

DRDO

NEWSLETTER



www.drdo.gov.in

A Monthly Bulletin of Defence Research and Development Organisation

JULY 2023

VOLUME 43

ISSUE 07

ISSN: 0971-4391

DRDO-ACADEMIA CONCLAVE





Editor-in-Chief: Dr K Nageswara Rao
Associate Editor-in-Chief: Alka Bansal
Managing Editor: Ajay Kumar

Editor: Dipti Arora
Editorial Assistance: Raj Kumar

Printing: SK Gupta
Marketing: Tapes Sinha

43rd Year of Publication



Scan QR Code to access e-version
of DRDO Newsletter

LABORATORY CORRESPONDENTS

- Ahmadnagar** : Shri RA Shaikh, Vehicle Research and Development Establishment (VRDE)
- Ambernath** : Dr Ganesh S. Dhole, Naval Materials Research Laboratory (NMRL)
- Chandipur** : Shri PN Panda, Integrated Test Range (ITR)
Shri Ratnakar S, Mohapatra, Proof & Experimental Establishment (PXE)
- Bengaluru** : Shri Satpal Singh Tomar, Aeronautical Development Establishment (ADE)
Smt MR Bhuvaneswari, Centre for Airborne Systems (CABS)
Smt Faheema AGJ, Centre for Artificial Intelligence & Robotics (CAIR)
Dr Josephine Nirmala M, Combat Aircraft Systems Development & Integration Centre (CASDIC)
Dr Sanchita Sil & Dr Sudhir S Kamble, Defence Bioengineering & Electromedical Laboratory (DEBEL)
Dr V Senthil, Gas Turbine Research Establishment (GTRE)
Shri Venkatesh Prabhu, Electronics & Radar Development Establishment (LRDE)
Dr Ashok Bansiwala, Microwave Tube Research & Development Centre (MTRDC)
- Chandigarh** : Dr Pal Dinesh Kumar, Terminal Ballistics Research Laboratory (TBRL)
: Dr Anuja Kumari, Defence Geoinformatics Research Establishment (DGRE)
- Chennai** : Shri K Anbazhagan, Combat Vehicles Research & Development Establishment (CVRDE)
- Dehradun** : Shri Abhai Mishra, Defence Electronics Applications Laboratory (DEAL)
Shri JP Singh, Instruments Research & Development Establishment (IRDE)
- Delhi** : Shri Tapes Sinha, Defence Scientific Information & Documentation Centre (DESIDOC)
Dr Dipti Prasad, Defence Institute of Physiology & Allied Sciences (DIPAS)
Shri Santosh Kumar Choudhury, Defence Institute of Psychological Research (DIPR)
Shri Navin Soni, Institute of Nuclear Medicine and Allied Sciences (INMAS)
Smt Rabita Devi, Institute for Systems Studies & Analyses (ISSA)
Shri Ashok Kumar, Scientific Analysis Group (SAG)
Dr Rupesh Kumar Choubey, Solid State Physics Laboratory (SSPL)
- Gwalior** : Dr AK Goel, Defence R&D Establishment (DRDE)
- Haldwani** : Dr Atul Grover, Defence Institute of Bio-Energy Research (DIBER)
- Hyderabad** : Shri Hemant Kumar, Advanced Systems Laboratory (ASL)
Shri ARC Murthy, Defence Electronics Research Laboratory (DLRL)
Dr Manoj Kumar Jain, Defence Metallurgical Research Laboratory (DMRL)
- Jagdarpur** : Dr Gaurav Agnihotri, SF Complex (SFC)
- Jodhpur** : Shri DK Tripathi, Defence Laboratory (DL)
- Kanpur** : Dr Mohit Katiyar, Defence Materials & Stores Research & Development Establishment (DMSRDE)
- Kochi** : Smt Letha MM, Naval Physical & Oceanographic Laboratory (NPOL)
- Leh** : Dr Dorjey Angchok, Defence Institute of High Altitude Research (DIHAR)
- Mussoorie** : Gp Capt RK Mansharamani, Institute of Technology Management (ITM)
- Mysuru** : Dr M Palmurugan, Defence Food Research Laboratory (DFRL)
- Pune** : Shri Ajay K Pandey, Armament Research and Development Establishment (ARDE)
Dr Vijay Pattar, Defence Institute of Advanced Technology (DIAT)
Dr Ganesh Shankar Dombe, High Energy Materials Research Laboratory (HEMRL)
- Tezpur** : Dr KS Nakhuru, Defence Research Laboratory (DRL)
- Visakhapatnam** : Smt Jyotsna Rani, Naval Science & Technological Laboratory (NSTL)



Contents

COVER STORY 4



EVENTS 5

HRD ACTIVITIES 14

INFRA DEVELOPMENT 17

PERSONNEL NEWS 18

SOCIAL ACTIVITIES 19

VISITS 21

<https://www.drdo.gov.in/drdo/pub/newsletter/>

Please mail your feedback and suggestions at:
director.desidoc@gov.in; drdonl.desidoc@gov.in
Contact at: 011-23902403; 23902472; Fax: 011-23819151



DRDO-ACADEMIA CONCLAVE

Theme: DRDO-Academia Partnership: Opportunities & Challenges

In line with the Government of India initiative to promote Atmanirbharta/self-reliance in defence and to have a focused and enhanced DRDO-Academia partnership, a DRDO-Academia Conclave with a theme 'DRDO-Academia Partnership: Opportunities & Challenges' was organised during 25-26 May 2023 at DRDO Bhawan, New Delhi. The event was inaugurated by Hon'ble Raksha Mantri Shri Rajnath Singh.

Hon'ble Raksha Mantri in his address stated that developing advanced technology for military applications is crucial for a country like India that faces a 'double border threat'. Highlighting the need for Research & Development (R&D), he further stated that as part of the partnership with academia, DRDO will gain skilled human resources from eminent institutes such as IISc, IITs, NITs, among others. The academia will be benefited from R&D funding provided by the DRDO, along with access to advanced infrastructure in various laboratories of DRDO. He also said that this partnership may be a silver lining to academicians, should they be allowed to take full advantage of the infrastructure and funds.

