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## INS SAGARDHWANI EMBARKS ON SAGAR MAITRI MISSION





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# INS SAGARDHWANI EMBARKS ON SAGAR MAITRI MISSION

*DRDO's oceanographic research vessel 'INS Sagardhwani' embarks on Sagar Maitri Mission-4 to establish long-term scientific partnerships with Indian Ocean Rim countries in 'Ocean Research & Development'*

INS Sagardhwani, an oceanographic research vessel of the Naval Physical & Oceanographic Laboratory (NPOL) of DRDO, embarked on a two-month-long Sagar Maitri (SM) Mission-4 from South Jetty, Southern Naval Command (SNC), Kochi, on 11 October 2023. Dr Samir V Kamat, Secretary, DD R&D & Chairman, DRDO, flagged-off the ship in the presence of Officiating Flag Officer Commanding-in-Chief (South) Rear Admiral Upal Kundu and other senior officials of the DRDO & Indian Navy.

Sagar Maitri is a novel initiative of DRDO that supports the broad objective of Hon'ble Prime

Minister Shri Narendra Modi's policy declaration 'Security and Growth for All in the Region (SAGAR)' to promote closer cooperation in socio-economic aspects as well as more significant scientific interaction, especially in ocean research among Indian Ocean Rim (IOR) countries. Under the aegis of this policy, DRDO initiated a scientific component named 'MAITRI (Marine and Allied Interdisciplinary Training and Research Initiative)', which focuses on establishing long-term collaboration with IOR countries in the field of 'Ocean Research and Development'.

In the SAGAR MAITRI

programme, INS Sagardhwani will retrace the tracks of INS Kistna, which participated in the International Indian Ocean Expedition during 1962–65. The missions aim to establish long-term scientific partnerships and collaborations with Oman, the Maldives, Sri Lanka, Thailand, Malaysia, Singapore, Indonesia, and Myanmar—the eight IOR countries.

In the earlier SAGAR MAITRI missions, the delegation visited Yangon (Myanmar) in April 2019, followed by the second mission (SM-2) to Klang (Malaysia) in August 2019 and Singapore in September 2019, including the







conduct of one-day scientific seminars in all three countries. In February 2020, the NPOL conducted oceanographic studies in the Southern Indian Ocean, including an equatorial transect, as part of the third mission.

The current mission (SM-4) plan includes scientific deployments onboard INS Sagardhwani in the Northern Arabian Sea and initiating collaborative research programmes with the Department of Marine Sciences and Fisheries at Sultan Qaboos University, Oman. These missions give the scientists an opportunity to cooperate and build strong working relationships with their IOR counterparts studying the oceans.

INS Sagardhwani is a marine acoustic research ship designed and developed by NPOL, Kochi, and constructed indigenously by



GRSE Ltd. It was launched in July 1994. The NPOL is involved in studying the ocean environment and other related fields.

The vessel has been engaging in extensive oceanic observing missions and research for the last 25 years.

## TOT FOR NANOCURCUMIN FORMULATION

The Defence Institute of Physiology & Allied Sciences (DIPAS), Delhi, has developed a technology on nanocurcumin-based formulation for ameliorating high-altitude-induced maladies, including Right Ventricular Hypertrophy (RVH). The technology was transferred to SAR Cellulabs Pvt. Ltd., Gurugram, on the occasion of the 62nd Raising Day of DIPAS on 20 September, 2023. The ToT documents were handed over by Dr Samir V Kamat, Secretary, DDR&D & Chairman DRDO in the presence of Dr UK Singh, DS & DG (LS), Dr Rajeev Varshney, Director, DIPAS and Dr Deepika Saraswat, Sc 'F' (Inventor).





# 1<sup>ST</sup> KISAN-JAWAN-VIGYAN MELA

Defence Institute of Bio-Energy Research (DIBER), Haldwani organised the 1<sup>st</sup> Kisan-Jawan-Vigyan Mela during 14-16 October 2023 on the occasion of the Diamond Jubilee of the institute. Hon'ble Raksha Rajya Mantri Shri Ajay Bhatt addressed the DIBER fraternity and spoke on the growing strength of the country in the defence sector. He highlighted that energy is an important factor in military power, and it is encouraging that Indian scientists are producing high-end energy generation and management equipment indigenously.

In all, 103 exhibitors participated in the mela, of which 84 were invited and the rest were participatory. There were five central government and fifteen state government departments, fifteen self-help groups, two FPOs, and one PSU exhibitor during the mela.

Exhibition stalls for organic farming, technology-intensive farming, solar energy, and hybrid energy systems were displayed by the exhibitors. DIBER also distributed quality seeds, seedlings, and fruit plants with better yields during the mela.

Hon'ble Raksha Rajya Mantri Shri Ajay Bhatt felicitated progressive farmers, techno-friendly army units, the outstanding defence industry, and researchers from academia. Overall, fifteen awards were handed over for excellence in farming to farmers, FPOs, NGOs, and entrepreneurs; twenty awards to Kargil heroes and war widows; Army units and paramilitary forces; twenty

awards to industry and MSME; and five awards to researchers in academia. In recent years, DIBER has connected with more than 5,000 farmers in Pithoragarh, Chamoli, and Uttarkashi districts of Uttarakhand. DIBER is also handholding organic and progressive farmers and FPOs to create new markets for them, including overseas.

One of the prominent FPOs with whom DIBER is working is Berinag Tea, which is almost ready to export their product to other countries. Likewise, DIBER is also distributing advanced cultivars of turmeric to farmers in the Himalayas, which has the potential to be cultivated as a cash crop.

Hon'ble Raksha Rajya Mantri also inaugurated as many as six new research facilities on this occasion, including biomass and plasma-based gasification systems, an all-weather biomethanation plant,

a plasma gasification system, an analytical laboratory, an automatic fertigation system, and a high-altitude sewage treatment test bed. Later, Raksha Rajya Mantri launched new products developed by DIBER, including the Smart Hybrid Energy Management System (SHEMS), various field energy systems, and hybrid energy systems. Devakanta Pahad Singh, Center Head, said that SHEMS was developed in collaboration with Delhi-based Rohal Technologies Pvt. Ltd. against a requirement by Southern Command to manage their unmanned systems.

Subsequently, SHEMS has already undergone User-Assisted Technical Trials (UATT) at Pokhran. Dr UK Singh, DG (LS) said that this equipment would support seamless mobility of troops and field operations and could be deployed anywhere and at anytime, be it in conflict or peacetime.





