Applications Laboratory (DEAL), Dehradun, in 1980 and worked on R&D related to tracking system.

He joined Centre for Aeronautical Systems Studies and Analyses, (CASSA), Bangalore, in December 1984 subsequent to his selection as Sci D. During 1984-2003, he worked in the area of systems analysis, modelling and simulation of military systems. He was responsible for leading a group of scientists for building sensors and weapon systems modelling and simulation for carrying out systems studies. His major areas of work include: prediction, design trade-off studies, mission planning, new concept evolution and tactics development. Under his leadership, several integrated digital software were developed at CASSA for which copyrights were obtained by DRDO. He was Project Director for several systems studies projects and was responsible for CASSA becoming workcentre for modelling and simulation for IGDMP.

He was appointed Director, CASSA, Bangalore, and served there during October 2001-December 2003. Later, he joined DARE, Bangalore in December 2003 and was engaged in conceptualisation and system design of advanced airborne EW system. He has over 50 technical reports to his credit.

Director, DRL, Tezpur



Dr RB Srivastava has been appointed Director, DRL, Tezpur, wef 1 August 2006. Born on 23 February 1955, he did his postgraduation from Allahabad University and PhD from Kumaun University in 1981. He joined Naval

Materials Research Laboratory (NMRL), Ambarnath, as Sci B in 1979. He moved to Defence Materials and Stores Research and Development Establishment (DMSRDE), Kanpur, in 1994. Subsequently, he became Associate Director in the Dte of Life Sciences (DLS) at DRDO HQrs, Delhi, in 2005.

Dr Srivastava has been responsible for evolving the water quality standards for Indian coastal waters and predictive modelling of performance and

behaviour of marine harbour waters and aerospace materials. He has given new concepts related to microbe-metal interactions and use of biofilm as a tool for environmental monitoring after studying the etiology of biofilm formation under Indian tropical conditions. He has also contributed for LCA programme through his work on bio-susceptibility evaluations and performance assessment of LCA fuel tank materials and by providing appropriate preventive and protective measures against microbially-induced attack. His work leading to protocol development for maintenance schedule of fuel tanks in Dornier Aircraft for their airworthiness and recommendations for life extension of AN-32 Aircraft has been accepted by Air Force. One of his important contributions for Armed Forces has been planning, coordinating, and conducting defence materials and stores preservation and packaging courses at Naval stores depots and ten other military depots under different commands. As an Associate Director in the Dte of Life Sciences, he has been instrumental in developing a business plan for Life Sciences Group of laboratories in DRDO.

His areas of interest include: Biodeterioration of materials, marine pollution and biofouling, biofilms and biocorrosion, biodegradation of polymer and composites and biodegradable polymers, biotechnological exploitation of microbes and their role in agricultural composting.

He is Vice-President, International Council of Biodeterioration of Cultural Property (ICBCP) and Electron Microscope Society of India (EMSI); Executive Editor, EMSI Bulletin, Counsellor Bioresearch Society. He is also a member, Society of Polymer Sciences, Materials Research Society, and Society of Mycology and Plant Pathology. He has scripted and presented 35 scientific features on All India Radio and in *Vividh Bharati* programmes. His biography has been published in Asian/American Who's Who by Rifacimento International Publications in 2002.

He is the recipient of *DRDO Laboratory Awards-1999* and 2000. He has published 80 research papers and has edited book on Biodeterioration of Materials.

Director, ARDE, Pune



Shri Surendra Kumar, Outstanding Scientist has been appointed Director, Armament Research and Development Establishment (ARDE), Pune, wef 1 July 2006. He took over charge from Dr BS Sarma, Outstanding Scientist on his superannuation (presently Emeritus Scientist at ASL, Hyderabad).