The conclave started with the release of DRDO-Academia Conclave Compendium by Hon'ble Raksha Mantri. Hon'ble Raksha Mantri also felicitated ten eminent academicians from different institutes across

India who made outstanding contributions with their excellent work in various projects in the area of Aeronautics, Armaments, Life Sciences, Naval Systems, and other DRDO projects. Three technology transfers from

academia to DRDO laboratories also took place in the gracious presence of Hon'ble Raksha Mantri.

The conclave had around 550 participants including IIT Directors, VCs, Institute Directors, and faculties of over 100 academic institutes all over India. The conclave also witnessed participation of DRDO DGs, laboratory Directors and nominated scientist from various laboratories of DRDO across India.

The two day conclave had four technical sessions apart from inaugural, plenary, and concluding sessions and had 37 invited talks from Secretary DD R&D & Chairman DRDO, SA to RM, Research Board Chairmen, Chairmen of Research Panels, and DGs.

The invited talks highlighted the opportunities for academia in





DRDO in the area of Aeronautics, Armament, Naval, Life sciences, and other areas.

The conclave reinforced the interface between DRDO requirements and academia capability by a synergistic dialogue between DRDO Directors, scientists, and academicians. It also spread awareness of opportunities in defence R&D through academia so that the intended target of 25 per cent of R&D budgetary allocation and its useful outcome can be met. The conclave resulted in cross pollination of ideas and dissemination of opportunities in DRDO to academia. Deliberation between academia and DRDO brought out several points of improvement which will foster better DRDO-Academia collaboration.

The conclave covered detailed deliberations between DRDO and academia on topics such as 'How to Achieve Atmanirbharta', 'Disruptive Research vs Routine



Research', 'Mutual Deputation of HR Between Academia-DRDO', 'Identification of Important Programmes Which Need Push', 'Reduction of Processing Time in DRDO Grants-in-Aid Schemes', 'Increasing Transparency', 'Clear Demarcation in Classified and Unclassified Research', 'Encouraging High-risk High-gain

Projects (DARPA type model), and many other topics.

The two-day conclave was jointly organised by four Research Boards of DRDO, namely Aeronautics Research & Development Board (AR&DB), Armament Research Board (ARMREB), Life Sciences Research Board (LSRB), & Naval Research Board (NRB).

EVENTS

DRDO HOLDS INTERACTION WITH THE INDUSTRY

A one-day industry interaction campaign and brain storming session was organised by Defence Research and Development Organisation (DRDO) on 27 May 2023 at Research Centre Imarat (RCI), Hyderabad. It was aimed to bring all defence industries including MSMEs and startups on a platform for increasing awareness on various industry friendly initiatives and policies of DRDO and understand the concerns of industry. More than

180 industries participated in the event.

At the outset, Shri U Raja Babu, Director, RCI welcomed the industry partners, Dr Sameer V Kamat, Secretary DD R&D and Chairman DRDO and senior officers from DRDO. He also gave glimpse of recent achievements by DRDO.

Shri Arun Chaudhary, Director, Directorate of Industry Interface & Technology Management (DIITM) gave a brief overview on various

initiatives and policies of DRDO to support Indian industries. He explained the process of technology transfer to industry by DRDO bringing out the salient features of DRDO ToT Policy. He explained the necessity and process of selection of industries as Development-cum-production partners (DcPP). The highlights of Technology Development Fund (TDF) scheme was aptly explained to industry. He also gave details of DRDO policy and procedures

on utilisation of its infrastructure testing facility and DRDO patents by Indian industry. DRDO in collaboration with QCI, has developed the 'System for Advanced Manufacturing Assessment and Ranking (SAMAR)' certification a benchmark to measure the maturity of defence manufacturing enterprises including MSMEs and large enterprises.

Dr Ramanad N Shukla, QCI gave overview on SAMAR and IT enabled online model for digitised assessment with geo-tagging and time stamping. The scheme is offered to micro and small industries at subsidized cost by DRDO.

Industry partners from MSMEs, large scale and startups entrepreneurs gave presentations about their experience of working with DRDO. The industry partners also gave valuable suggestions to improve the current procedures and policies. They also suggested the number of ways for doing ease of business.

Dr Kamat chaired the open brain storming session, 'Chintan'. He assured industry that DRDO will extend all possible support to industry and will play mentoring role in building capabilities of



Indian defence industries so that India becomes net exporter in defence sector. Chairman, DRDO also emphasised the need to undertake such initiatives on regular basis as these events can give the much needed direction and required impetus to boost the Indian defence manufacturing sector to achieve the complete Atamanirbhar Bharat.

This event not only gave a unique beginning for Atamchintan and Manthan during the open brainstorming session with industries but also gave a window of opportunity to industries

to express their challenges, expectations and kind of support needed which is important and necessary in the current scenario so that framework may be refined for further ease of doing business and facilitate industry

Dr BHVS Narayana Murthy, DG (MSS), and Dr Chandrika Kaushik, DG (PC & SI) shared their views and highlighted the need of more synergy all stakeholders of defence eco-system. Vice Admiral Ranjit Singh, Director, DQRS and senior directors, program directors and scientists of missile complex also attended the event.

'AGNI-PRIME' BALLISTIC MISSILE SUCCESSFULLY FLIGHT-TESTED

New Generation Ballistic Missile 'Agni Prime' was successfully flight-tested by Defence Research and Development Organisation (DRDO) from Dr APJ Abdul Kalam Island off the coast of Odisha on 7 June 2023. During

the flight test, all objectives were successfully demonstrated.

This was the first pre-induction night launch conducted by the users after three successful developmental trials of the missile, validating the accuracy and reliability of the system.

Range Instrumentation like Radar, Telemetry and Electro-optical Tracking Systems were deployed at different locations, including two down-range ships, at the terminal point to capture flight data covering the entire trajectory of the vehicle.



Senior officials from DRDO and Strategic Forces Command (SFC) witnessed the successful flight-test, which has paved the way for induction of the system into the Armed Forces.

Raksha Mantri Shri Rajnath Singh congratulated the DRDO and the Armed Forces for the success as well as the copy-book performance of the New Generation Ballistic Missile Agni-Prime Dr Samir V Kamat, Secretary, Department of Defence R&D & Chairman DRDO

appreciated the efforts put in by the teams of DRDO laboratories and the users involved in the test launch.

A successful training launch of a Medium-Range Ballistic Missile, Agni-1 was also carried out by the SFC from APJ Abdul Kalam Island, Odisha on 1 June 2023. The missile is a proven system, capable of striking targets with a very high degree of precision. The user training launch successfully validated all operational and technical parameters of the missile.