## INDUSTRY SYNERGY MEET AT RAMGARH

Terminal Ballistics Research Laboratory (TBRL), Chandigarh organised a one-day industry Terminal Ballistics Research Laboratory (TBRL), Chandigarh organised a one-day industry synergy meet on 07 October 2023 at Ramgarh Range, Panchkula, to intensify the collaboration for the design, development, testing, and evaluation of indigenous systems. The objective of the meeting was to strengthen the synergy between DRDO laboratories and private industries venturing into the field of defence production. An exhibition of various technologies and products developed by TBRL was also showcased for ToT and



bulk production. More than 90 industry partners throughout the country participated and showed their interest in collaboration for making India AtamNirbhar in the field of defence technologies.

The process for utilising the test facilities at TBRL was also explained. More than 70 scientists from TBRL and DRDO HQrs interacted and answered queries of industry partners.

## DEFENCE & TECHNOLOGY EXPO AT CVRDE

DRDO participated in the 'Defence & Technology Expo (D&TE)-Transforming India Show 2023' held at Chennai, during 03-05 September 2023. Combat Vehicles Research & Development Establishment (CVRDE), Chennai, was the nodal laboratory, and the Centre for Airborne Systems (CABS), Electronics & Radar Development Establishment (LRDE), Gas Turbine Research Establishment (GTRE), and Naval Physical & Oceanographic Laboratory (NPOL) participated and showcased their indigenously developed products during the exhibition. The objective of the event was to promote Micro, Small, and Medium Industries (MSME's) participation in the defence ecosystem and make them realise the opportunities available



for defence manufacturing.

DRDO displayed the scale-down models of flagship products and advanced technologies, during the exhibition. Shri V Balamurugan, OS & Director, CVRDE; Dr V Balamurugan, OS & Associate Director; Shri J Rajesh Kumar, OS & Associate Director;

and Shri T Panneerselvam, Sc 'G' & Addl. Director, CVRDE, graced the occasion with their august presence. Shri VK Kaushik, Director, DPI was the Chief Guest during the inaugural function and Shri Ajay Bhatt, Raksha Rajya Mantri was the Chief Guest for the valedictory function.

## 7<sup>TH</sup> TECHNOLOGY COUNCIL MEETING

To foster close interactions and collaborative solutions, the Technology Council (TC) and Apex Council (AC) were formulated. The Seventh Technology Council Meeting (TCM) was held at DRDO Bhawan on 20 September 2023.

The meeting was chaired by Dr Chandrika Kaushik, OS & DG (PC & SI), Chairperson, TCM, with Shri Sangita Rao Achary, Director, DLIC as the member secretary. Members from MHA, the Central Reserve Police Force (CRPF), the Border Security Force (BSF), the National Security Guard (NSG), the Indo-Tibetan Border Police (ITBP), the Central Industrial Security Force (CISF), Sashastra Seema Bal (SSB), the National Disaster Response Force (NDRF), Assam Rifles, and IB attended the same. & Development Establishment (IRDE), Defence Materials and



Stores Research and Development Establishment (DMSRDE), High Energy Materials Research Laboratory (HEMRL), and Defence Electronics Application Laboratory (DEAL) attended the same through Video Conferencing and Terminal Ballistics Research Laboratory (TBRL) in person.

Director, DLIC talked about progress made on all the things that could be done under the 6th TCM. These included different types of ROVs, anti-drone systems, an acoustic sensor-based gun locator, a 40 mm grenade with an SD mechanism, and some other products.

## VISION GOA- 2023

Vision Goa-2023 exhibition was organised at Panjim, Goa during 4-6 October 2023. Various products developed by NPOL, NMRL, ARDE, NSTL, and R&DE (E) were displayed in the DRDO pavilion during the exhibition. Dr Pramod Sawant, Hon'ble Chief Minister, Goa inaugurated the exhibition. Dr Pramod Sawant, CM and Shri Shripad Y. Naik, MoS for Ports, Shipping Waterways & Tourism visited the DRDO exhibit stall. During the three days of exhibition, the DRDO stalls attracted numerous visitors from industry, academic institutions and students. DRDO



was conferred with best Pavilion Award during the exhibition.



# HINDI PAKHWADA CELEBRATIONS

## DEBEL, Bengaluru

Hindi Pakhwada was organised during 01-14 September 2023 at Defence Bio Engineering & Electromedical Laboratory (DEBEL), Bengaluru. Various competitions were conducted for Hindi- and non-Hindi-speaking employees separately. Hindi Day and the Hindi Pakhwada concluding ceremony were celebrated on 27 September 2023. Dr Ravindra Singh, OS & Director, DPARO&M was the Chief Guest for the occasion. Dr TM Kotresh, OS & Director, DEBEL, underlined in his address the importance of official languages and said that Hindi is one such language through which our technologies can reach the common people easily. Shri Arun Kumar, Sc 'F' presented the welcome address, and Smt K Thara Kumari, Admin Officer, presented the official language implementation report for the years 2022-23. DEBEL Hindi Magazine 'Sanchayika 2022-23' was also released on the occasion.



## DESIDOC, Delhi

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi celebrated Hindi Pakhwada during 14-28 September 2023. Number of competitions were organised during the Pakhwada. Dr k

Nageswara Rao, Director, DESIDOC, inaugurated the event. In his inaugural address, Dr Rao motivated the DESIDOC employees to maximise the use of Hindi and urge them for maximum participation in the Hindi competitions. Total 8 competitions events were organised and winners were awarded during the valedictory ceremony by Director, DESIDOC. Shri Vivek Kumar, Sc 'E' & Rajbhasha Adhikari coordinated the event.



## DG (NS&M) Office, Visakhapatnam

Hindi Pakhwada was celebrated at O/o DG (NS&M), Visakhapatnam, during 01-14 September 2023. During his inaugural address, Chief Guest Dr Y Sreenivas Rao, DS & DG (NS&M), said that though we speak different languages, Hindi is the language that binds all of

us. Sri B Bala Jawahar, IDAS, and IFA (R&D) advised using Hindi in official communications to the maximum extent possible. During the event, various competitions were held amongst the employees of DG (NS&M) and IFA (R&D). The closing ceremony was held on 14 September 2023 and prizes were distributed.

## DIPR, Delhi

The Defence Institute of Psychological Research (DIPR), Delhi, organised the Hindi Pakhwada during 22 September 2023 to 11 October 2023. The event was inaugurated by the Chief Guest, Dr Anil Kumar Mishra, Director, INMAS, in the gracious presence of Dr Arunima Gupta, Director, DIPR, Dr RK Sokhi, Sc 'G' & Dy Chairperson, OLIC, Dr Soumi Awasthy, Sc 'G' & Addl Director, senior scientists, service officers, and other members of the DIPR fraternity.

Dr Mishra appreciated DIPR for various initiatives and Rajbhasha activities being pursued at the laboratory and motivated the employees to use Hindi in their day-to-day correspondence.