Shri Surendra Kumar, born on 9 January 1949, obtained BTech from IIT, Kharagpur, in 1972 and ME (Aero) from IISc, Bangalore, in 1974 and joined DRDO on 10 September 1974. His field of interest has been the development of advanced missile systems

His contributions include: Development of surface-to-air-missile (*Devil*) system and induction of surface-to-surface tactical battlefield missile system *Prithvi* for the Army, Air Force and *Dhanush* for Navy; design, development, testing, productionisation of surface-to-surface missile (*Prithvi P II P plus* and *Dhanush*); development of Air Defence missiles PAD, AAD, AD-1, AD-2 and target; design and development of liquid propulsion systems for surface-to-surface and surface-to-air missile systems; design and development of twin-layered Defence system against theatre ballistic missile attack (Programme AD).

He has *Performance Excellence Award-1999*; *Best Scientist of the Year Award-2002*, and *Scientist of the Year Award-2004* to his credit.

ARDE, Pune

Shri Anil M Datar, Sci G, has joined back ARDE, Pune wef 14 July 2006 after the successful 3-year tenure at High Commission of India, London, as Technical Adviser (Defence). Born on 27 October



1955, Shri Datar obtained his BE from the University of Pune in 1977. He has DBM and MBA to his credit. He joined ARDE as Sci B in 1982. In 1989, he was deputed to UK to pursue MSc (Engg) in gun system design from the Royal Military College of Science, Cranfield, UK.

Shri Datar is a Fellow of Institution of Engineers (India) and Member, Institution of Mechanical Engineers (India). He has varied experience in the design and development of small arms, ICV armament and ammunition systems. He is recipient of *Scientist of the Year Award-1998*.

SO to SA to RM



Shri Ranjit Elias, Sci E, has been appointed SO to SA to RM wef 18 July 2006. He has obtained his ME from BIT, Mesra, Ranchi, in Space Engineering and Rocketry in 1990. After serving for one year at the National Aerospace Laboratories (NAL), Bangalore, in the field of experimental aerodynamics and wind tunnel testing, he joined Aeronautical Development Establishment (ADE), Bangalore, in 1992 as Sci B.

His work mainly pertains to: (a) Unmanned air vehicle *Nishant* and aerial target *Lakshya A-digital*: flight mechanics and control law design, flight control computers, hardware and software integration and testing, *Nishant* and *Lakshya-D* flight trials; and LCA: flight control systems, design and development of air data computer, lightning tests clearance of LCA-FCS like DFCC, actuators, RSA, ASA, air-data probes and AOA vanes.

He Joined G-FAST, DRDO HQrs in January 2006 where he was engaged in activities like DRDO re-engineering, proposed DRDO material programme and DRDO projects performance analysis. He is the recipient of *R Venkatraman Award* from Aeronautical Society of India and the *Laboratory Young Scientist Award*. He is Associate Member of the Aeronautical Society of India.

Promotions

Several DRDO Scientists have been promoted from Sci F to Sci G wef 1 July 2006. Bio-data of some of the promotees highlighting their contributions in DRDO have been reported in the earlier issue while profiles of some of the promotees are being reported in this issue. Profiles of the remaining promotees will be reported in the subsequent issues of DRDO Newsletter.

Office of CC R&D (ACE & NS)



Shri Sharad Kumar, born on 15 May 1956, has obtained his MSc in 1979 and MTech in 1981, both from University of Delhi. Presently, he is on deputation to an Indo-Russian joint venture company BrahMos Aerospace Pvt Ltd, New Delhi, since 1 August 2002. He has specialised in ship systems interfaces and systems integration using microprocessor/microcontroller-based digital electronics, architectural design and development of ship wide data networks.

He has been working in the field of electronics for the past 24 years with applications for the Indian Navy. He has designed, fabricated, and tested several hardware sub-systems, which have been commissioned in the Indian Naval ships and has developed operating system software for real-time embedded systems for various applications. Design transfer to production agency and project management for several projects have been completed under his guidance. The team headed by him designed and delivered 133 systems to the Indian Navy. The Systems Integration Group at WESEE worked under his guidance for the development of ATM-based ship wide data network for Indian Naval ships during 1996-2002.

