

DRDO NEWSLETTER

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DRDO at Indian Science Congress 2016



From the Editor-in-Chief...

DRDO: Harnessing Science for Peace and Security



DRDO's capabilities in making India a safe and secure country and arming India's Armed Forces with state-of-the-art weapon systems, platforms and technologies has been quite superlative. It has done remarkably on all fronts from designing, development and production of variety of Missiles, combat aircraft, LCA, Main Battle Tank, Radars, UAVs, variants of Combat Engineering platforms, large number of Naval Systems, Communication Systems for all domains, Fuel Cell based Power Generation Systems, as well as a wide range of other technologies, sensors, special food, medicines, to most recent Tejas's maiden flight in the International Air Show in Bahrain where it displayed its maneuverability and supersonic capability. To relive this and much more, a series that will trace the origin of DRDO from its humble beginning to today's technology powerhouse, is being commenced from the next issue of DRDO Newsletter. Series will be based on the monograph "**Defence Research and Development Organisation-1958-1982**", written by Dr Ramadas Panemangalore Shenoy, former Director LRDE, which was first published by DESIDOC in 2006.

Journey of DRDO which remains very challenging and stimulating has been captured in a great detail in this monograph. In his foreword, Dr VK Aatre, then SA to RM, wrote that the project on *History of DRDO* was a cherished dream of Dr APJ Abdul Kalam and the author Dr RP Shenoy has woven a story of DRDO's history in a lucid and highly readable book considering its multi-dimensionality. The Author traced the growth of DRDO and described the major events and paths taken by the organisation till 1982. The book provides an in-depth picture of the growth of DRDO and an epilogue with specific reference to major contributions of five Scientific Advisers – Dr DS Kothari, Dr S Bhagavantam, Dr BD Nag Chaudhuri, Prof. MGK Menon and Dr Raja Ramanna and further momentum imparted to the organisation by Dr VK Arunachalam and Dr APJ Kalam, to make DRDO one of the finest models of R&D organisations, not only in the country, but globally".

Believing that "science is the source of strength", DRDO has come a long way. Today DRDO possesses a wide spectrum of core competencies and figures

among top few International defence research agencies. Development in DRDO covers every aspect of technology for modern warfare. From aeronautics, armaments, combat vehicles, combat engineering, electronics, radars, communications, computer sciences, materials, missiles, microelectronic devices, torpedoes, underwater sensors, EW systems and countermeasures, to Chem Bio, NBC defence and life sciences. It has a network of 52 laboratories and has established a very exhaustive T&E infrastructure, and several centers of excellence. DRDO has a strong bonding with other national scientific institutions, state owned defence production units, private industry and academia. This ecosystem has helped all stake-holders to come together to design, develop and produce the world class weapon systems and equipment for the country and potential export. The Organisation has also taken several initiatives for the commercialisation of DRDO's "non-sensitive technologies" for the growth of domestic civil industry. The dual use technology is transferred to the established civil industry to bring the products into the domestic market.

Most of these products, especially strategic systems, have been developed by DRDO in spite of control regimes, technology denials and embargos that actually went on to strengthen national capabilities and led to the establishment of a strong technology base. Indigenous development and production of such systems has given a quantum jump to India's military might, generating effective deterrence and providing crucial leverage and marking India's entry into the elite club of countries possessing such technologies.

The new series is a tribute to Dr RP Shenoy for his excellent monograph which till date remains the only authentic source of information on the history of DRDO for the period from 1958-1982. With the thought in mind that there is need to relive this period of DRDO and let DRDO's scientific community aware of, from where DRDO had started and how far it has reached in its pursuit of technological excellence, DRDO Newsletter will bring back the monograph in chapter by chapter from the next issue. I hope readers will find it interesting and useful.

(Gopal Bhushan)

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Cover: DRDO Pavilion being inaugurated by Dr Harsh Vardhan, Hon'ble Union Minister of Science and Technology and Earth Sciences, at 103rd Indian Science Congress.

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DRDO showcased Defence Technologies in Indian Science Congress



DRDO showcased its indigenous defence systems developed in the Pride of India Exhibition held on the sidelines of the 103rd Indian Science Congress held during 3-8 January 2016 at Musuru. The theme of the Exhibition this year was 'S&T for Indigenous Development in India'.

Dr Harsh Vardhan, Hon'ble Union Minister of Science and Technology and Earth Sciences, inaugurated the DRDO Pavilion and appreciated the contributions made by DRDO in defence technologies.