Shri Ashok Kumar, Assistant



Hindi Pakhwada Celebrations at DG (NS&M) Office

Director (OL), coordinated the event.



### DL, Jodhpur

Hindi Pakhwada was organised at Defence Laboratory, Jodhpur (DLJ) during 14-29 September 2023. The event was inaugurated by Shri RV Haraprasad, OS & Director, DLJ. Dr VC Janu Sc 'F' & Vice President, Rajbhasha Committee briefed about the Hindi Pakhwada. On the occasion, the 28th issue of the laboratory's annual home magazine 'Marutarang' was also released by the Chief Guest Shri Pankaj Kumar Singh, DRM, Jodhpur.



### DMRL, Hyderabad

Defence Metallurgical Research Laboratory (DMRL), Hyderabad, celebrated Hindi Pakhwada during 14-29 September, 2023. Various competitions were organised in which more than 130 employees participated with a lot of enthusiasm. The valedictory function and the Hindi Diwas were celebrated on 29 September, 2023. Smt Jayshree Ayyangar, Chief Manager, SBI (retired), was the Chief Guest. Shri Vipin Kumar, Convener & Secretary (OLIC), presented the progress report of OLIC for the last year. Dr Amit



Bhattacharjee, Associate Director, addressed the gathering and motivated them to speak in Hindi.

### DMSRDE, Kanpur

Hindi Pakhwada-2023 was organised at Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, during 18-29 September 2023. Dr Mayank Dwivedi, OS & Director, DMSRDE, inaugurated and concluded the celebrations as Chief Guest. Besides other competitions, a Kavi Sammelan was organised on the concluding day of Hindi Pakhwada, where 15 poets from DMSRDE participated, and two renowned poets from Kanpur were invited to deliver their poems. Dr Rakesh Kumar Gupta, Sc 'E' & Rajbhasha Adhikari presented an overview of Pakhwada celebrations and conveyed thanks and congratulated all the participants

and the entire organising team for making the event a grand success.



### GTRE, Bengaluru

Hindi Pakhwada was organised at the Gas Turbine Research Establishment (GTRE), Bengaluru, during 30 August 2023 to 11 September 2023. To provide information about the available Hindi books, an exhibition was organised which was inaugurated by Dr SV Ramanamurty, OS & Director, on 30 August 2023. Shri Prakash Kumar Yadu, Sc 'F' & Vice-Chairman of the OLIC, presented the annual report on Rajbhasha. Following this, the valedictory ceremony was held on 4 October 2023, and was graced by Maj. Gen. Braj Bhushan Jha (Retd.), former DG (DRDO), as the Chief Guest. The 20th edition of the Hindi house magazine 'Hansa' was also released during the occasion.

Also, the GTRE library team was honoured on the occasion



Hindi Pakhwada Celebrations at GTRE, Bengaluru





for the successful organisation of the Hindi book exhibition. Shri Niranjana N. Kaddi, TO 'B' proposed the vote of thanks.

### **NPOL, Kochi**

Naval Physical and Oceanographic Laboratory (NPOL), Kochi, celebrated Hindi Pakhwada during 06-22 September 2023. Dr Ajith Kumar K, OS & Director, NPOL, inaugurated the Pakhwada on 6 September 2023 and gave his inaugural address. Shri K Mohanan, Sc 'G' & Director (Management), gave felicitations. A Hindi surprise test was also conducted on the day. During the celebrations, 14 competitions were conducted in Hindi for NPOL employees. For employees of the Underwater Acoustic Research Facility (UARF) of NPOL, a Hindi handwriting competition was

conducted at the UARF Campus, Idukki.

Smt Preethi Bhaskar, Sc 'F' was the Chairperson, Hindi Pakhwada Celebrations Committee.



### **NSTL, Visakhapatnam**

The Annual Hindi Pakhwada was organised during 14-28 September 2023 at Naval Science & Technological Laboratory (NSTL), Visakhapatnam. While addressing the NSTL fraternity during the inaugural ceremony, Dr Abraham Varughese, OS & Director, NSTL, conveyed his greetings and stressed the need

for implementing Rajbhasha in official activities. Various competitions were conducted as part of the Pakhwada.

Dr PK Pattanayak, Sc 'F', Chairperson, Hindi Pakhwada Celebration Committee-2023, informed the gathering in his address about various events organised during Pakhwada and how the events were designed to develop proficiency in Hindi language. Shri Vivek Sharma, Sc 'F' & Hindi officer, conveyed his appreciation to all the participants and the entire organising team.



## **SWACHHTA PAKHWADA**

### **DRDO, HQrs**

Under the 'Swachhta Hi Seva' campaign, a cleanliness drive was conducted at DRDO bhawan and other places by the Secretary, DDR&D & Chairman DRDO, Directors General and Directors in which all the employees participated enthusiastically. The programme was also celebrated with full enthusiasm in all the laboratories of DRDO and the importance of cleanliness was also emphasised. During this period, about 30,000 man hours of labour were donated by more than 20,000 officers, employees, and other people at 95 places.

### **CMSDS, Kolkata**

To promote awareness and



Swachhta Pakhwada at DRDO HQrs, Delhi

active participation in the Swachhta Pakhwada, officers and staff of Centre for Millimeterwave Semiconductor Devices and Systems (CMSDS), Kolkata visited nearby Govt school and conducted various engaging activities along with rewards on every activity. A speech was given on cleanliness drive by a senior scientist emphasizing the role of

students in maintaining a clean and healthy environment. A quiz and poster making, and slogan competitions were also conducted.





The students were also abreast about Swachh Bharat Mission and the importance of cleanliness. Besides other activities at the institute, the visit was aimed to enhanced students' knowledge about waste management practices, personal hygiene, and fostered a sense of community responsibility and pride in maintaining a clean environment.

### DESIDOC, Delhi

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi witnessed the cleanliness drive as a part of the Swachhta Pakhwada on 03 October 2023. During the occasion, Swachhta Pledge was taken by all the employees of DESIDOC. Dr K Nageswara Rao, Director, DESIDOC alongwith the officers and staff visited the Metcalfe House complex and took part in the cleaning activity of the premises.



### DL, Jodhpur

A walkathon (about 3 km) was conducted on 1 October 2023 (the Ek tareekh ek ghanta event) at the Defence Laboratory (DL), Jodhpur. Cleaning of premises and a plastic waste collection drive were also organised to spread the message to make the campus garbage-free. Twenty-four saplings were planted to spread the message of awareness about the protection of our environment.



### DRL, Tezpur

Defence Research Laboratory (DRL), Tezpur, organised a cleanliness drive around the peripheral road of DRL, Tezpur, on 'Swachhta Hi Seva' on 1 October 2023. All the officers, staff, scholars, and others participated with full enthusiasm.