His major achievements since deputation at

BrahMos have been finalising the technical requirements for the Indian Navy and Indian Army and signing of the Indian Navy and Indian Army contracts worth Rs 2500 Crore for supply of BrahMos weapon systems. He is the recipient of VCNS Commendation on 15 August 1994.

DMRL, Hyderabad



Dr Dilshad Akhtar, born on 1 July 1956, obtained his MSc in Physics from the University of Roorkee, in 1976 and PhD from IIT Delhi, New Delhi, in 1980. Subsequently, he was postdoctoral research fellow at the University of Sussex, UK, and a Visiting Scientist at the Massachusetts Institute of Technology, USA, before joining Defence Metallurgical Research Laboratory (DMRL), Hyderabad, in 1982.

At DMRL, he has setup a rapid solidification laboratory with a range of experimental facilities and carried out extensive research on rapidly solidified amorphous and quasi-crystalline materials. Subsequently, he contributed in the development of advanced magnetic materials like microcrystalline and nanocrystalline hard magnetic $NdFeB$ alloys, hard magnetic $SmFeN$ system, nanostructured ultrasoft magnetic materials, and novel bulk metallic glasses. He designed a state-of-the-art vacuum planar flow melt-spinning facility and got it fabricated indigenously after the trade sanctions of 1998.

He has 70 papers and reports to his credit and is recipient of Alexander von Humboldt International Fellowship of Federal Republic of Germany during 1990 and 1997 to his credit.

RCI, Hyderabad

Dr DVK Sastry obtained his PhD in Physics from SV University, Tirupati in 1981. He joined DRDO as Sci C at the DMSRDE, Kanpur, in 1984 and worked

as Sci D at DLRL, Hyderabad, during 1988-1997. He joined RCI, Hyderabad, in 1997 as Sci E and worked as Director, Inertial Systems Group, DEAN ELOIRA as Sci F. Presently, he is Director, Micro Systems Technologies. His important areas of work include MEMs for missile applications, development of RLGs,

and inertial navigation systems for various missile projects.

He has published 19 research papers and guided scientists for PhD. He is life member of several societies like, International Microelectronics and Packaging Society, Instrument Society of India,

Awards

DST Award



Shri Baikuntha Jyoti Gogoi, Sci B, Defence Research Laboratory (DRL), Tezpur, has bagged the prestigious [Department of Science and Technology \(DST\) Award](#) for participation in the 56th Meeting of Nobel Laureates and Students/Young Scientists in Chemistry at Lindau, Germany, held during 25-30 June 2006. The Lindau Meeting was attended by 23 nobel laureates and 561 young scientists from different countries .

AMI Young Scientist Award-2005



Dr A K Goel, Sci B, Defence Research and Development Establishment (DRDE), Gwalior, has been conferred with [AMI Young Scientist Award-2005](#) in Environmental Microbiology by Association of Microbiologists of India during its 46th Annual Meeting at Osmania University, Hyderabad.

Challenger Trophy and Vickers Trophy



Shri J Rajesh Kumar, Sci E, Combat Vehicles Research and Development Establishment (CVRDE), Avadi, has won the [Challenger Trophy](#) for the top student in Military Vehicle Technology Course and [Vickers Trophy](#) for the best project in Military Vehicle Technology Course during his successfully completing MSc in Military Vehicle Technology (MVT) from Royal Military College of Science (RMCS), Cranfield University, UK, during August 2004-August 2005.

IETE-IRSI (83) Young Scientist Award 2006



Smt Shubha Elizabeth Avirah, Sci C, LRDE, Bangalore, has received [IETE-IRSI \(83\) Young Scientist Award-2006](#). This award is given annually to scientists and engineers for outstanding contributions in the field of radar science & technology and microwave technologies by the Institution of Electronics & Telecommunication Engineers (IETE). The award has been conferred on her in recognition of her outstanding contribution in the field of multi-beam antenna technology for 3D medium-and long-range surveillance radar.

