

DRDO NEWSLETTER



A Monthly Bulletin of Defence Research and Development Organisation

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

ISSN: 0971-4391

FEBRUARY 2024 | VOLUME 44 | ISSUE 2

DRDO AT REPUBLIC DAY 2024



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Editor-in-Chief: Dr K Nageswara Rao

Associate Editor-in-Chief: Sudhanshu Bhushan

Editor: Dipti Arora

Pre-press: Raj Kumar

Printing: SK Gupta

Marketing: Tapesh Sinha

44th Year of Publication

FEBRUARY 2024 | VOLUME 44 | ISSUE 2

LABORATORY CORRESPONDENTS

- Ahmadnagar** : Shri RA Shaikh, Vehicle Research and Development Establishment (VRDE)
- Ambarnath** : 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)
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Dr Sujata Dash, 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)
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- 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)
- Nasik** : Shri Ashutosh Sharma, Advanced Centre for Energetic Materials (ACEM)
- 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)



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director.desidoc@gov.in; drdonl.desidoc@gov.in
Contact at: 011-23902403; 23902472; Fax: 011-23819151**



DRDO AT REPUBLIC DAY 2024

DRDO to showcase Nari Shakti & indigenous critical systems & technologies during Republic Day Parade 2024

Many critical systems and technologies developed by Defence Research & Development Organisation (DRDO) were showcased during the 75th Republic Day Parade at Kartavya Path on 26 January 2024. As an enabler of 'Aatmanirbharta', the valuable contribution of women scientists at DRDO in core areas of defence research was significant.

The DRDO tableau was based on the theme 'Women Power in Protecting the Nation by Providing the Defence Shield in all Five Dimensions, namely Land, Air, Sea, Cyber, and Space'. Women's involvement in defence R&D was prominently highlighted

in the tableau. Smt Sunita Devi Jena, Outstanding Scientist, was the Contingent Commander. The tableau displayed Man Portable Anti-tank Guided Missile (MPATGM), Anti-Satellite (ASAT) Missile, Agni-5, Surface-to-Surface Ballistic Missile, Very Short Range Air Defence System (VSHORADS), Naval Anti-Ship Missile-Short Range (NASM-SR), Anti-Tank Guided Missile 'HELINA', Quick Reaction Surface-to-Air Missile (QRSAM), Astra, Light Combat Aircraft 'Tejas', 'Uttam' Active Electronically Scanned Array Radar (AESAR), Advanced Electronic Warfare System 'Shakti', Cyber Security Systems,

Command Control Systems, and the Semiconductor Fabrication Facility.

The ASAT missile used in Mission Shakti was a major breakthrough in demonstrating the nation's anti-satellite technology and precision strike capability. India is the fourth country to acquire such a specialised and modern capability. Agni-5 is a surface-to-surface ballistic missile capable of striking targets with a high degree of accuracy.

Indigenously developed MPATGM is a third-generation ATGM with 'Fire & Forget', 'Top Attack', and night operational capability. It is launched from





a man-made portable launcher integrated with thermal sight. NASM-SR is the first indigenous air-launched anti-ship missile system. VSHORADS is a man-made portable air defence system meant for neutralising low-altitude aerial threats at short ranges. Helicopter-launched Nag is the third generation, fire-and-forget anti-tank guided missile that can engage targets in direct hit mode as well as top attack mode.

The system has all-weather day and night capability and can defeat battle tanks with conventional as well as explosive reactive armour. The QRSAM is an all-weather air-defence system that provides mobile air defence cover to mechanised assets of the Indian Army in the tactical battle area. ASTRA is a state-of-the-

art, beyond-visual-range air-to-air missile to engage and destroy highly maneuvering supersonic aerial targets. LCA-Tejas is an indigenously developed light-weight and multirole 4+ generation tactical fighter aircraft that can carry laser-guided bombs and modern missiles to cause extreme damage to the target. Uttam Active Electronically Scanned Array Radar (AESAR) is a multimode, solid-state active phased array fire control radar with a scalable architecture that can be adapted for various types of fighter aircraft.