### INMAS, Delhi

'Swachhta Hi Seva' Week was organised at INMAS, Delhi during 02-31 October 2023. During the cleanliness week, Besides the disposing of old and unused furniture items, the records room were also cleaned and the old and unused documents located there were disposed of. During the commencement ceremony of the week, the Director, INMAS addressed all the officers and employees and did Shramdaan work to clean the entire campus of the institute.



### NMRL, Ambernath

A cleanliness drive 'Swachhta Hi Seva' was organised at Naval Materials Research Laboratory (NMRL), Ambernath, during 15 September 2023 to 2 October 2023. The theme of the event was to create a garbage-free India. In line with this, NMRL conducted various events focusing on cleanliness, Shramadan, and awareness for the stoppage of single-use plastic. Shri PT Rojatkar, OS & Director, NMRL, took a pledge along with NMRL employees on 'Swachhta Hi Seva' on 19 September 2023.



### NSTL, Visakhapatnam

Naval Science & Technological Laboratory (NSTL), Visakhapatnam conducted 'Swachhta Hi Seva' event as a part of Swachhta Pakhwada-2023 on 1 October 2023. Dr Abraham Varughese, OS & Director, NSTL launched the cleanliness drive at NSTL. Lt. Col. Rahul Dixit, Division Head (Works & Estate) said that Swachhta became a National Behaviour making Swachh Bharat Mission tremendous success and household name.





# RAISING DAY CELEBRATIONS

## CABS, Bengaluru

Centre for Airborne Systems (CABS), Bengaluru celebrated its Raising day on 07 September 2023. The Chief Guest for the event was Air Marshal Ashutosh Dixit, AVSM VM VSM, Deputy Chief of Air Staff. Shri MZ Siddique, DS & DG (Aero) was the Guest of Honour. Dr K Ramchand, Founder Director, CABS, Shri MS Easwaran, Former Director, CABS, Directors of sister DRDO laboratories, and invitees from various industry houses were also present during the celebrations.

While giving the welcome address, Dr K Rajalakshmi Menon, DS & Director, CABS presented the progress of the laboratory over the years. She declared the successful completion of the Electrical Rig for Aircraft System (ERAS) Project, as per the PDC, during the year.

Appreciating the progress made by CABS over the years, Shri Siddique conveyed his best wishes for the successful execution of all the future tasks/programmes of CABS. Air Marshal Ashutosh Dixit expressed his satisfaction on the functioning of the two AEW&C NETRA systems delivered by CABS in the past. He stated that the ongoing AEW&C Mk-II programme



is very important to Indian Air Force and requested all the stakeholders to work towards successful achievement of its objectives. The ERAS Project product photo frame was unveiled by the dignitaries on the dais.

On behalf of Director General, DGAQA, Shri R Padmanabhan, PScO, OIC, DGAQA presented the Certificate of Approval of the Firm and its Quality Management System (AFQMS) with validity up to 31 May 2025 to Director, CABS.

Air Marshal Ashutosh Dixit presented 'Director's Commendation Certificates to the selected CABS personnel in recognition of their outstanding contribution in various technical

fields. Shri Siddique presented 'DRDO mementoes' to the officers & staff, who have completed 25 years of dedicated service to the DRDO. CABS has instituted a rolling trophy award called 'Division of the Best Quality Practices', to promote the quality culture in terms of system reliability towards user satisfaction and to bring awareness on quality practices within the organization.

Dr Y Purushottam, Sc 'G' & Chairman, Organizing Committee gave the vote of thanks and expressed gratitude to the Chief Guest, Guest of Honour and all the invitees for sparing their valuable time & gracing the occasion.

## DESIDOC, Delhi

The Defence Scientific Information and Documentation Centre (DESIDOC), Delhi celebrated its 53rd Raising Day on 13 October 2023 with great zeal and enthusiasm. Smt U Jeya Santhi,

OS & DG (HR), was the Chief Guest of the occasion. Directors from DRDO HQrs and from sister DRDO laboratories based in Metcalfe House and Timarpur Complex, senior scientists, invitees

from Delhi-based establishments, and employees of DESIDOC attended the celebration. Smt Santhi inaugurated the Document Archival Facility being set up at the Defence Science

Library (DSL) for storing bound volumes of journals in a safe and dust-free environment. She also planted a sapling on the DESIDOC premises. Dr K Nageswara Rao, Director, DESIDOC, gave the welcome address, highlighting the achievements of the various activities of DESIDOC in the past year. He also enlightened the august gathering about the latest initiatives and plans of DESIDOC and emphasised that DESIDOC will continue to serve the DRDO scientific community with its untiring efforts and innovative approach.

OS & DG (HR) appreciated the hard work and efforts by DESIDOC over the years and stressed that DESIDOC should work more diligently to fulfill the information service requirements of DRDO in a better way. She released the Annual Hindi Magazine 'Gyandeept', the latest issues of various journals



being published by DESIDOC, and a DRDO Monograph on "Test Range: Evolution and Role in Weapon Development" authored by Shri PK Mahapatra. She also inaugurated the online portals for the DESIDOC Inventory Management System, the Monograph Sales Management

System, and the Digital Library software.

On the occasion, mementos were presented to the employees who have completed 25 years of service at DRDO. Dr Mohd. Yousuf Ansari, Sc 'F' & Chairman, Raising Day Committee, proposed the vote of thanks.

## DIPAS, Delhi

The Defence Institute of Physiology & Allied Sciences (DIPAS), Delhi celebrated its 62nd Raising Day on 20 September 2023. Dr Samir V Kamat, Secretary DD R&D & Chairman DRDO was the Chief Guest and Dr UK Singh, DS & DG (LS), and Shri Vellai Pandi, DG STQC were the Guest of Honour. The event was attended by Directors from sister laboratories, Corporate Directors, former employees, scientists and the staff of DIPAS. Dr Rajeev Varshney, Director, DIPAS gave an overview of the remarkable achievements and progress made during the last year. Dr Kamat lauded the efforts and achievements of DIPAS in promoting the operational efficiency and performance



of soldiers in extremes of environment. Shri Vellai Pandi appreciated the significant impact of DIPAS research and handed over the ISO 9001:2015 certificate to the institute. A book entitled 'Preparedness for

Future Pandemics: Threat and Challenges' published by Springer Nature and edited by Dr Varshney, Dr Iti Garg and Dr Swati Srivastava was also pre-launched by Secretary DD R&D and Chairman DRDO on this occasion.



## ISSA, Delhi

Institute for Systems Studies & Analyses (ISSA), Delhi celebrated its 64th Raising Day on 22 September 2023. Dr SV Kamat, Secretary, DD R&D & Chairman DRDO was the Chief Guest and Maj Gen GS Kular, SM, VSM was the Guest of Honour of the event. It was attended by the dignitaries invited from User Agencies, senior scientists from HQrs & sister labs.