DRDO through its network of more than 50 labs spearheads R&D in diversified technologies and is committed towards 'Make in India' initiative in defence. Thirty-six DRDO labs from all over the country exhibited cutting-edge defence products/technologies like Advanced Torpedo Systems, Autonomous Underwater Vehicle (AUV), Snake Robot, CBRN Remotely Operated Vehicle (RoV), CBRN Unmanned Ground Vehicle (UGV) and Mobile Autonomous Robotic Systems are some of the star attractions. The other models and exhibits covers wide range of DRDO products including, Biomedical equipment, Wearable Health Monitoring System and Telemedicine, various Missile models, advanced

Avionics Sensors and Systems, 'eyes in the sky' Airborne Early Warning and Control System (AEW&CS), model of LCA Tejas, Autonomous Search Robot, Rare Earth Magnets, INSAS Rifle, Military Communication Equipment, Electronic Warfare Systems, Night Vision Devices, Microwave Devices, NBC Protective Systems, Food Technologies and Aerosol-based Fire Fighting Systems, etc. DESIDOC also displayed Scientific Publications, viz., Monographs, scientific journals, newsletter and technical bulletins, etc. DESIDOC is DRDO's nodal agency for dissemination of scientific information to DRDO research community.

DESIDOC participates in World Book Fair

In its endeavour of promoting and popularizing science among civil society Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, participated in the World Book Fair held during 9-17 January 2016 at Pragati Maidan, New Delhi. DESIDOC showcased scientific journals, monographs, newsletters and its other scientific publications, both in English and Hindi. DESIDOC's stall attracted a large number of visitors, especially students, who showed keen interest in DRDO technologies covered in these publications.



Portable Telemedicine System for Armed Forces

Defence Bioengineering and Electromedical Laboratory (DEBEL), Bengaluru, has designed and developed a portable Telemedicine System for Armed Forces. The system comprises indigenously developed Biomedical Data Acquisition System (BioDAS) and a communication module that can be customized as per user requirements. The BioDAS can record all vital parameters of patient like Electrocardiogram using 12 leads, Heart Rate, Blood Pressure, Body Temperature, Respiratory Rate, Oxygen Saturation in blood, etc., which then can be transmitted along with high quality video conferencing. Live transmission of videos from Ultrasound, Dermoscope, Otoscope, Ophthalmoscope etc., is also possible. The system has been customized using inputs of several trials, demonstrations and interactions with the Services.

Telemedicine system, after trials onboard INS Deepak, Gomati, and Talwar with link to INHS Asvini,



Western Naval Command, Mumbai, has been accepted for induction into all ships across Indian Navy. The capabilities of the system were demonstrated to the Hon'ble Prime Minister Shri Narendra Modi by the Chief of Naval Staff during Navy Day celebrations in Delhi. Defence Acquisition Council (DAC) has also approved implementation of the system pan Indian Navy.

DLJ signs ToT for Cam and IRR Paints

Dr SR Vadera, OS and Director, Defence Laboratory, Jodhpur (DLJ) and Shri Ashish Mathur, Partner, Marudhar Paints and Polymers, Jodhpur, signed Licensing Agreement for Transfer of Technology (LATOT) and confidentiality and non disclosure agreement (CNDA) for Camouflage Infra Red Reflective (Cam and IRR) Paints. Dr N Kumar, former Director DLJ, who pioneered this technology, was also present on this occasion. Shri Ashish Mathur, Partner, Marudhar Paints and Polymers, Jodhpur, also handed over the Demand Drafts of ToT fees to Director, DLJ.

The Cam and IRR Paints camouflage military targets in visible and near IR regions and will replace commercially available paints. Cam and IRR Paints are superior to conventional paints since these provide camouflage in addition to surface protection and durability. The paints are specially designed for low gloss



Partner of Marudhar Paints handing over ToT fees to Director DLJ (1st from right).

and colour matching with the natural terrain elements such as sand and vegetation and blend better with the surroundings when seen through various sensors.