The Advanced Electronic Warfare (EW) System 'Shakti' has been designed and developed for the Indian Navy for the interception, detection, classification, identification, and jamming of

conventional and modern radars. Many other systems and technologies developed by DRDO were displayed at Kartavya Path by various contingents of the Armed Forces. These included Pinaka, Nag Missile System, mobile bridging system 'Sarvatra', Medium Range Surface-to-Air Missile (MRSAM), Weapon Locating Radar 'Swathi', etc.

The fly past of the Indian Air Force included LCA-Tejas and AEW&C developed by DRDO. The DRDO is a design and development agency for the Armed Forces, and to reinforce the spirit of 'Aatmanirbhar Bharat', it is partnering with all stakeholders in defence ecosystem, including academia, industry, MSMEs, start-ups, and services, in developing state-of-the-art defence systems.

MOU SIGNED BETWEEN DMSRDE AND HBTU

A Memorandum of Understanding (MoU) was signed between Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, and Harcourt Butler Technical University (HBTU), Kanpur, on 18 December 2023 to promote academic and research collaboration between the two premier institutions in areas of common interest. Dr Mayank Dwivedi, OS & Director, DMSRDE, and Prof. Shamsher, Vice Chancellor, HBTU, signed the MoU in the presence of senior scientists and senior faculty at HBTU. The MoU enables the exchange of research, scientific, and technical materials, joint guidance of PG/UG students, joint PhD programmes and



joint organization of seminars, workshops, conferences, programs, etc. as per mutually agreeable terms under the norms.



SUCCESSFUL FLIGHT-TEST OF NEW GENERATION AKASH MISSILE

Defence Research and Development Organisation (DRDO) conducted a successful flight-test of the New Generation AKASH (AKASH-NG) missile from the Integrated Test Range (ITR), Chandipur off the coast of Odisha on 12 January 2024. The flight-test was conducted against a high-speed unmanned aerial target at very low altitude. During the flight-test, the target was successfully intercepted by the weapon system and destroyed. It has validated the functioning of the complete weapon system consisting of the missile with indigenously developed Radio Frequency Seeker, Launcher, Multi-Function Radar and Command, Control & Communication system.

The system performance was also validated through the data captured by a number of Radars, Telemetry and Electro Optical Tracking System deployed by ITR,



Chandipur. The flight-test was witnessed by senior officials from DRDO, Indian Air Force (IAF), Bharat Dynamics Limited (BDL) and Bharat Electronics Limited (BEL). The AKASH-NG system is a state-of-the-art missile system capable of intercepting high speed, agile aerial threats. The successful flight test has paved the way for User trials. Raksha Mantri Shri

Rajnath Singh has complimented the DRDO, IAF, PSUs and the Industry for the flight-test. The successful development of the system will further enhance the air defence capabilities of the country, he said. Secretary Department of Defence R&D and Chairman DRDO Dr Samir V Kamat also congratulated the teams associated with the flight test of AKASH-NG.

UNVEILING OF INDIGENOUS ASSAULT RIFLE FOR ARMED FORCES

The first operational prototype of the rifle, which has been named Ugram, which means ferocious, was unveiled at the hands of Dr Shailendra V Gade, Director General, Armament and Combat Engineering (ACE) Systems, on 8 January 2024 in the presence of Shri A Raju, Director, Armament Research & Development Establishment (ARDE).

ARDE unveiled Ugram, a state-

of-the-art assault rifle of the 7.62 x 51 mm caliber that has been indigenously designed, developed, and manufactured in collaboration with Hyderabad-based Dvipa Armour India Private Limited.

The assault rifle has been designed to meet the operational requirements of the Armed Forces, paramilitary, and state police entities.