## NS&M CLUSTER FORMATION DAY CELEBRATIONS

NS&M Cluster Formation Day was celebrated on 09 October 2023 at Office of DG (NS&M), Visakhapatnam. The event was graced by Dr Samir V Kamat, Secretary DD R&D & Chairman, DRDO through Video Conference and NS&M cluster laboratory Directors (NSTL, NPOL, NMRL, DMRL, DLJ, DMSRDE, DYSL-SM), Programme Directors (AIP, ICS, ASSP), senior officials from NSTL, CCE (R&D) Estate (South), AO (R&D), AGE(I) (R&D) and other dignitaries. During the inaugural address, Shri SK Panigrahi, Director, PM & Admin mentioned the NS&M cluster achievements, major milestones since its inception.

All NS&M cluster laboratory Directors extended their greetings to O/o DG (NS&M) on its Formation Day and presented the technology areas, major technologies developed along with the laboratory's 10 years road map and targets.

Dr Y Sreenivas Rao, DS & DG (NS&M) conveyed his warm wishes and expressed that the laboratories has contributed in development of many systems useful for services. He complemented the Directors for the future roadmap and next year activity plan and wished them the success in their endeavours. He also stated that technological failure or deviation to be recorded, reviewed, and lessons learnt should be shared among the laboratories. This will enable estimation and mitigation of possible failures ahead and

contribute to the robustness of the design. He thanked Dr Kamat for gracing the occasion as the Chief Guest and motivating and giving direction to all the team members of DG (NS&M) cluster. At the end, Dr Kamat appreciated the efforts put on by the NS&M cluster since its inception and wished the cluster for its future endeavours.

Shri D Ravi Raja A, Director (SQR) and Chairman, Organising Committee along with Shri Sravana Kumar Mavuru, Secretary, Organising Committee extended the formal vote of thanks.



# SWAGATHAM-ORIENTATION PROGRAMME

Naval Physical and Oceanographic Laboratory (NPOL), Kochi organised second edition of 'Swagatham', an orientation programme for newly recruited Technicians and Vehicle Operators during 21-22 September 2023. Swagatham-1 was for newly joined STA 'B's during April 2023. Shri Mohanan K, Sc 'G' & Director (Management), NPOL inaugurated the programme.

Number of sessions were conducted both by NPOL officers and external faculties.



## GANDHI JAYANTI CELEBRATIONS

Remembering Mahatma Gandhi, The Father of the Nation, who taught us the world idea of non-violence, truth, and compassion on his 154th birth anniversary, Dr Samir V Kamat, Secretary DD R&D and Chairman DRDO, DGs, Directors, and other senior officers and staff paid floral tributes to Mahatma Gandhi at DRDO Bhawan, New Delhi. On the occasion, a special campaign 3.0 for Disposal of Pending Matters (SCDPM) and Cleanliness Drive was also launched at DRDO HQs and its subordinate offices by Dr Kamat. The objectives of the campaign were to minimise pendency, institutionalise



swachhta, strengthen internal monitoring mechanisms, train officers in records management, and digitize physical records for improved records management.

In addition to celebrations at DRDO HQs following laboratories of DRDO also celebrated Gandhi Jayanti at their respective places:

### DMSRDE, Kanpur

Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur organised Cleanliness Drive 02 October 2023 to commemorate the birth anniversary of Mahatma Gandhi and follow SCDPM 3.0. The event started by paying floral tribute to Mahatma Gandhi. The drive was led by Dr Mayank Dwivedi, OS & Director, DMSRDE. As part of the drive, the cleaning of the DMSRDE campus and surroundings was carried out with full zeal by all employees of the establishment.

Tree plantation was also carried out on this occasion by the lady employees of the establishment and contractual workers involved in the laboratory cleaning.



### NSTL, Visakhapatnam

Mahatma Gandhi Jayanti and Lal Bahadur Shastri Jayanti were organised at Naval Science & Technological Laboratory (NSTL), Visakhapatnam on 02 October 2023 under the auspices of the NSTL Civilian Employees Union and Works Committee. Sri Ch Jayarao, Technical Officer 'C' & Chairman, Sports & Cultural Committee welcomed the gathering and briefed on





the activities planned for the occasion. Dr Abraham Varughese, OS & Director, NSTL, described Mahatma Gandhi and Shri Lal Bahadur Shastri as 'Real Heroes of the Nation' whose ideals, based on courage and simplicity, need to be emulated by all. He exhorted the children present to read Mahatma Gandhi's autobiography 'The Story of my Experiments with Truth'. Dr HN Das, Sc 'G' & Chairman, Works Committee; Smt DR Rajeswari Devi; the first



lady of NSTL Mrs Ilin Dinah Abraham; Sri K Kishore Kumar, Sc 'F'; Sri Hiranmay Sarkar Sc 'D';

Col. BP Acharya, Chief Security Officer; Sri Suvro Banerjee, Chief AO; and others participated.

## KALAM JAYANTI CELEBRATIONS

DRDO commemorates the birthday of late Dr APJ Abdul Kalam, a visionary scientist & a leader. Dr Kalam's vision has left an indelible mark on India's scientific fraternity. The Kalam Jayanti was celebrated at DRDO HQrs and at various laboratories at their respective places.



### DMSRDE, Kanpur

Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur organised 9th Oratorion of Kalam Memorial Material Science Lecture Series-2023 on 16 October 2023 to commemorate the 92nd Birth Anniversary of Bharat Ratna Dr APJ Abdul Kalam. The event started by paying floral tribute to Dr Kalam. Dr Mayank Dwivedi,

OS & Director, DMSRDE, briefed Dr Kalam in his opening remarks about the memories and experiences he shared with Dr Kalam while working with him in his early DRDO career. Dr Jagannath Nayak, OS & Director, CHES, Hyderabad, was the Chief Guest of the event.

He delivered the lecture on 'Materials for High Energy Weapons: Technology, Applications, and Challenges'. He gave a broad overview of the use of lasers in the area of high-energy weapons. He emphasised that future wars will be based on high-energy systems replacing conventional weapon systems. Dr SM Abbas, Associate Director, DMSRDE, spoke about Dr Kalam journey to becoming the missile

man of India. Shri Amit Saraiya, Sc 'F' proposed the vote of thanks.

### EMU, Hyderabad

In commemoration of Dr APJ Abdul Kalam's 92nd birth anniversary, an event was organised by the Estate Management Unit (R&D), Hyderabad, at Vignana Bhoomi inside the RCI Residential area. Dr Shaik Ghouse Mohiddin, Addl. CCE & Estate Manager, and Officers of EMU garlanded and paid homage to the Kalam's statue.