Successful Technical trials of Pinaka Mk-II

The final phase of technical trials of Pinaka Mk-II were successfully conducted at Pokran Field Firing Ranges (PFFR) during 28-29 December 2015. The

accuracy, consistency and ranging performance of the Pinaka Mk-II rocket system was evaluated during these trials at 20, 43 and 52 km. The rocket fired during the

trials exhibited excellent performance meeting all the specified parameters. The Pinaka Mk-II with a range of 60 km has been developed by Armament Research and Development Establishment (ARDE), Pune. Various critical technologies such as energetic composite propellant, case bonding, high L/D flow formed rocket motor tube, EPDM-II based thermal protection system, nozzle end ignition, O-ring free end sealing joints, etc., have been incorporated in the system. The trials were

jointly conducted by ARDE, High Energy Materials Research Laboratory (HEMRL), Pune and 1890 Rocket Regiment.

Lt Gen PR Shankar, VSM, DG Arty, Brig Sanjeev Grover, DDG Arty (Ops), Brig Gagan Cheema, Cdr 374 Composite Arty Bde, senior officers from MoD and civil authorities witnessed the trials. The performance of the rocket system received high accolades from the Indian Artillery.

Dr Christopher inaugurates AIP Workshop at NMRL & Linear Accelerator Facility at TBRL

Dr S Christopher, Secretary Department of Defence R&D and DG DRDO inaugurated Air Independent Propulsion System (AIP) workshop for submarines in Naval Materials Research Laboratory (NMRL), Ambernath, on 3 January 2016. AIP is a power plant consisting of Phosphoric Acid Fuel Cell (PAFC) along with an online Hydrogen Generation System, Power Conditioner, Liquid Oxygen (LOX) Storage and Delivery System, Thermal Management System, and other auxiliary systems for smooth operations of the plant.

The workshop has facilities to test all the sub-systems of AIP in a simulated hull section of submarine in integrated form and will cater to prove and qualify all the AIP sub-systems as land-based prototype. Dr Christopher congratulated the team for the achievement and encouraged them to take up bigger challenges. Raja Ramanna Fellow Dr J Narayana Das; Dr SC Sati, OS and DG (NS&M); Shri A Rahman, OS and CC (TM); senior officers



Dr S Christopher inaugurating Air Independent Propulsion System workshop

from L&T and Thermax, the industry partners of the AIP project, also graced this occasion. Dr SB Singh, OS and Director, NMRL, gave a brief about the facility. Dr Christopher also planted a sapling and addressed all the employees of NMRL.

Dr S Christopher also inaugurated Linear Accelerator Facility (LINAC) for non-destructive testing of intermediated finished and assembled products in Terminal Ballistics Research Laboratory (TBRL), Chandigarh. Dr Satish Kumar, DS and DG(MSS) and Dr Manjit Singh, OS and Director, TBRL, were also present on the occasion.

The newly established LINAC facility will cater the prerequisites of design and development of various warhead systems and the systems required for static trials for R&D applications.



Dr S Christopher inaugurating LINAC Facility

Raising Day Celebrations

Center for Artificial Intelligence & Robotics

Center for Artificial Intelligence and Robotics (CAIR), Bangaluru, celebrated its Lab Raising Day and Karnataka Rajyotsava Day on 22 December 2015. Dr Surendra Pal, Vice Chancellor, Defence Institute of Applied Technology, Pune, was the Chief Guest, and Prof. Vijay Chandru, National Institute of Advanced Studies, Bengaluru, was the Guest of Honour of the function. Dr Narayan Panigrahi, Sc F, Chairperson Organising Committee, welcomed the august gathering.

Shri Sanjay Burman, OS and Director, CAIR, spoke about the year-long activities and achievements of CAIR. Dr Surendra Pal and Prof Vijay Chandru gave talks on The Indian GNSS Paradigm and A Knowledge Bank of the Rendering of the Heritage of Hampi, respectively.



Inauguration of Raising Day of CAIR

Karnataka Rajyotsava was also celebrated during the Day. A technical exhibition was also organised. The ceremony concluded with a colorful cultural programme performed by the employees and the children of the CAIR family.

Defence Research & Development Establishment

Defence Research and Development Establishment (DRDE), Gwalior, celebrated its Lab Raising Day on 28 December 2015. The function started with the felicitation of DRDE employees who completed 25 years of service in the organization.



Dr Lokendra Singh inaugurating the Annual Day

Dr Lokendra Singh, OS and Director, DRDE, inaugurated the function. In his Raising Day address, he highlighted the significant achievements of DRDE in the year 2015, and urged the scientists and staff to gear up for meeting the future challenges.

A colorful cultural programme was also organized by children of DRDE employees to celebrate the day. Smt Chaya Singh, first lady of DRDE, was the Chief Guest of the function and distributed prizes to the children. Dr Lokendra Singh presented the lab-level DRDO Awards to the meritorious employees for their significant contributions to the establishment.