Successful training launch of Agni-1 Ballistic Missile

CELEBRATION OF NATIONAL TECHNOLOGY DAY-2023

CAIR, Bengaluru

Centre for Artificial and Robotics (CAIR), Bengaluru celebrated NTD-2023 on 12 May 2023. Shri L Ramakrishnan, Chief Scientist, Central Research Laboratory, Bharat Electronics Limited, Bengaluru was the Chief Guest for the event. Dr Subrata Rakshit, DS & Director, CAIR delivered the welcome address. This was followed by an address by the Chief Guest on 'Enabling Technologies for Next Generation Defence Systems'.

The technology day medallion was presented to Smt Siva Bhavani J, Sc 'D' by Director, CAIR and a certificate by the Chief Guest. Smt Siva Bhavani delivered NTD oration on 'Text-to-Text Neural Machine Translation: Challenges, Approaches, and ANVITA Solution'.



CASDIC, Bengaluru

Combat Aircraft Systems Development & Integration Centre (CASDIC), Bengaluru celebrated NTD-2023 on 11 May 2023, with an oration by Shri Nithantha Shourya R, Sc 'C' on 'The Heat Transfer in Internally Finned Heat Exchanger for Phase Change Material Melting'. The talk covered the development of a phase change material-based

heat exchanger for thermal management of electronics onboard an aircraft touching upon the contemporary cooling systems, phase change material characteristics, mechanical design optimisation, heat transfer mechanism involved, simulation, and experimental studies conducted. He was awarded a medal and a certificate by Shri Ch Durga Prasad, Sc 'G' & Centre Head, CASDIC.





CHES, Hyderabad

Centre for High Energy Systems & Sciences (CHES), Hyderabad celebrated NTD-2023 on 17 May 2023. The Chief Guest for the occasion was Shri Atul Dinkar Rane, OS & DG (BrahMos), CEO & MD, BrahMos Aerospace. The Special Guest was Prof. P Prem Kiran, Advanced Center of Research in High Energy Materials (ACRHEM), University of Hyderabad. Dr Jagannath Nayak, OS & Director in his address emphasised to accelerate its efforts inline with the rapid rate of technological development occurring worldwide and stay updated with the state-of-the-art technologies.

Chief Guest visited High Power Laser Laboratory & Integration Centre and appreciated the efforts of the CHES in the area of Directed Energy Weapons (DEW). Dr Gaurav Singhal, Sc 'F' & Technology Director, Liquid Laser System delivered the NTD oration on 'Perspectives in Development of Liquid Laser Technology'.



DFRL, Mysuru

National Technology Day was celebrated at Defence Food Research Laboratory (DFRL), Mysuru, on 12 May 2023. An open day exhibition conducted on the occasion was inaugurated by Dr Anil Dutt Semwal, Sc 'G' & Director, DFRL in the presence of Dr R Kumar, Sc 'G', Associate Director,

Dr VA Sajeev Kumar, Sc 'F', Head, FDAPT division. A special pavilion was made to showcase Millet-based technologies & products developed by DFRL on the occasion of celebration of International Year of Millets-2023. A large number of students from schools and colleges of in and around Mysore and also general public visited the exhibition. Dr Dadasahed D Wadikar, Sc 'F' & Head, Grain Science Technology Division, delivered the NTD oration on 'Millets for Military Ration-Palatability, Nutrition, and Technical Challenges' on 17 May 2023.



DIPR, Delhi

Defence Institute of Psychological Research (DIPR), Delhi celebrated NTD-2023 on 17 May 2023. Dr Nity Sharma, Sc 'E' delivered the oration on 'Mindfulness-based Cognitive Technique for Enhancement of Resilience and Psychological Well-being'.



DLRL, Hyderabad

Defence Electronics Research Laboratory (DLRL), Hyderabad organised a technical talk by Dr Anupam Sharma, OS & Associate Director, (DSP), Hyderabad and Shri Meva Ram Gurjar, Sc 'C', DYSL-AI Bengaluru on 12 May 2023 as a part of NTD-2023 celebrations. Smt Lakshmi, Sc 'F', Chairperson presented a report on the activities of S&T forum. Dr Sharma, spoke on 'Advanced Technologies for Space Warfare'. He spoke about modern Space Technologies and their future impact on Space EW. Shri Gurjar spoke on 'AI/ML in EW Systems'. He spoke about AI technologies as they are used in speech & language translation, use of AI in EW.



IRDE, Dehradun

Instruments Research & Development Establishment (IRDE), Dehradun celebrated NTD-2023 on 12 May 2023 with great enthusiasm. Dr Manvendra Singh, Sc 'G' delivered NTD oration on 'Electro-optics for Space-based Situational Awareness: Challenges and Way Ahead'. Dr Ajay Kumar, Director, IRDE inaugurated the event & highlighted the importance of the day towards success and achievements of scientists, researchers, engineers and all other involved in successful conduction of three nuclear tests



at the Indian Army's Pokhran Test Range in Rajasthan. Dr Ajay Kumar awarded Dr Singh with NTD medal and a certificate.



LRDE, Bengaluru

NTD-2023 was celebrated at Electronics & Radar Development Establishment (LRDE), Bengaluru on 12 May 2023. Smt Mohana Kumari P, Sc 'F' delivered the NTD oration on 'Upgrades of Fire Control Radar for Air Defence SAM Systems'. She was felicitated by Dr P Radhakrishna, DS & Director, LRDE by presenting the NTD certificate. Director LRDE addressed the gathering on 'Futuristic Radar Technologies'. Dr A Vengadarajan, Associate Director organised the event.



NMRL, Ambernath

National Technology Day-2023 was celebrated on 12 May 2023 at Naval Materials Research Laboratory (NMRL), Ambernath. Shri Satya Gowtam Dommeti,

Sc 'E' delivered the NTD oration on 'Fe-based Bulk Metallic Glass Coatings for Naval Applications' under the theme of 'School to Startups- Igniting Young Minds to Innovate'. Shri PT Rojatkar, OS & Director, NMRL presented a Medal and a Certificate to Shri Dommeti.