Dr Mohiddin lauded Dr Kalam for his tireless efforts in the field of S&T. He recalled that as a result of Kalam's dedication and commitment towards nation-building, the UNO had declared this day as 'World Student Day'.





## COURSE ON QUALITY AND RELIABILITY OF ELECTRONIC SYSTEMS AT MTRDC

The Microwave Tube Research and Development Centre (MTRDC), Bengaluru, organised a three-day course on 'Quality and Reliability of Electronic Systems' during 11-13 October 2023. The event featured 13 sessions: on various related topics. Shri Santosh Kumar Jha, Sc 'F', and Dr Vishal Kesari, Sc 'F', were the Course Director and Course Coordinator, respectively. Shri GP Sahu, ALISDA, Dr Swarna Bai, DSP-RCI, Smt Viraja V, DLRL, Dr MK Patel, LRDE, Shri Shiva Shastha Rai, LRDE, Shri Jagadeesh Kumar R, Ex-BEL/QUEST, Shri Girish SR, Ex-BEL/



ASQ, Lt Col Navneet Sood, BEL, and Shri K Ganesh, WABTEC, were the eminent faculties who made the programme highly interactive and informative.

The programme was inaugurated by Dr SK Datta, OS

& Centre Head, MTRDC, with his opening remarks on the benefits and practices of quality and reliability in electronic systems. Dr HS Sudhamani, HRD, MTRDC, put forward the HR perspectives of the course.

## CONFERENCE ON MILLETS FOR MILITARY RATION

A two-day National Conference on 'Millets for Military Ration and Specific Nutritional Requirements' was inaugurated by Hon'ble Minister of State for Defence & Tourism Shri Ajay Bhatt in Mysuru, on 29 September 2023 in the presence of Dr Samir V Kamat, Secretary, DD R&D & Chairman DRDO, Dr Upendra Kumar Singh, DS & Director General (LS), Padma Shri Prof. Khadar Valli Dudekula, Maj. Gen. SS Ahlawat, ADG ST (SM), Indian Army and Dr AD Semwal, Director, DFRL. The conference was organised by Defence Food Research Laboratory (DFRL), Mysuru. In his address, Minister of State for Defence & Tourism stressed the importance of millets for health and stated that



the DFRL is not only spreading awareness among the public, it is also working towards ensuring the inclusion of millets to the Armed Forces personnel ration to meet their nutritional requirements.

Dr Kamat appreciated the fact

that the Services are looking to adopt millets in their ration and hoped that the conference will deliberate upon the nutritional aspects and implementation of millets and its products in the Armed Forces rations.



## COURSES AT CABS

### Advanced Signal Processing Techniques for Multichannel Systems

The Centre for Airborne Systems (CABS), Bengaluru organised a course on 'Advanced Signal Processing Techniques for Multichannel Systems' from 02-04 August 2023 in which twenty-one scientists attended from various DRDO laboratories such as DLRL, RCI, PGAD, ADE, ADA, DYSL-AI, and CABS.

The course included lectures by eminent speakers from academia (IISc Bangalore, IIT Madras), industry (Texas Instruments, Xilinx), and other DRDO laboratories. A variety of topics like mathematical foundations for advanced multichannel signal processing, adaptive digital beamforming, space-time adaptive

processing, random access, multiple access, MIMO techniques, sparse signal processing, OTFS: waveforms for integrated sensing and communication, etc. were covered during the course.

A MCQ test was conducted on the concluding day, and

certificates were distributed to all the participants during the valedictory function.

Dr R Rajesh, Sc 'F' & Course Director presented the course feedback, and Dr R Ramkumar, Sc 'E', & Dy. Course Director gave the vote of thanks.



### Airborne Surveillance Systems

A course on 'Airborne Surveillance Systems' was conducted during 07-11 August 2023 at Centre for Airborne Systems (CABS), Bengaluru to share the technical knowledge acquired with the personnel of various work centers of DRDO. Shri SS Nagaraj, DRDO Chair & Former Director, LRDE, inaugurated the course as the Chief Guest. Dr K Rajalakshmi Menon, DS & Director, CABS, was the Guest of Honour. A total of 37 officers from both internal and sister laboratories participated in the course. The lectures were conducted by senior scientists from CABS, other DRDO laboratories, and one senior scientist from ISRO. Most of the participants shared their feedback

that the course content was very informative and well suited for their immediate and future applications.

A MCQ test was conducted on the concluding day, and certificates were distributed to

all the participants during the valedictory function. Ms MR Bhuvaneshwari, Sc 'G' & Course Director and Shri A Muthukumar, Sc 'E' & Dy. Course Director, presented the course feedback and vote of thanks.





## COURSES AT DIPR

### Interviewing Officers Course

A four-week Interviewing Officers (IO) course was conducted by the Defence Institute of Psychological Research (DIPR), Delhi, during 04-29 September 2023. The course participants included senior officers of the rank of Maj Gen, Brig, Col, and equivalent ranks from the Tri-Services and Coast Guard. The trainee officers were imparted specialised training on Interview Technique for assessment of candidates for officer cadre.

Dr Arunima Gupta, Director, DIPR, interacted with the participants and highlighted the evolution and growth of military psychology in India in the last seven and a half decades.

### Unlocking Psychological Potential in You

A Continuing Education Program (CEP) was conducted by the Defence Institute of Psychological Research (DIPR), Delhi, on 'Unlocking the Psychological Potential in You' during 11-13 October 2023.

Dr Arunima Gupta, Director, DIPR inaugurated the CEP in the presence of Dr Soumi Awasthy, Sc 'G', Addl Director & Course Director, Dr Gurpreet Kaur, Sc 'F', Course Coordinator, and other senior scientists.



Dr Arunima Gupta, Director, DIPR with the participants of the 'Unlocking Psychological Potential' Course

## INVITED TALK ON DGNAI INTEGRATED QA ARCHITECTURE

Dr Prashant Vasistha, Sc 'G', Defence Laboratory, Jodhpur, participated as panelist in the Seminar on 'DGNAI Integrated QA Architecture' organised by the Indian Navy on 20 September 2023 and gave an invited talk on 'Quality Assurance of Naval Chaff Payloads'.

The seminar was inaugurated by Shri Giridhar Aramane, Defence Secretary, in the presence of Vice Admiral Sanjay J Singh, AVSM, NM, Vice Chief of the Naval Staff, and Rear Admiral Brijesh Vashishta, DGNAI. The laboratory also organised Annual



CBRN Capsule Training Course for Air Force officers during 18-22 September 2023 and NBCD

Specialisation Training Course for IN and Coast Guard Officers during 26-29 September 2023.