Various sports events were also organized to mark the occasion. Dr Beer Singh, Sc G, distributed the prizes to the winners of sport events.

Naval Physical & Oceanographic Laboratory

Naval Physical and Oceanographic Laboratory (NPOL), Kochi, celebrated its Annual Day on 11 December 2015. The Chief Guest, Shri Paul Antony, IAS, Chairman, Cochin Port Trust, in his inaugural address, lauded the efforts and achievements of NPOL in developing sophisticated systems for the Indian Navy and exporting its products and thereby contributing to the 'Make in India' programme.

Shri S Kedarnath Shenoy, OS and Director, NPOL, presented a detailed account of the achievements of the laboratories both in the technical and non-technical areas in 2015 and emphasized on the new



Shri Paul Antony, IAS, delivering the inaugural address

commitments for 2016. The employees of NPOL who made outstanding contributions for the year 2015 were honoured with various awards. Prizes were also presented to the winners of various sports events held

to mark the Annual Day. The function concluded with a scintillating cultural programme. Shri M Suresh, Sc G, was the Chairman of the Annual Day Organizing Committee.

Sports Round-up

Central Zone Volleyball Tournament

Naval Science and Technological Laboratory (NSTL), Visakhapatnam, organised DRDO Central Zone Volleyball Tournament 2015 during 16-18 December 2015.



Advanced Systems Laboratory (ASL), Defence Electronics Research Laboratory (DLRL), Hyderabad; Integrated Test Range (ITR), Chandipur; NSTL, Visakhapatnam; Defence Metallurgical Research Laboratory (DMRL), Defence Research & Development

Laboratory (DRDL) and Research Centre Imarat (RCI), Hyderabad; Solid Fuel Complex (SFC) Jagdalpur; and PXE, Balasore, participated in the Tournament. NSTL won the Team Championship and DMRL stood runner-up.

Shri C Durga Malleswar, OS and Director, NSTL, distributed trophies and medals to the winner team and Shri Amitav Das, Principal Associate Director, NSTL, distributed trophies and medals to the runner-up team.

DRDO South Zone Badminton Tournament

DRDO South Zone Badminton Tournament 2015 was hosted by Naval Physical and Oceanographic Laboratory (NPOL), Kochi. Shri Mohan P Mathew, Associate Director, NPOL, inaugurated the tournament. Shri Jaison Xavier, International Badminton Player was the Chief Guest. Eight DRDO laboratories from South Zone participated in the event, which included 60 matches in various categories. Team GTRE won the tournament and team NPOL was the runner-up.

Shri S Kedarnath Shenoy, OS and Director, NPOL, presented trophies and prizes to the winners.

Manpower Development Activities

Conferences/Seminars/Symposia/Training Courses/Meetings

Meeting of Review Committee

Meeting of Special Review Committee constituted by Dr S Christopher, Secretary Department of Defence R&D and DG DRDO to review projects related to tank munitions was held at **Armament Research and Development Establishment (ARDE)**, Pune, on 15-16 December 2015 under the Chairmanship of Lt Gen JP Singh (Retd), Consultant DRDO. Dr DK Kharat, O/o DG (ACE); Shri Prateek Kishore, HPO-I; Shri Benjamin Lionel, HPO-II; and Shri Parvinder Kumar, Sc G, Terminal Ballistic Research Laboratory, Chandigarh, participated in the meeting. The projects on 120 mm FSAPDS and HESH Ammunition, CLMDP and Fuzes were reviewed in depth. This was followed by a review by Dr S Christopher with the committee members via video teleconferencing on 17 December 2015.

Course on a Novel Approach on Modern Technologies for AFVs

Combat Vehicles Research and Development Establishment (CVRDE), Chennai, organised a course on Novel Approach on Modern Technologies for AFVs under the Continuing Education Programme (CEP) of DRDO. The aim of the course was to enrich the participants with the future technologies of AFVs.

Smt Jayashree Varadhan, OS and Additional Director (Mgmt), CVRDE, inaugurated the course. Twenty-five participants from CVRDE, DGMF and other DRDO establishments attended this course. Lectures covering various aspects of Firepower, Mobility, Survivability, ISTAR systems, Deployment and System Configuration of future AFVs were delivered during the course.