The rifle has an effective range

of 500 meters and weighs less than four kilograms. The rifle has a 20-round magazine and fires in both single and full auto modes. The configuration of the rifle is comparable to the latest AK and AR-type rifles, and it has a rivet-free design, making it robust.

Speaking about the Ugram assault rifle, Shri A Raju said that this was a mission mode project taken up two years ago.



After the DRDO designed the rifle, they started looking for a private industry partner for development and manufacturing. Simultaneously, it also worked on its hardware through sources.

The rifle will soon go for trials. He further added, “As part of these trials, a set number of rounds will be fired from Ugram without stoppage, and an accuracy and consistency check will be conducted. The weapon will be tested in various weather and geographic conditions, including high altitudes, deserts, etc.



INAUGURATION OF SMALL-ARMS BARREL MANUFACTURING FACILITY AT ARDE

The Small Arms Barrel Manufacturing Facility was inaugurated at Armament Research and Development Establishment (ARDE), Pune, by Dr Shailendra V Gade, DS & DG (ACE), in the presence of Shri A Raju, OS & Director ARDE, on 08 January 2024 and other senior scientists. The facility consists of three sequential machines, with the third and most important being the Austrian-origin barrel forging machine. The facility will mainly cater to the requirements of small arms manufacturers in the private sector and will also be a key asset for the DRDO’s own R&D efforts.

Director, ARDE, while sharing his thoughts, expressed that in small arms, the quality of its components is crucial, and the barrel is the most important part of a gun. The barrel needs to undergo rigorous trials by firing



nearly 2000 rounds without stopping to ensure its quality. The facility will be used in the design of the barrels based on industry requirements and to produce them. The barrel will be tested and delivered to the industry. Private industries of all sizes that have small arms manufacturing licenses will benefit from this facility. A lot of private industries

have now gotten licenses to manufacture small arms. These companies will manufacture arms for not just Indian entities but can also export them. India has nearly 30 customer entities for small arms. Apart from the armed forces, there are paramilitary and central armed police forces and state police forces, many of whom have specialised commando units.



DRDO CELEBRATES ITS 66TH FOUNDATION DAY

The Defence Research and Development Organisation (DRDO) celebrated its 66th Foundation Day on 01 January 2024 at DRDO HQs, New Delhi. Addressing the DRDO fraternity, Dr Samir V kamat, Secretary DDR&D & Chairman DRDO highlighted the achievements of DRDO and mentioned that DRDO has delivered, inducted, or handed over several systems to users throughout the year. He expressed happiness that this year, the induction of several DRDO-developed systems worth more than 1 lakh 42 thousand crores has also received the Acceptance of Necessity (AoN).

The Chairman, DRDO, highlighted some success stories in his speech. He stated that it was a matter of great pride for all of us when the Hon'ble Prime Minister flew into LCA Trainer on 25 November 2023.

He mentioned that on National Technology Day, 11 May 2023, Hon'ble Prime Minister dedicated the Rare Earth Permanent Magnet (REPM) plant at Indian Rare Earths Limited (IREL), Vizag, to the nation. This plant was set up using DRDO-developed technology. He said that the indigenously designed and developed Heavy Weight Torpedo

(HWT) 'Varunastra' was successfully tested fired with a live warhead against an undersea target on 05 June 2023 by the Indian Navy. This was the first of its kind demonstration in the country, or perhaps even in the world. He also mentioned the firing of an Astra Mk1 air-to-air missile from Tejas for the first time, the landing of the LCA Navy on Indigenous Aircraft Carrier INS Vikrant II, the deployment of DRDO's D4 system at Rashtrapati Bhawan, the G-20 Summit, the Republic Day Parade, and the Beating Retreat Ceremony.

He further stated that DRDO's oceanographic research vessel 'INS Sagardhwani' embarked on Sagar Maitri Mission-4 to Oman to establish long-term scientific partnerships with Indian Ocean Rim countries in 'Ocean Research

& Development'.