NPOL, KOCHI

Naval Physical and Oceanographic Laboratory (NPOL), Kochi celebrated the NTD-2023 on 12 March 2023. The NTD oration was delivered by Shri Roni Francis, Sc 'F' on 'Hydrodynamics of Towed Sonar System'. The oration covered the major hydrodynamic aspects of towed sonar system which are critical for the optimum sonar performance. Dr Ajith Kumar K, Director, NPOL presented the NTD medal & commendation certificate to the orator.

As part of the celebrations, on 19 May 2023 an invited talk was also conducted. Shri R Hutton, Project Director, Mission Gaganyaan, Human Space Flight Centre, ISRO delivered a talk on 'Indian Human Space Programme'. He described about the areas that would constitute important components for future sustained human space flight activities like rendezvous and docking, space station building and interplanetary collaborative manned missions to Moon/Mars and near-earth asteroids.



NSTL, Visakhapatnam

Naval Science & Technological Laboratory (NSTL), Visakhapatnam observed NTD-2023 on 11 May 2023. The event started with welcome address by Dr TVSL Satyavani, Sc 'F' & Chairperson NTDC-2023. Dr Y Sreenivas Rao, the Chief Guest, in his speech informed that with the continuous efforts of scientists & technologists, nearly 95 per cent of the components of the missiles and torpedoes are developed indigenously. He expressed strong belief that with the combined involvement of public, private organizations, and academic institutions, India would become a top nation in R&D.

Guest of Honour Prof. DVLN Somayajulu gave an insightful talk on 'Importance of Global Technology Interventions in the Development of Advanced Systems'. Distinguished Guest Dr GN Rao talked about the background and how Operation Shakti was executed with the code name 'Laughing Buddha' in May 1998 and Mission Shakti in May 2019. On the occasion, Titanium Medal and Director's Commendation Certificate was presented to Sri Anand Kumar, Sc



'E' for his oration on 'Development of Pyro-based Torpedo Release Mechanism'. Also, Sri Arun Naskar, STA 'B' gave a presentation on a mini project 'Wireless Shaft Power Measurement System'.

On the occasion, an open house

exhibition was also organised where selected 43 models from various schools and colleges were displayed.

TBRL, Chandigarh

The NTD-2023 was celebrated

at Terminal Ballistics Research Laboratory (TBRL), Chandigarh on 11 May 2023. The occasion was graced by the presence of Chief Guest Air Chief Marshal BS Dhanoa, PVSM, AVSM, YSM, VM ADC (Former Chief of Air Staff, Indian Air Force). The NTD oration was delivered by Shri Raj Kumar Bharadwaj, Sc 'F' on 'Development of Technologies for Insensitive Munitions Compliance for Advanced Warheads'.



DMRL IN SCIENTIFIC AND INDUSTRIAL EXHIBITIONS

Defence Metallurgical Research Laboratory (DMRL), Hyderabad participated in an exhibition as a part of National Technology Week-2023 celebrations at Pragati Maidan, New Delhi during 11-14 May 2023. The event was conducted to commemorate the 25th anniversary of the successful conduct of Pokhran-II in May 1998. The theme of the event was 'School to Start-Up' igniting young minds to innovate. Hon'ble Prime Minister Shri Narendra Modi inaugurated the event with Hon'ble Raksha Mantri Shri Rajnath Singh and Hon'ble Minister of State (Independent Charge) for Science & Technology and Earth Sciences, Dr Jitender Singh. DMRL's exhibits and technologies received



an overwhelming response especially from the research fraternity. Several school students also visited the exhibition and were excited to learn about DMRL's

products. The valedictory function was presided by the Hon'ble Minister, Dr Jitender Singh who praised the efforts being made towards innovation in S&T.

LAUNCH OF DMSRDE E-LIBRARY WEB PORTAL & MOBILE APP

Dr Mayank Dwivedi, Director, Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, launched the DMSRDE e-library Web Portal and Mobile App on 25 May 2023. More than 25 lakhs collection of books and journals are available on the web portal. The platform includes DMSRDE repository content, DRDO consortium content, subscribed and open access journals, and print & e-books. The portal can be accessed by DMSRDE employees from anywhere on computer or mobile after registration using user name and password. Mobile App of



the DMSRDE e-library can be downloaded from Google Playstore and Appstore . A small demo-

cum-training of the web portal and mobile app for all the DMSRDE employees was also provided.

5TH ECS CLUSTER COUNCIL MEETING AT LRDE

The 5th ECS Cluster Council Meeting of 2023 was held in Electronics & Radar Development Establishment (LRDE), Bengaluru on 24 May 2023. Dr BK Das, DS & DG (ECS) chaired the meeting. The welcome address was given by Dr P Radhakrishna, DS & Director, LRDE. DG (ECS) released a Mission-2023 product of ECS cluster developed by CHES and presented a certificate of appreciation to Dr Amit Pratap, Sc 'F' and team for their commendable work. A presentation on lessons learnt from the LRDE Project 'Active Electronically Scanned Array Radar-Uttam' was made by Shri D Seshagiri, Sc 'H' & Project Director. Director, LRDE presented the achievements of



LRDE for the last ten months. DG (ECS) complimented the laboratory for the excellent work carried out. CCM acknowledged the achievement of LRDE in the field of indigenisation of

radars and excellent support to the various clusters. Cluster Council bade farewell to Dr P Radhakrishna, DS & Director, LRDE who superannuated on 31 May 2023.

WORLD ENVIRONMENT DAY CELEBRATIONS

CFEES, Delhi

Centre for Fire, Explosive & Environment Safety (CFEES), Delhi celebrated World Environment Day (WED)-2023 with a series of events. A 'Mass Awareness Programme for Mission LiFE (Lifestyle for Environment)' was organised. LiFE Centres were set up for collecting old clothes, books, & utensils. A Bicycle Rally was conducted to promote 'LiFE' with a theme of 'Solution for Pollution'.



Bicycle Rally: 'Solution for Pollution' organised in the Campus of CFEES

DL, Jodhpur

Under the mission LiFE, one-week environmental protection drive was celebrated at Defence Laboratory, Jodhpur (DLJ) during 1-5 June 2023. A LiFE Pledge was administered to all DLJ employees by the Director, DLJ. A Bicycle Rally was organised in residential area to promote LiFE objectives among DLJ employees along with families and conservancy staff. Special campaign for plastic waste collection was taken up in the DLJ Campus. About 20 kg of plastic waste was collected and disposed.