Workshop on Emerging Trends in Libraries and Publications

Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, organised a two-day Workshop on Emerging Trends in Libraries and Publications during 22-23 December 2015 in the

Circular Hall, main Metcalfe House, Delhi. The workshop comprised of two technical sessions: "Innovative Library Services including DRDO e-Journals", and "DRDO Publications: Issues and Strategies." Delegates across DRDO labs/estts attended the workshop. Dr Rajeev Vij, Associate Director, DESIDOC, in his welcome address, spoke on the background and the purpose of the workshop and urged participants to discuss encompassing technical and contentious issues.

Shri Gopal Bhushan, Director DESIDOC, inaugurated the workshop. In the inaugural address he congratulated DESIDOC, and the Heads of DRDO TIRCs for providing vital and latest information on cutting-edge defence technologies to the DRDO scientists. He also briefed the participants about recent achievements and roadmap for DESIDOC and introduced the issues pertaining to DRDO Library Procedure Manual, DRDO e-Journal Services, Rate Contract for Subscription of Print Journals, DRDO Institutional Repository, NDSAP, Training Initiatives, Web-based Information Services. These and many more issues were discussed at length during the workshop. Panel Discussions were also held on Print vis-a-vis E-Resources and Perceptions and Expectations from DESIDOC.

There were two talks on "Open Data and Big Data" by Dr Usha Mujoo Munshi, Librarian, Indian Institute of



Dr Usha M Munshi delivering talk on Open Data and Big Data

Public Administration, New Delhi, and "Newsletter Reporting" by Shri Hasan Jawaid Khan, Editor, Science Reporter and CSIR News. The workshop proved to be very productive and help establishing a personal rapport with all participants. Dr Rajeev Vij proposed the vote of thanks.

NS&M Cluster Council Meeting

The Naval Science and Materials (NS&M) Cluster Council Meeting was held at **Defence Laboratory, Jodhpur (DLJ)**, on 21 December 2015 under the Chairmanship of Dr SC Sati, DG (NS&M). The meeting was attended by the Directors of NPOL, Naval Materials Research Laboratory (NMRL), Defence Metallurgical Research Laboratory (DMRL), Defence Materials and Stores Research and Development Establishment (DMSRDE), Naval Science and Technological Laboratory (NSTL), and DLJ.

Dr Sati, welcomed the members and briefed about the objectives and charter given by DRDO HQrs to discuss the Manpower, Material Management, Budget and Finance and other issues related to the cluster laboratories. Directors of the six laboratories gave presentations covering status of current projects, future projects and issues related to HR, Works, Finance etc.



NS&M Cluster Council Meeting at DLJ

Workshop on Vermicomposting & Mushroom Production

A scientific team comprising Dr MK Meghvansi, Sc D and Shri MK Sharmah, TO C, from Defence Research Laboratory (DRL), Tezpur in association with Rupayan

Social Welfare Society conducted a training workshop on vermicomposting and mushroom production on 23 December 2015 for the youth and entrepreneurs from Sonitpur and Lakhimpur districts of Assam. Spot demonstrations were given to more than 50 participants as a part of the skill development programme. District Agriculture Authorities also attended the workshop.



DRL team imparting training on vermicomposting and mushroom production

Course on Knowledge Management

A CEP course on Knowledge Management was conducted by **Defence Metallurgical Research Laboratory (DMRL)**, Hyderabad, during 9-11 December 2015. The programme was designed to impart information, knowledge and skill through a balanced mix of conceptual and interactive sessions, presentations, sharing of experiences with eminent personalities closely associated with the process of Knowledge Management within S&T organizations. Dr Manoj Kumar Jain, Sc F and the Course Director welcomed the participants.

Dr SB Singh, OS and Director, Naval Materials Research Laboratory (NMRL), Ambernath, delivered the keynote address on KM—A Key Driver for Success of Projects. The course included topics on Knowledge Management Practices in R&D, IPR Issues in Collaborative R&D, Social Networking Tools for Organisational Learning, E-Learning, Knowledge Centricity for Strategic Transformation, etc.

Dr Dipak Das, Head DMRL HRD Group, distributed certificates to participants during the valedictory function.



Participants of course on Knowledge Management at DMRL

Workshop on Engine Control and Health Management for UAV Application

Gas Turbine Research Establishment (GTRE), Bengaluru, organised a two-day workshop on Engine Control and Health Management System for Unmanned Autonomous Air Vehicle (UAAV) Application during 11-12 December 2015. Practicing engineers, scientists, students and researchers from various organizations and institutes participated in the workshop. Shri MZ Siddique, OS and Director, GTRE, described the

workshop as an excellent platform for researchers to discuss their findings and perspectives.