He also highlighted the Crew Escape System (CES) for the Gaganyaan Programme, which was tested successfully. Dr Kamat pointed out that so far, 1650 ToT's on DRDO-developed systems have been handed over to Indian industries, out of which 109 Licensing Agreements for Transfer of Technology (LAToTs) were signed with Indian industries during 2023 for DRDO products.

To make the Technology Development Fund (TDF) and allied schemes more effective, Hon'ble Raksha Mantri constituted a committee headed by Dr Kakodkar, former Secretary, DAE and Dr Saraswat, Member, NITI Aayog, to suggest ways to fund cutting-edge research like what DARPA does in the USA.

He launched the Quantity-





Distance Software developed by the High Energy Materials Research Laboratory (HEMRL), Pune, to automate the siting of explosives and related buildings. The software is an essential tool for all MoD establishments engaged in creating explosive-related infrastructure in optimum time and with greater precision. He also released DRDO Calendar 2024, latest issues of *DRDO Newsletter*, *Quest*, *InFocus*, and Manual of Standard Operating Procedure.

A contest was organised for DRDO song during November 2024. Shri Raj Kumar, Accounts Officer, Defence Institute of Psychological Research (DIPR), Delhi, won the first position in the contest conducted at DRDO level.

Shri Raj Kumar presented his song composed in Hindi during the DRDO Day celebrations.

He was felicitated by Dr Kamat on the occasion.





Besides celebrations at DRDO HQrs, following laboratories of DRDO also celebrated DRDO Day at their respective places:

DESIDOC, Delhi

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi, celebrated DRDO Day on 01 January 2024. Dr K Nageswara Rao, Director, DESIDOC, inaugurated the new building of Digital Printing Facility at DESIDOC. Dr Rao also addressed the DESIDOC employees on the occasion of DRDO day and new year day. During his address, he emphasized the accomplishments and efforts undertaken by DESIDOC in the previous year and outlined goals and recommendations for the upcoming year. During the occasion, the winners of the various competitions held during Swachhata Pakhwada were also awarded. The Director, DESIDOC, along with senior scientists, also released the DESIDOC Annual Report 2023.

DMSRDE, Kanpur

Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, celebrated 66th DRDO Day on 01 January 2024 with zeal and enthusiasm. The programme started with the live webcast of the New Year message of Dr Samir V Kamat, Secretary, DD R&D & Chairman, DRDO. This was followed by a DRDO cum New Year Day address by Dr Mayank Dwivedi, OS & Director, DMSRDE. He briefed about the notable achievements of DMSRDE during the year 2023. He stressed



the need to orient the work in line with the global scenario, with special emphasis on niche technologies for services. On this occasion, Director was felicitated with a flower bouquet by DMSRDE Works Committee members.

ITM, Mussoorie

Institute of Technology Management (ITM), Mussoorie celebrated DRDO Day on 01 Jan 2024. The celebration commenced with offering floral tribute to Dr APJ Abdul Kalam by ITM personnel. It was followed by assembly of ITM personnel in Pennathur Hall wherein Shri SA Katti, OS & Director ITM addressed the gathering and appreciated the work done by ITM during 2023, such as the augmentation of New Training Policy, organisation of various calendar events, major and minor procurements, up-gradation of class rooms, gymnasium and indoor sports complex and so on. He also highlighted the roadmap for future and urged the employees to work with dedication, sincerity and discipline.



Inauguration of new building of Digital Printing Facility at DESIDOC during DRDO Day Celebrations

NPOL, Kochi

Naval Physical and Oceanographic Laboratory (NPOL), Kochi, celebrated DRDO Day on 01 January 2024. The program started with the webcast



of the New Year message of Dr Samir V Kamat, Secretary, Department of Defence R&D & Chairman, DRDO. Dr Ajith Kumar K, OS & Director, NPOL, addressed the NPOL fraternity on DRDO Day, highlighting the significant achievements and progress in the previous year as well as commitments in 2024. On this occasion, the occasion Director also launched the redesigned NPOL intranet homepage.