Bicycle Rally organised in DLJ residential area to promote LiFE objectives

ISSA, Delhi

Institute for Systems Studies & Analyses (ISSA), Delhi



World Environment Day 2023 celebrations at ISSA

celebrated WED-2023 on 5 June. A video from MeriLife Portal was showcased. A pledge ceremony was also conducted followed by a lecture by Mrs Kalpana Kaithal, Sc 'E' on 'LiFE-Life for Environment'. Also '75 Life Action' points from Niti Aayog were briefed to the employees to

implement in their day to day life for safe environment.

NPOL, Kochi

Naval Physical and Oceanographic Laboratory (NPOL), Kochi celebrated WED-2023 on 5 June 2023. Every year the day is celebrated to create



Shri Prince Joseph, Sc 'G' planting a sapling at NPOL campus



awareness of our responsibility towards environment protection.

Saplings were planted in the residential campus and the programme was led by Shri Prince Joseph, Sc 'G' & Officiating Director, NPOL.

NSTL, Visakhapatnam

On the occasion of WED-2023 on 5 June 2023, Naval Science & Technological Laboratory (NSTL), Visakhapatnam fraternity along with Mahila Kalyan Members (MKM) members organised a painting competition for MKM members with the theme 'Solution



Plantation Drive at the NSTL campus

to Plastic Pollution'. A mass plantation programme was also

conducted as part of the WED-2023 celebrations.

CORPORATE REVIEW OF CVRDE

Corporate Review of the Combat Vehicles Research & Development Establishment (CVRDE), Chennai was held under the Chairmanship of Shri KS Varaprasad, DS & DG (HR), during 5-6 May 2023. The Corporate Review Committee (CRC) was co-chaired by Shri Purusottam Bej, OS & DG (R&M) and Corporate Directors of DMS & DCW&E, DV&S, DIT&CS, DHRD, DOP, DFMM, DP&C, DIITM, Estate Manager, Avadi, AGE (I) R&D, Avadi attended the meeting. From CVRDE, Shri V Balamurugan, OS & Director and all Additional Directors & Division Heads participated in the review meeting.

The Chairman, CRC in his opening remarks stated that Corporate Review is a mechanism with an aim to resolve corporate issues, with particular emphasis on Admin & HR issues by enabling interaction between laboratory and HQrs. The Director, CVRDE briefed about the formation of



CVRDE with its present Charter of Duties.

During the deliberation, major issues such as scientific, technical, admin & service personnel requirements, engagement of apprentices & other issues were discussed and CRC provided the directions on the further course of action on unresolved issues.

CRC Team visited the Arjun production area at Heavy Vehicles

Factory, Avadi and also reviewed various test facilities of the laboratory.

In their closing remarks, CRC appreciated the efforts taken by CVRDE, as a major system laboratory, towards achieving self-reliance in AFV technologies to fulfil the mission Atmanirbhar Bharat and assured to do its best to address the issues raised during the deliberations.



COURSE ON SIGNAL PROCESSING FOR RF AT DEAL

A Continued Education Programme (CEP) on 'Signal Processing for RF and Other Domains of Communication' was held at Defence Electronics Applications Laboratory (DEAL), Dehradun during 1-5 May 2023. The course was inaugurated by Shri LC Mangal, Director, DEAL. There were total 30 participants from various laboratories. The faculty comprised of speakers from IITD, IITK, IITI, IITR, IIIT-DM, CRL Bangalore, ex-DRDO scientists, DRDO scientists, and industries.

The keynote lectures were on 'Advances in mm-wave and THz Imaging' by Prof. Ananjan Basu, IITD and 'Discrete Time Signal Processing for Communication System' by Prof. Vasudevan, IITK. It was followed by a lecture



on 'Time Frequency Analysis' by Prof. Ram Bilas Pachori, IIT-Indore and 'Advance Applications of Analog-Digital Signal Processing Techniques for Energy Efficient Multi-band/Broadband Transmitters' by Prof. Meenakshi Rawat, IITR.

Other topics covered were Signal Processing for RF & EW, Radar

Signal Processing, Advancement in Power Amplifier for Wireless Communication, Mixed Signal Processing, Speech Signal Processing, EMI/ EMC Solutions, Path towards 6G, Critical Assessments in Broadband RF & Microwave Application, Audio Signal Processing, Sonar Signal Processing and e-procurement.

AWARENESS LECTURE ON 'A TO Z ABOUT MILLETS'

Naval Materials Research Laboratory (NMRL), Ambernath organised an awareness lecture 'A to Z about Millets' on 1 June 2023 to mark the International Year of Millets (IYoM-2023) as per the DRDO guidelines. Dr Sarita Patil, Naturopath was invited as the Guest Speaker to spread the awareness about the various facts and figures about the Millets. Shri PT Rojatkhar, OS & Director, NMRL welcomed the guest. This was followed a lecture on 'A to Z About Millets' by the speaker. Dr Sarita Patil shared the benefits, nutrition compositions, & the way of consumption of millets. She also highlighted the role of various millets to cure the lifestyle



diseases. Her interaction with NMRL employees was fruitful and

employees got motivated to use millets in their daily diet.

DRL ORGANISED MILLET AWARENESS LECTURE AT ITBP RANGAMATI CAMP

Defence Research Laboratory (DRL), Tezpur collaborated with ITBP Rangamati Camp Tezpur (Assam) to organise a Millet Awareness Lecture for officers/ORs of Sector Headquarters/55Bn, ITBP in light of the International Year of Millets (IYoM-2023) on 12 June 2023. A total of 50 officers/ORs attended the event. The participants were introduced systematically to the conventional uses of millets and present developments along with the ecological and nutritional benefits of growing and consuming millets through showcasing a pictorial presentation with detailed data and figures by Dr Ankit, Scientist, DRL. The participants were briefed about the major categories of millet including sorghum



and pearl millet, minor millet comprising finger millet (ragi), foxtail millet (kakun), proso millet (cheena), kodo millet (kodo), barnyard millet (sanva) and little millet (kutaki) as well as pseudo

millets such as buckwheat (kuttu), grain amaranth (ramdana) and quinoa (mahanaj) and their ready-to-eat millet products developed by DRDO and the private sector through high-quality visuals.