Dr CP Ramanarayanan, DS and CC R&D (HR), in his address encouraged the participants to take this workshop as a learning opportunity and urged them to untiringly work to deliver an exemplary product.

Dr K Tamilmani, DS and DG (Aero), in his inaugural address, stressed upon the need to invest in technologies for tomorrow. He brought out that one has to relentlessly work towards achieving what was not possible till now.



Inaugural Ceremony of Workshop on Engine Control and Health Management Systems for UAAV Application

Workshop on Gender Sensitivity and Awareness for all Employees

Naval Science and Technological Laboratory (NSTL), Visakhapatnam, organized workshop on Gender Sensitivity and Awareness on 31 December 2015. Prof. D Lalitha Rani from Andhra University and Smt Maturi Ratnakumari, Senior Private Secretary, NSTL, delivered talks on Gender Equality, and Constitutional Acts related to Protection of Women, respectively.

Smt Ratnakumari, in her talk, expounded how women were treated in ancient times and the present scenario. She also briefed on the Constitutional Acts related to Protection of Women in society as well as sexual harassment at workplaces. Prof. D Lalitha Rani broached with examples various facets of gender discrimination at workplace and urged for equal treatment of men and women right from childhood.



Smt Maturi Ratnakumari giving presentation on Sexual Harassment at Workplace

All India Official Language Scientific Seminar

Proof and Experimental Establishment (PXE), Chandipur, organized Scientific Seminar in Hindi on Incredible India and Official Language Implementation in Central Govt Offices under C Region on 3 December 2015. Dr AK Sannigrahi, Sc F, Chairman Organizing Committee, described the objective of the seminar. Shri R Appavuraj, OS and Director, PXE, in his inaugural address, brought up the necessity of more and more use of Hindi in official communication for its better understanding among the employees.

Maj Gen (Retd) PK Govila, former Director PXE,

released the souvenir and delivered the keynote address on Incredible India. Nineteen participants made presentations on the theme of the seminar. Shri SK Ray, Assistant Director (OL), proposed the vote of thanks.



Release of Seminar Souvenir at PXE

Course on Software Validation and Testing

Research Centre Imarat, Hyderabad and **Centre for Personnel Talent Management (CEPTAM)**, Delhi, jointly organized a CEP course on Software Validation and Testing from 14-18 December 2015 in RCI, Hyderabad. Shri Adalat Ali, Associate Director RCI, and Programme Director AD, inaugurated the course. Smt A Mangatayaru, Sc G, Head HRD briefed about the course. Smt S Rani Surender, Sc G, Director Planning and HR, RCI outlined the importance of the course. The major topics covered during the course included Basics of Software Testing, Software Testing Techniques, Different types of Software Testing, Software Verification and Validation, Software Test Planning and Documentation, Defect Management, Test Reporting, etc.



Participants of the course on Software Validation and Testing

Course on Project Management

RCI, Hyderabad and Institute of Technology Management (ITM), Mussoorie, jointly organized a Special CEP course on Project Management from 17 to 19 December 2015 in DRDO Assessment Centre, Hyderabad. Shri Omkar, TO D, Coordinator of the course, welcomed the participants and briefed about the course. Smt A Mangatayaru, Sc G and Head HRD, RCI, inaugurated the course and addressed the participants about the importance of the course. The major topics covered during the course included: Project Management: An Overview, Project Lifecycle Management, PEARL, Preparation of Project

Proposals in DRDO as per PPFM:2014, Scope and Time Management in Projects, etc.

Rajbhasha Workshop

RCI, Hyderabad, organized Third Rajbhasha Workshop on 6 January 2016. Shri T Narashima Rao, Sc G, DOMS and Vice Chairman OLIC, inaugurated the workshop. Dr RN Awasthi, Hindi Officer, ECIL, and Shri Kazim Ahmed, Senior Translator, RCI, delivered lectures on Unicode and Hindi in Administration and Rajbhasha policy, rules and provisions, respectively. Twenty-two participants attended the workshop. Shri P Rawat, Junior Translator, proposed the vote of thanks.