## TRAINING ON CBRN MEDICAL MANAGEMENT

A CBRN Medical Management workshop was organised at Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, during 11-13 September 2023, for disaster management programme students from the Special Centre for Disaster Research/Jawaharlal Nehru University (SCDR/JNU). The event was inaugurated by Prof. PK Joshi, Chief Guest & Chairperson, SCDR-JNU. Scientists and staff of the INMAS, subject experts from CAPF, faculties, and students from JNU participated in the workshop. Dr Ratnesh Singh Kanwar, Sc



'F', Course Director & Divisional Head, CRMM, gave a welcome address.

During his valedictory address, Dr Sudhir Chandna, Sc 'G', & Adtl Director INMAS congratulated

all participants for their training completion and urged that INMAS and JNU enter into an MoU to continue with CBRN training and other activities pertaining to CBRN R&D.

## COURSE ON TECHNO-ADM PROCEDURES

The Defence Metallurgical Research Laboratory (DMRL), Hyderabad, organised a course on 'Techno-Administrative Procedures in DRDO' during 13-15 September, 2023. The inaugural function was presided over by Dr R Balamuralikrishnan, OS & Director, DMRL. Dr Sarabjit Singh, Sc 'F' & Course Director, welcomed the delegates and participants. Dr DK Das, OS & Associate Director, presented a summary of the laboratory's HRD activities. A total of 45 participants attended the course from Hyderabad-based laboratories.



## DR SAMPOORAN SINGH MEMORIAL LECTURE

To commemorate the contributions of its founder Director, Terminal Ballistics Research Laboratory (TBRL), Chandigarh organised 'Dr

Sampooran Singh Memorial Annual Lecture Series' on 26 September 2023, at TBRL Range Ramgarh. TBRL was established in 1961 in the leadership of

Dr Sampooran Singh a visionary leader in the S&T of armaments. Prof. V Ramgopal Rao, was the inaugural speaker on the occasion. He appreciated the TBRL fraternity



for their unstinted efforts and contributions in the development of defence systems.

He said that DRDO is very much connected with various academic institutes. He further elaborated that patents need to grow in India HEIs; the Indian paper publication ranking in the world is in the 3rd position, but our patents are very few.

On the occasion, Prof. Prateek Kishore, Director, TBRL, gave a brief overview of the journey of TBRL since its inception in May 1961. Shri U Rajababu, DG (MSS), attended the event through Video Conferencing.



## USER INTERACTION MEET AT DGRE

The Defence Geoinformatics Research Establishment (DGRE), Chandigarh, organised User Interaction Meet (UIM-23) on 27 September 2023. The UIM-23 was conducted to encourage the interaction of users with DGRE on the critical issues faced by them while performing various operational duties. Different users deployed in the hazard-prone mountainous areas participated

in the meeting. The participants included representatives of the Directorate General of Military Operations (DGMO), Directorate General Border Roads (DGBR), HQrs of the Indian Army, such as 15 Corps, 16 Corps, 3 Corps, 4 Corps, 14 Corps, 9 (I) MtnBde, and 33 Corps, Project 'Deepak', Border Road Organization (BRO), Indo Tibetan Border Police (ITBP), and Uttarakhand State Disaster

Management Authority (UK SDMA).

UIM-23 was inaugurated by Dr Shailendra Vasant Gade, DS & DG (ACE), as Chief Guest. Shri Amit Kumar Sharma, Director, Directorate of Interaction with Services for Business (DISB), DRDO HQrs also graced the UIM-23 as Guest of Honor. Dr. PK Satyawali, OS & Director, DGRE, chaired the UIM-23 proceedings,







## APPOINTMENTS

### Director, CVRDE



Shri J Rajesh Kumar, OS has assumed the charge as Director, Combat Vehicles Research & Development Establishment (CVRDE), Chennai, w.e.f 01 October 2023. He was the Associate Director, CVRDE, for MBT Group & Project Director for the prestigious Light Tank Project.

Shri Rajesh Kumar has played a key role in ramping up the order placement of 118 Arjun MBT Mk-IA tanks to the Indian Army (a big Make in India initiative) and significantly contributed to shaping up the first prototype of the Light Tank.

### Director, INMAS



Dr Sudhir Chandna, Sc 'G', has taken over the charge of Director, Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, w.e.f. 1 October 2023. He has worked extensively on the discovery of novel drug targets for radioprotection, molecular biomarkers for radiation exposure and dose assessment, and radiation health risk assessment. Dr Chandna has led many S&T as well as TD projects in biological radioprotection research. His pathbreaking research on the signaling mechanisms of 'hyper-radioresistance' existing naturally

in insect systems has earned global recognition. Dr Chandna has also worked as a guest scientist in the Institute of Medical Radiation Biology (Essen, Germany, September 1994–February 1995) and the Centre for Radiation Protection Research (Stockholm University, Stockholm, Sweden, as part of international collaborative research. In 2009, Dr Chandna was invited to collaborate with the laboratory of Nobel Laureate Prof. Andrew Schally, USA, and the joint study was published in Cell Cycle. He led the COVID Emergency Services by INMAS during the COVID-19 pandemic handling responsibilities such as building a state-of-the-art BSL3 facility, providing effective COVID diagnosis services, as well as the COVID-19 therapeutic drug development activity.

## Higher Qualification Acquired



Shri Surendra Mohan Shrivastava, Sc 'F', Advanced Systems Laboratory (ASL), Hyderabad, has completed a PhD from the National Institute of Technology (NIT) Warangal, Telangana, for his thesis entitled 'Degradation of Properties of E-glass Epoxy Composites Under Hostile Environment'.



Dr Sanjay Kumar Dewali, Sc 'F', Defence Geoinformatics Research Establishment (DGRE), Chandigarh,

has been awarded a PhD from Indian Institute of Technology, Roorkee (IIT-R) on 13 September 2023 for his thesis entitled 'Snow Avalanche Hazard Mapping using High Resolution Remote Sensing Images and Data and Process-Driven Modeling'

## Award

Shri Gideon Shaji, STA 'B', Naval Physical & Oceanographic Laboratory (NPOL), Kochi, has secured first rank for MLIS and was awarded a gold medal for the

same by the University of Madras. The Hon'ble President of India, Smt Droupadi Murmu, conferred the award during the 165th Annual Convocation of the University of Madras.





## DRDO NORTH ZONE BADMINTON TOURNAMENT

Dr Gurpreet Kaur, Sc 'F', Defence Institute of Psychological Research (DIPR), Delhi, won the DRDO National Badminton Tournament and was awarded four gold medals in different categories. The tournament was organised by the Centre for Fire, Explosive, and Environment Safety (CFEES), Delhi, on September 2023. She won the DRDO Women's Singles Championship for the twelfth time.