WORKSHOP ON EFFECTIVE LIFE SKILLS

Defence Institute of Psychological Research (DIPR), Delhi organised a workshop on 'Effective Life Skills' on 30 May 2023 at DRDO Residential Complex, Timarpur, Delhi. Dr RK Sokhi, Sc 'G' led the team of senior scientists and interacted with the family members of DRDO employees. As part of the workshop, two insightful lectures on 'Effective Life Skills' and 'Stress Management' were delivered by the senior scientists of DIPR. The participants were actively engaged in discussions on coping in daily life scenarios and appreciated the interactive sessions with DIPR team members.





WORKSHOP ON VIBRO-ACOUSTIC COUNTER-MEASURES AT NPOL

A one-day user-interactive workshop on 'Vibro-acoustic Countermeasures' was organised by Naval Physical and Oceanographic Laboratory (NPOL), Kochi on 24 May 2023. In pursuance of the Government of India's vision of 'Make in India', NPOL has developed various anti-vibration technologies for acoustic signature management and suppression which is a key aspect in the modern combatant vessels/warships to minimize the interference between various sound critical instruments

and also to avoid detection by enemy sonars. The objective of the workshop was to introduce the different types of mounts developed for naval applications as well as to introduce the capability and competence that exist in NPOL towards vibroacoustic countermeasures to the users and prospective development partners. Dr Ajith Kumar K, Sc 'G' & Director NPOL, inaugurated the workshop.

Dr AV Ramesh Kumar, Sc 'F' & Coordinator for the workshop welcomed the gathering and

gave an overview of the event. The participants of the workshop were mainly from Naval units, DGNATAA, MTU (M), MTU (V), MTU (K), DND (SDG), DME, and industries. The workshop showcased all the developed mounts and technologies through presentations, interactions, demonstrations and exhibition. The programme was well received by all including 18 industrial partners from Larsen & Toubro (L&T) Defence, BEL, Cochin Shipyard Limited (CSL), Keltron, etc.



INAUGURATION OF CENTRE FOR ADVANCED MAXILLOFACIAL RESEARCH AT INMAS

A Centre for Advanced Maxillofacial Research at Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi was inaugurated by Dr Samir V Kamat, Secretary, DD (R&D) and Chairman, DRDO on 31 May 2023 in the presence of Dr UK Singh

DS & DG (LS) and Dr Anil Kumar Mishra, Director, INMAS.

The new centre will be instrumental in research and innovation of dental materials, equipment, technology, and protocols in the field of dentistry.

The thrust areas of the

department will be development of new bio-materials, innovative technologies, and their application, radiation bio-sciences application in dentistry, stem-cell assisted tissue engineering, indigenous development of materials and equipment.





APPOINTMENTS

DG (NS&M)



Dr Y Sreenivas Rao, Distinguished Scientist & Director, Naval Science & Technological Laboratory (NSTL), Visakhapatnam, took over the responsibility of Director General (Naval Systems and Materials) of DRDO. Dr Rao spearheaded the development of underwater weapons platforms and associated systems, as Director, NSTL.

Dr Rao joined DRDO in 2000 and worked in various capacities in the missile development programme. Over a span of 22 years, he worked on various technologies like communication systems, missile systems, and various warheads. As a project director for Exo-Interceptor Missile Systems, he led a team in the configuration, development and realisation of state-of-the-art 'hit to kill' interceptor missile systems capable of intercepting incoming missile in exo-region.

Dr Rao is the recipient of the Sir Mokshagundam Visvesvaraya Award as an eminent engineer from IET, Telangana State Centre. He is also the recipient of number of DRDO Awards during the year 2005, 2006, & 2009; Solar Shakti Award-2019; JNTU, Distinguished Fellow in 2019 and the ASEIndia -'Roll of Honor' Foundation Award for the year 2019-2020.

Director, LRDE



Shri Gampala Viswam, DS assumed the charge of Director, Electronics & Radar Development Establishment (LRDE), Bengaluru, w.e.f. 1 June 2023. He obtained his MSc in Computer Science from Andhra University, and MTech in Computer Engineering from IIT Madras. He started his career in LRDE as Sc 'B' in 1989 and rose to the rank of Distinguished Scientist.

Shri Viswam worked in various Radar projects and have vast experience in the design and development of Radar systems, more specifically in Surveillance & Fire Control Radars of Akash Weapon System, QRSAM, AKASH-NG, ADFCR for Army/Air Force needs and Programme-AD.

He was instrumental in the realization of first of its kind, four wall, on the move radar (configured on single 8x8 HMV/Trailer) for Indian Army (QRSAM) and Indian Air Force (Akash-NG).

His fields of interest include Systems Engineering, High Performance Computing, Parallel Processing using GPGPU architectures, highly time critical software & hardware systems and miniaturisation reducing complexity of Radar systems.

He received Young Scientist Award-2000 and Scientist of the Year Award-2013 and IETE-IRSI Main Award-2020.

HIGHER QUALIFICATION ACQUIRED

IRDE, Dehradun



Dr Himanshu Singh, Sc 'F' of Instruments Research and Development Establishment (IRDE), Dehradun has been awarded PhD from Department of Applied Mathematics and Scientific Computing of Indian Institute of Technology (IIT), Roorkee for his thesis entitled 'Image Processing, Tracking, and Performance Evaluation of Thermal Imaging Systems'.

AWARD

Shri PVS Ganesh Kumar, Sc 'F', OS & Team members (34) of Naval Science & Technological Laboratory (NSTL), Visakhapatnam, awarded 'Agni Award for Excellence in Self-reliance' in the strategic field of naval ship signature management through indigenous design and development of infrared signature suppression systems on DRDO Awards-2020 distribution function on 26 May 2023 at DRDO Bhawan, New Delhi.





45TH FLIGHT TEST COURSE

Sh Debjit Modak Sc 'C', Centre for Airborne Systems (CABS), Bengaluru attended 45th Flight Test Course (FTC) at Aircraft and Systems Testing Establishment (ASTE), Indian Air Force (IAF), w.ef. 20 June 2022 for a period of 48 weeks.

The officer successfully completed the course and graduated as qualified Flight Test Engineer (Fixed Wing) on 19 May 2023. He stood first in overall rank of merit among the Flight Test Engineers and was awarded the Maharaja Hanumanth Singhji Sword. He received the prestigious award from Air Marshal AP Singh, PVSM, AVSM, Vice Chief of Air Staff.