Personnel News

Appointment

Director DHRD, DRDO HQ



Shri Ashok Kumar, Sc G, has taken over as Director of Human Resource Development (DHRD), DRDO HQ, wef from 1 January 2016. He obtained his Master of Science degree in Botany with specialisation in Industrial Mycology from Agra University in 1981. He also obtained degrees in Bachelor of Library Science and Master of Library and Information Science with specialisation in Computer Applications, both from the University of Delhi. He has also obtained Diploma in Journalism from Bhartiya Vidya Bhavan, Delhi and Postgraduate Diploma in Journalism and Mass Communication from IGNOU. He served as Officiating Director at DESIDOC during May-June 2015.

After joining DRDO as Sc B at Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, in October 1984, he has been involved in various scientific information and documentation activities like library services, publications, multimedia, dissemination services through internet and intranet websites. As Coordinator, DRDO E-journal Consortium Project, he worked for setting up of Digital Library, comprising CD-ROM, online journals and publications, and made it available to all DRDO laboratories/establishments. He

has also established services like the Reference Desk (for online delivery of requested documents on Intranet to user), Machine Translation Facility (for converting foreign language documents into English using OCR and MT software), and Digital Publishing Facility (for creation, design and printing of publications).

He has been contributing in DRDO publications as editor and later as the Head of the Publications Division. He has been editor of various DRDO publications, viz., Defence Science Journal, Technology Focus, DRDO Newsletter, DRDO Samachar, DESIDOC Journal of Library and Information Technology, DRDO Monographs Series, PST Series, R&D Digest, DESIDOC News, and various other DRDO publications brought out for the special occasions. To streamline the publication style of DRDO publications, he co-authored DRDO Manual of Editing. He introduced use of IT and computers to improve the quality and timeliness of the DRDO publications.

Shri Ashok Kumar was the Member Secretary of the Committee constituted for bringing out a special book on India's Integrated Guided Missile Development Programme. The book was released by the then Defence Minister in the presence of the then Prime Minister in 2008. Besides, he has also been instrumental in establishing Digital Printing Facility at DESIDOC for printing classified and other important documents in a very short notice.

He has led the Quality Management Project for ISO Certification of DESIDOC as Management

Representative resulting in ISO 9001:2008 Certification of the Centre on 12 July 2011 and for re-certification in October 2014. Shri Ashok Kumar has been the recipient of the laboratory Technology Group Award (team leader) in 2006 for outstanding work on editing and publication of special publications for DRDO and again in 2011 for successful ISO Certification of DESIDOC; DRDO Science Popularisation Award in 2009; and the laboratory Scientist of the Year Award in 2008.

He has been member of various panels of Bureau of Indian Standards, DRDO coordinator for National Digital Library Project, member of negotiation committee of Ministry of HRD for e-journals, DELCON (Department of Biotechnology), Indian Council of Agricultural Research, and technical committees of NTRO and National Archives.

Shri Ashok Kumar is life member of the Indian Science Congress Association, Indian Library Association, Society for Information Science, Indian Science Writers Association, Medical Library Association of India and a member of the British Science Association. He has been an expert member for various recruitment boards and assessment boards in DRDO and other science organisations. He has authored 27 papers and contributed for four books.

Promotion

Scientist H/Outstanding Scientist



Shri Debabrata Roy has been promoted to the grade of Scientist H/Outstanding Scientist with effect from 7 October 2015. He is a Mechanical Engineer from Jadavpur University, Calcutta, and did his MTech from IIT Madras, Chennai. He is a Fellow of the Institution of Engineers (India) and life member of the Aeronautical Society of India.

Shri Debabrata Roy started his career as Officer Trainee in Hindustan Cables Limited and thereafter worked as a Design Engineer in Usha Martin Industries Limited. Shri Roy joined DRDO in December 1987 as Sc B at Gas Turbine Research Establishment (GTRE), Bengaluru.

He is a specialist in gas turbine engine and thermal turbo machines. Some of his significant contributions

are design and development of high pressure, low pressure and free power turbines for Kaveri Engine and its marine version. He has played a pivotal role in establishing the High Performance Computing Centre and Turbine Test facility in GTRE. He has provided necessary management and technical direction for co-development and co-production proposal of advanced Kaveri engine programme with an international engine house. He has authored a number of technical papers and reports related to gas turbine engines.

Shri Debabrata Roy is presently Project Director, High Thrust Engine Development Programme for Indian Advanced Medium Combat Aircraft (AMCA). He is also leading the Advanced Technology Projects and the Gas Turbine Enabling Technology Initiative (GATET) programme of GTRE.