HUMAN RESOURCE DEVELOPMENT ACTIVITIES

Courses/Conferences/Seminars

DEAL, Dehradun

Defence Electronics Applications Laboratory (DEAL), Dehra Dun, organised a seminar on **Image Processing** activities during 28-29 June 2006. The representatives from DIPAC, Directorate of Military Intelligence (MI-17), Directorate of Naval Intelligence (DNI), Air HQs, HQr 14 Div, HQr 2 Corps and various other service organisations participated in the seminar. Presentations were made for the software developed by DEAL.

DEAL, Dehradun organised a **CEP Course on Computers and Applications in a Networked Environment** during 17-21 July 2006 for familiarising the Admin and Allied Cadre with the general usage of computer and its application. Twenty-one participants from various DRDO labs/estt attended the course. The various topics covered included introduction to computers, operating systems, MS Office, financial accounting, tally, networking, internet, intranet, DRONA, computer security and viruses, etc.



Course participants being briefed about networking applications

DRDE, Gwalior

Defence Research and Development Establishment (DRDE), Gwalior, organised a capsule course on **Use and Maintenance of Biodigesters at High Altitude** areas at 14 Corps, Leh, during June 30-31 2006. Forty-five participants from different units at Leh and Siachen attended the course. Dr Lokendra Singh, Dr MK. Agarwal and Dr AK Goel delivered the lectures and distributed the course materials.

DESIDOC, Delhi

Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, organised a CEP course on **Library Networks, Databases and Information Management Systems & Services** during 21-25 August 2006. Twenty-two participants from various DRDO labs/estts attended the course. Dr SS Murthy, Ex-Director DESIDOC, presently Consultant, USIS inaugurated the course and delivered the inaugural key note address. The topics covered during the course



Dr SS Murthy delivering the keynote address

included: Library networking, practical aspects of bibliographic database management, digital library, document delivery and electronic documents, digital preservation, information management systems and services, network security, DRONA and its role in digital information, etc. Shri RP Singh, Sci D was the Course Director.

RCI, Hyderabad

Research Centre Imarat (RCI), Hyderabad, organised a **CEP Course on Digital Integrated Circuits and Applications** during 7-11 August 2006. Twenty-six participants from various DRDO labs/estts attended the course. Shri SK Ray, Sci H, Director, RCI inaugurated the course.

Shri WN Raghupathy, Associate Director, RCI presided over the valedictory function. Shri MS Kishore, Sci F was the Course Director.

Sports Round-up

DRDO Inter-zonal Table Tennis Tournament 2006-07

High Energy Materials Research Laboratory (HEMRL), Pune, organised **DRDO Inter-Zonal Table Tennis Tournament** 2006-07 during 25-28 July 2006. Shri A Subhananda Rao, Director, HEMRL, and Chairman, DRDO West Zone Sports Council, inaugurated the tournament in which seventy players participated.

North Zone defeated Central Zone and won the team championship. Shri Apoorv Dhawan, Sci C, LASTEC, Delhi, Captain of North Zone Table Tennis Team, stood winner in mens single event while Shri Shankar of Central Zone was adjudged the runner-up. Ms AS Sonovane (West Zone) and Ms Rachna Manchanda (North Zone) were the winner and runner-up respectively, of women's single event.



Shri S Jayaraman, Offg Director, (second from left) handing over the winners trophy to North Zone

VISITORS TO DRDO LABS/ESTTs

DFRL, Mysore

Col JK Srivastava, Director, Remount & Vet Services, HQrs Southern Command, Pune, on 8 August 2006.



Col JK Srivastava evincing keen interest in the activities of DFRL

Dr A Sivathanu Pillai, Distinguished Scientist & CC R&D(NS & ACE), along with CEO & MD, BrahMos Pvt Ltd on 20 July 2006.



Dr Sivathanu Pillai engrossed with the activities at DFRL Stall

INMAS, Delhi

Surgeon Vice Admiral VK Singh, PVSM, AVSM, VSM, PHS, DGAFMS & Sr Colonel Commandant, Army Medical Corps on 3 August 2006. He was apprised of the various on-going research activities of INMAS.



Surgeon Vice Admiral VK Singh being briefed about the activities of INMAS

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