SOCIAL ACTIVITIES

BLOOD DONATION CAMP

DRL, Tezpur

World Blood Donor Day was observed on 14 June 2023 at Defence Research Laboratory (DRL), Tezpur, in association with the Blood Bank, Kanaklata Civil Hospital, Tezpur, by organising a Blood Donation Camp as part of the 'Raktdaan Amrit Mahotsav'. A large number of volunteers participated in the camp, and 26 units of blood was collected. Blood Bank, Kanaklata Civil Hospital acknowledged the DRL for organising the camp to promote the spirit of voluntary blood donation and helping meet the constant demand for safe blood by providing citation to the institute and a Letter of Appreciation to the donors.



Blood Donors during the Blood Donation Camp at DRL, Tezpur

EMU, Hyderabad

On the eve of 'World Blood Donors Day', Estate Management Unit (R&D), Hyderabad in association with Osmania General Hospital, Hyderabad organised Blood Donation Camp on 14 June 2023 at Kanchanbagh. The event

was organised under 'Raktdaan Amrit Mahotsav'. The event was intended to spread awareness among all personnel of DRDO to become new donors, to encourage employees to donate blood regularly, as often as possible, and also to make efforts so that no life is lost, around us, due to shortage



of blood. The slogan for this year is “Give Blood, Give Plasma, Share Life, Share Often”.

More than 200 willing blood donors participated in the camp from all laboratories of Hyderabad. Apart from this, residents in large number also participated voluntarily and made the event a grand success. Dr Akhila, Dr Prashamsa, Smt G Rama, Staff Nurse, Technicians and supporting staff from Osmania General Hospital and Dr Shaik Ghouse Mohiddin, Addl. CCE and Estate Manager and his team also participated in the event.



Dr UK Singh, DG (LS), donating blood during the Blood Donation Camp at INMAS, Delhi



INMAS, Delhi

On the occasion of World Blood Donor Day, a Blood Donation Camp was organised at Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi on 13 June 2023. The event was attended by Dr UK Singh, DG (LS), Dr AK Mishra, Sc ‘G’ & Director, INMAS. Shri Vipul Gupta, Director-Admin and Dr Ratnesh Singh Kanwar, Sc ‘F’ & Divisional Head-CRMM were among the first batch of blood donors. More than 100 DRDO employees volunteered for blood donation. A team of 12 doctors and paramedical staff including Dr Sompal Singh (HoD-Blood Bank), Dr Namrata Sarin (HoD-Pathology), Dr Ayesha (Senior Resident Pathology) from Hindu Rao Hospital, Delhi were involved in conduction of the camp.

ITR, Chandipur

Integrated Test Range (ITR), Chandipur organised a Blood Donation Camp on 24 May 2023. Shri HK Ratha, Director, ITR inaugurated the camp. Dr Basanta Upadhyay, Head Blood Bank, Dist HQR Hospital, Balasore, Dr MK Biswal, Blood Bank Officer, Balasore, Dr Niladri Roy, Sc ‘G’, ITR graced the occasion. Director in his inaugural speech said that the blood one donate gives someone another chance of life. There is no substitution for blood. Everybody should be encouraged to donate blood voluntarily for the noble cause. A number of 308 units of blood were collected during the camp. Many officers, staff, and DSC personnel participated in the noble cause.



NMRL, Ambernath

Naval Materials Research Laboratory (NMRL), Ambernath in collaboration with NGO Tarun Mitra Mandal, Ambernath celebrated World Blood Donor Day on 14 June 2023. Shri PT Rojatkar, OS & Director, NMRL took a pledge along with NMRL employees for voluntary blood donation. Shri Rojatkar in his address, raised the awareness in employees about the importance of blood donation and motivated them for blood donation. The camp received an overwhelming response where 96 individuals donated the blood. The blood donors were awarded with a certificate as well as donor cards with life time validity.



Shri PT Rojatkar, OS & Director, NMRL donating blood during the camp

Visitors to DRDO Labs

CAIR, Bengaluru

Vice Admiral Rajesh Pendhakar, AVSM, VSM, DCIDS (OPS) and team visited Centre for Artificial Intelligence & Robotics (CAIR), Bengaluru on 18 May 2023. There was a briefing by Dr Subrata Rakshit, OS & Director CAIR, followed by discussion and demonstration of technologies developed by CAIR in the area of command and control technologies for naval forces, land forces and geographical information system.



DESIDOC, Delhi

Shri KS Varaprasad, DS & DG (HR) visited Defence Scientific Information and Documentation Centre (DESIDOC), Delhi on 6 June 2023. Dr K Nageswara Rao, Director, DESIDOC, briefed him about the various ongoing activities and future plan of the laboratory. He also put on record his gratitude towards DG (HR) for his fruitful tenure and valuable guidance to DESIDOC over the years. Shri Varaprasad released the DESIDOC Annual Report-2022 and also planted a sapling.



DIHAR, LEH

Defence Institute of High Altitude Research (DIHAR), Leh conducted field exposure visits for the Officer Trainees (OTs) of 36th State Forest Services (SFS) induction course of CASFOS & local NCC Cadets of Ladakh, respectively during 24-25 June 2023. The officers and NCC cadets comprised of 63 & 350, respectively in numbers. Upon their visit, scientists of DIHAR initially briefed them about the



importance and relevance of conducting R&D programmes related to agriculture and animal sciences in Ladakh region.

The visitors appreciated various

technologies and conveyed their desire to help spread awareness and interest about these technologies at their respective locations.

DIPAS, Delhi

Dr Samir V Kamat, Secretary, DD (R&D) & Chairman DRDO visited Defence Institute of Physiology and Allied Sciences (DIPAS), Delhi, on 31 May, 2023 accompanied by Dr UK Singh, DS & DG (LS). Dr Rajeev Varshney, Director, DIPAS made a comprehensive presentation about the ongoing projects of DIPAS and the products developed and inducted in the Armed Forces and the Central Armed Police Forces. An exhibition of state-of-the-art products, processes, and technologies developed by DIPAS was also showcased. Dr Kamat appreciated the breathtaking range of ongoing R&D activities being conducted at DIPAS and the impressive impact of the R&D work on our defence forces.