Awards

Fellow of INAE

Dr P Sivakumar, DS and Director, CVRDE, Chennai, has been awarded the Fellowship of Indian National Academy of Engineering (INAE) during its Annual Convention held at Defence Institute of Advanced Technology, Pune, on 11 December 2015.



Dr P Sivakumar (left) receiving Fellowship of Indian National Academy of Engineering

Lifetime Achievement Award



Dr Lokendra Singh, OS and Director, Defence Research and Development Establishment (DRDE), Gwalior, was felicitated with the Lifetime Achievement Award in Biotechnology and Pharmacy by Association of Biotechnology and

Pharmacy (ABAP) at its 9th Annual Convention held during 14-16 December at Vijayawada. The award was given to Dr Singh for developing various life science products/technologies like multi insect repellents, leech repellent, oleorescin from Naga chilli, biodigestors etc.

Fellow of FABAP



Dr Rahul Bhattacharya, Sc G, DRDE, Gwalior, has been conferred Fellowship by ABAP in its 9th Annual Convention. The honour was given to him for his dedicated work on cyanide poisoning and its antagonism.

Golden Reviewer IEEE



Dr Lalit Kumar, former Director, Microwave Tube Research and Development Centre (MTRDC), Bengaluru, Dr SK Datta, Sc G, MTRDC, and Dr Vishal Kesari, Sc D, MTRDC, received Golden Reviewer recognition in the list of reviewers for the year 2015 in IEEE Transactions on Electron Devices, Vol. 62, No. 12, 2015, by IEEE Electron Devices Society, USA. These MTRDCians are the three out of 76 Indians included in



Golden Reviewer TED list.

Dr Vishal Kesari also received the recognition of Golden Reviewer for the year 2015 in IEEE Electron Device Letters. He is one out of 23 Indians in Golden Reviewer EDL list.

Prof. Satish Dhawan State Award

Dr Latha Christie, Associate Director, MTRDC, Bengaluru, received the prestigious Prof. Satish Dhawan State Award, instituted by the Government of Karnataka, for the year 2014 in recognition of her exceptional contribution in the field of Engineering Sciences. Hon'ble Chief Minister of Karnataka, Shri Siddaramaiah presented the award on 30 December 2015.



Societal Mission

Donation Drive at ARDE

A voluntary donation campaign was conducted by employees of ARDE and representatives of ARDE Mazdoor Sangh and Works Committee from 14 to 17 December 2015 for rehabilitation of victims of the Chennai Floods. Employees contributed wholeheartedly for this social responsibility.

Clothes, blankets and plastic mats donated by the employees, were handed over to Ratna Nidhi Charitable Trust, Mumbai, for disbursement to those affected by the Floods.





Visitors to DRDO Labs/Estts

Armament Research & Development Establishment

Lt Gen Sanjay Kulkarni, AVSM, SC, VSM, DG Infantry visited Armament Research and Development



Establishment (ARDE), Pune on 17 December 2015. Presentation on small arms projects of ARDE were given to the visitor.

Defence Laboratory

✧ Shri G Satheesh Reddy, SA to RM, visited Defence Laboratory, Jodhpur (DLJ), on 10 December 2015. Ms Anjali Bhatia, Officiating Director, DLJ, briefed him about the technical activities and achievements of the laboratory. Dr Reddy visited various technical facilities of the laboratory and appreciated the team efforts made by DLJ scientists in technology development.



Shri G Satheesh Reddy being briefed about activities of DLJ

✧ Lt Gen GS Katoch, AVSM, VS, DG Perspective Planning, visited Defence Laboratory on 4 January

2016. Dr SR Vadera, Director DLJ, briefed the visitor about core competence, technical activities of DLJ.

Institute of System Studies & Analyses

A four member team from Acquisition Technology and Logistics Agency (ATLA), Japan, led by Dr Yasuharu Mine, Director of International Affairs Office, along with Defence Attache, Embassy of Japan in India, visited Institute of System Studies and Analyses (ISSA), Delhi, on 7 December 2015. An overview of defence modelling and simulation activities being carried out by ISSA was presented to the visitors. Visitors evinced keen interest in system performance modelling and software technologies used in the product development.



ISSA scientists interacting with the ATLA, Japan team

Naval Physical & Oceanographic Laboratory

Dr Subhash Chandra Sati, DG (NS&M), DRDO, visited Naval Physical and Oceanographic laboratory (NPOL), during 6 -7 December 2015.



Dr Sati showing keen interest on the project activities of NPOL