Earlier, she also won the North Zone Badminton tournament in the singles and doubles category along

with Ms Komal Tiwari, TOA, DIPR. Dr Arunima Gupta, Director, and the DIPR family congratulated and greeted the winners.

The Defence Laboratory Jodhpur (DLJ) also participated in the tournament and won the championship event, claiming the trophy once again. Shri VishavJeet,

TA 'B' also won the open singles event and was awarded the best player of the tournament. Three players from DLJ, Shri VishavJeet, Shri NS Yadav, TO 'A', and Shri Chandra Pal, TO 'A', were selected and will represent the North Zone during the DRDO Nationals tournament.



## DENTAL CAMP AT HEMRL

A free dental inspection camp was organised during 3-4 October 2023, at the MI Room complex, High Energy Materials Research Laboratory (HEMRL), Pune, in association with Teethz Dental, Cosmetic & Implant Centre, Pune, which is a CGHS/CSMA/ECHS-empanelled dental clinic.

A team of Registered Dental Practitioners and Allied Dental Assistants educated the beneficiaries about dental health and conducted a diagnostic dental inspection for early detection and timely treatment of various dental pathologies. A total of 186 employees of HEMRL (permanent



and contractual) benefited from the camp.





# VISITS OF DRDO SCIENTISTS TO FIELD FORMATIONS OF SSB & BSF-SRINAGAR AND HQ COBRA-DELHI

Directorate of Low Intensity Conflicts (DLIC), DRDO HQrs organised visits of DRDO scientists to field locations in 10 Bn Sashstra Seema Bal (SSB), Srinagar, on 26 September 2023, Sector HQrs Border Security Force (BSF), Srinagar, on 27 September 2023 and CoBRA Sector HQrs, New Delhi, on 05 October 2023, respectively. Scientists from IRDE, TBRL, R&DE(E), DMSRDE, DRDE, VRDE, LRDE, and ARDE, along with Directors & other officers from DLIC, visited the locations and presented the DRDO equipment having utility for tasks being carried out by security forces deployed in the Srinagar valley, while scientists from IRDE, DMSRDE, and DIPAS visited the CoBRA HQrs in Delhi for presentations on products relevant to CoBRA units spread across the country. Scientists from ARDE, LRDE, and R&DE (Engrs) joined through VC.

All scientists gave their respective presentations on DRDO products in different categories. SSB showed interest in the DRDO-developed bullet-proof helmet, drone-based surveillance equipment, IED detection system, corner-shot weapon system, and Grenade with Self-Destruction mechanism. The visit of DRDO scientists to BSF Srinagar has been appreciated by IG BSF and all officers participating in the discussion.



DRDO scientists with Officers and other ranks of SSB, Srinagar



Director, DLIC and scientists with IG BSF and unit heads



DRDO scientists with IG CoBRA, CRPF and HQ team

## VISITORS TO DRDO LABS

### DIPR, Delhi

\* Air Marshal Nagesh Kapoor, AVSM, VM, Air Officer-in-Charge Personnel (AOP) visited Defence Institute of Psychological Research (DIPR), Delhi, on a familiarisation visit on 13 October 2023. Dr Arunima Gupta, Director, DIPR, welcomed AOP and briefed on the ongoing and futuristic R&D activities being progressed at the laboratory. During presentations, AOP interacted with senior scientists and appreciated the sustained R&D contributions of the DIPR fraternity.

\* Shri Sanjay Baniwal, IPS, Director General (Prisons), Govt. of NCT of Delhi, New Delhi, visited the DIPR on 09 October 2023.



Dr Arunima Gupta, Director, DIPR handing over memento to Air Mshl Nagesh Kapoor, AOP

### DL, Jodhpur

Shri KN Vyas, DAE Homi Bhabha Chair Professor & Former Chairman, Atomic Energy Commission visited Defence Laboratory, Jodhpur on 14 September 2023.

A technical presentation was made on ongoing nuclear defence technologies & products being developed by the laboratory and proposed futuristic technologies development in the area of nuclear

sensors and surveillance systems.

Shri Vyas appreciated the efforts by the laboratory in pursuing cutting-edge technologies leading to self-reliance in nuclear technologies to Armed Forces.





### ISSA, Delhi

Admiral Karambir Singh, PVSM, AVSM (Retd.), Advisor to the Department of Defence R&D visited Institute for Systems Studies and Analyses (ISSA), Delhi, on 05 September 2023. Demonstrations and presentations of developed products, system analysis studies, and games were made. Discussions regarding the way ahead were held.



### HEMRL, Pune

AVM R. Guruhari, ACAS (Wpn), visited the High Energy Materials Research Laboratory (HEMRL), Pune, on 27 September 2023. During the visit, presentations were made by the senior scientists on IR Flares, indigenisation of EAX/power carts, pechora missiles, and the development of Miniature Detonating Cords (MDC) for Hawk 132 aircraft. He discussed various issues related to IAF projects at HEMRL. He also visited the IR Flares and MDC facilities and witnessed PK-21 M-2 firing trials.



### LRDE, Bengaluru

Seventeen delegates from IDAS 2022 Batch Probationers visited the Electronics & Radar Development Establishment (LRDE), Bengaluru, on 22 August 2023 to learn about DRDO in general and LRDE and its achievements. Shri Viswam G, DS & Director, LRDE, addressed the visitors, and Dr A Vengadarajan, OS, made a presentation on the projects of LRDE. The delegates were also given a demonstration on Battle Field Surveillance Radar (BFSR) and taken to the Radar Gallery of LRDE, where the radar



models and other radars were showcased.

## NMRL, Ambernath

Dr SV Kamat, Secretary, Secretary DD R&D and Chairman DRDO visited Naval Materials Research Laboratory (NMRL), Ambernath on 30 September 2023 to review the progress of various projects being executed by NMRL, including the 'Fuel Cell-Based Air Independent Propulsion System (AIP) for Indian Naval Submarines'. At the outset, Shri PT Rojatar, OS & Director,

NMRL, welcomed Dr Kamat and Dr Y Sreenivas Rao, DS & DG (NS&M). A briefing about the status of the AIP programme and other ongoing projects was presented by the respective project teams. The presentations by M/s L&T and R&DE (E) were also made on various aspects of AIP.

Following this, the NMRL presented a road map of research activities intended to be undertaken

in the future. Subsequently, Dr Kamat visited the Land-based Prototype (LBP) site of NMRL to witness the derisking trials of AIP. He appreciated the efforts taken by NMRL to develop various products and technologies for the Indian Navy and emphasized the need to take up research and development of advanced and niche technologies in the area of naval materials.



Fuel Cell-based Capsule Power Plant for HEAVU being showcased by NMRL Scientist to Dr SV Kamat

*DRDO Newsletter wishes its readers  
a Very Happy Diwali 2023.*