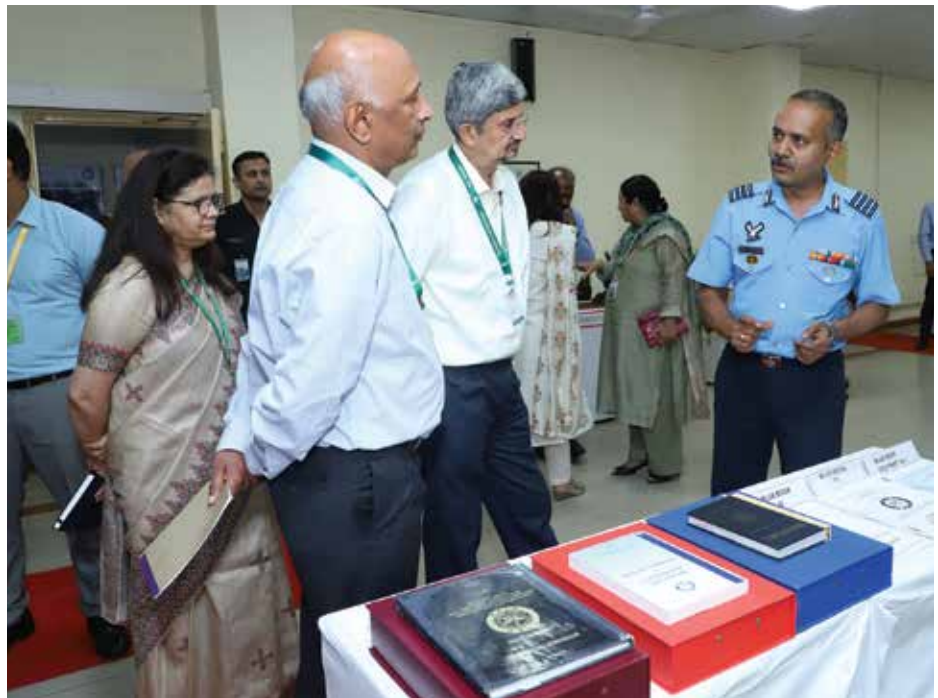


Dr Samir V Kamat, Secretary, DD (R&D) & Chairman DRDO in interaction with Dr UK Singh, DS & DG (LS) and Dr Rajeev Varshney, Director, DIPAS

DIPR, Delhi

* Dr Samir V Kamat, Secretary, DD (R&D) & Chairman DRDO visited the Defence Institute of Psychological Research (DIPR), Delhi on 31 May 2023. Dr UK Singh, DS & DG (LS) briefed him about the various R&D activities and initiatives undertaken by DIPR. Dr Arunima Gupta, Director, DIPR and team reflected upon the major contributions of the laboratory over the last seven decades in selection, training, providing psychological support and services to the Armed Forces & other institutions.

On the occasion, an exhibition of numerous psychological products, field manuals and services including Computerised Pilot Selection System (CPSS) was showcased.



Dr Samir V Kamat, Secretary, DD (R&D) & Chairman DRDO during his visit at DIPR, Delhi



* Smt B Radhika, IPS, Additional Director General (ADG), Sashastra Seema Bal (SSB) along with other senior officials visited the DIPR on 1 June 2023. She interacted with Dr UK Singh, DS & DG (LS), Dr Arunima Gupta, Director, DIPR and other senior scientists. ADG complimented the scientific fraternity for their sustained R&D contributions and interventions for resilience building & promotion and well-being of soldiers.

* Shri KM Yadav, Inspector General, Central Reserve Police Force (CRPF) along with his team visited the DIPR on 2 June 2023. Dr Arunima Gupta, Director, DIPR and team briefed him about the various R&D activities carried out by the institute.

* Shri Sanjay Kumar Chowdhary, Inspector General, Indo-Tibetan Border Police (ITBP) along with his team visited the DIPR on 19 June 2023 and had discussions with Dr Arunima Gupta, Director, DIPR and other senior scientists.

LRDE, Bengaluru

Brig Samir Verma, Commander, Army Centre of Electromagnetics, Mhow visited Electronics & Radar Development Establishment (LRDE), Bengaluru on 12 May 2023. He met Shri Justin Sagayaraj, Sc 'G' and team from Dte of Quality Assurance, LRDE. A presentation was made on EMI/EMC aspects and issues faced by DRDO during development of defence equipment. Later, he visited Active Array Antenna Measurement & Diagnostic Test Centre and EMI/EMC test facilities of LRDE.



Dr Arunima Gupta, Director, DIPR handing over a memento to Smt B Radhika, IPS, ADG SSB



Shri Sanjay Kumar Chowdhary, Inspector General, ITBP & his team during their visit at DIPR, Delhi



Brig Samir Verma, Commander, ACE along with Shri Justin Sagayaraj, Sc 'G' and team from Dte of Quality Assurance of LRDE during visit to EMI/EMC

NPOL, Kochi

A fifteen-member Parliamentary Standing Committee on Defence (SCoD) inspected the ongoing projects, facilities, other achievements & activities of Naval Physical and Oceanographic Laboratory (NPOL), Kochi on 12 May 2023. The committee was headed by Hon'ble Shri Jual Oram, Hon'ble Chairperson, Member of the Lok Sabha. Dr Ajith Kumar K, Director, NPOL gave a detailed presentation on NPOL activities. The committee interacted with NPOL officials on the ongoing projects, achievements and activities in process. Shri MZ Siddique, DS & DG (NS&M) and Shri Purusottam Bej, OS & Sc 'H' & DG (R&M) also attended the meeting. After the discussion, the committee, officials from Lok Sabha Secretariat and officials from Ministry of Defence visited acoustic tank, and an exhibition arranged by NPOL on technical achievements.



Dr Ajith Kumar K, Sc 'G' & Director, NPOL explaining NPOL products to SCoD

TBRL, Chandigarh

A study visit of the Public Accounts Committee (2023-24) of Parliament was conducted to Terminal Ballistics Research Laboratory (TBRL), Chandigarh on 3 June 2023. Hon'ble Chairman of PAC Shri Adhir Ranjan Chowdhury inaugurated the exhibition where indigenously developed technologies and products were shown including the live demonstration of trials at Rail Track Rocket Sled Facility (RTRS). Members of committee expressed keen interest in the TBRL activities and projects.



PAC committee members being briefed by Prof. Prateek Kishore, OS & Director, TBRL during the exhibition at TBRL, Chandigarh