In continuation of the DRDO Day celebrations, Programme Directors and Associate Directors delivered presentations about the achievements in 2023 and the plan for 2024.



NSTL, Visakhapatnam

Naval Science & Technological Laboratory (NSTL), Visakhapatnam celebrated DRDO Day on 01 January 2024. The program started with floral tributes at the bust of Dr APJ Abdul Kalam & the webcast of the New Year greeting message of Dr Samir V Kamat, Secretary, DD R&D & Chairman, DRDO, followed by the release of the ECCS New Year Calendar. Director, NSTL,

and Director General (NS&M) addressed the NSTL fraternity, highlighting the significant achievements and progress as well as commitments in 2024.

On this occasion, a Memorandum of Understanding (MoU) was exchanged with VIT, Chennai, a safety pamphlet was released, and the NSTL New Telephone Directory was launched. The program finished with a presentation by associate directors regarding the achievements of 2023 and the target of 2024.



SWACHHATA PAKHWADA

Swachhata Pakhwada is an initiative envisioned by the Hon'ble Prime Minister for making Swachhata 'everyone's Business'. All ministries/departments observed Swachhata Pakhwada in allocated fortnight. Following laboratories of DRDO celebrated Pakhwada at their respective places:

CFEES, Delhi

Swachhata Pakhwara was observed at Centre for Fire, Explosive & Environment Safety (CFEES), Delhi during 01-15 December 2024 as per the directives of DRDO HQrs. Different day wise activities were organized to observe the Pakhwada. All the employees of the laboratory participated with full enthusiasm. Among various events conducted, the 'go green drive' and the 'Swachhata Rally' were a huge success in

which more than 200 personnel actively participated to spread the cleanliness message. The winners of various competitions were also given prizes and certificates.



DMSRDE, Kanpur

Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur organised a Swachhata Pakhwada during 01-15 December 2023. Besides the cleanliness drive during the two-week-long program, various day-by-day activities such as Swachhata Pledge, Awareness Day, Records Management Day, Scrap/Waste Disposal Day, Go Green Drive

Day, Community Outreach Day, Social Buzz Day, Competitions Day and Interactive Session Day were conducted. A couple of competitions like slogan writing, essay writing and debate were organized and Dr Mayank Dwivedi, OS & Director, DMSRDE awarded the winners. The event was coordinated by Mohd. Imamuddin, Sc 'F'.



IRDE, Dehradun

Instruments Research & Development Establishment (IRDE), Dehradun, celebrated Swachhata Pakhwada during



1-15 December 2023. The event started with the Swachhata pledge administered to the employees of IRDE. Mass awareness/cleanliness drives and poster session were conducted. Children's drawing competitions on 'Pradushan: Sankat Ka Sanket' and 'Ek Kadam Swachhata Ki Or' were organised in two categories. A lecture on Swachhata was delivered by Shri PK Sharma, Sc 'G', highlighting the importance of Swachhata.

In another event, statue of Maharana Pratap near Raipur Chowk was cleaned and later on adorned with flowers.



NPOL, Kochi

Naval Physical & Oceanographic Laboratory (NPOL), Kochi observed Swachhata Pakhwada during 01-15 December 2023. Various events and competitions

like Swachhata Shapath Day, Awareness Day, Cleanliness Drive Day, Record Management Day, etc. were organised. During Social Buzz Day, a scooter rally was organised by women employees of NPOL to both the residential campus to give awareness to inmates. A rally was also arranged for public awareness in Thrikkakara by depicting banners and placards. Dr Ajith Kumar K, OS & Director, NPOL, flagged off both the rally. Underwater Acoustic Research Facility (UARF), Idukki a unit of NPOL also observed Swachhata Pakhwada.



NSTL, Visakhapatnam

Naval Science & Technological Laboratory (NSTL), Visakhapatnam, observed Swachhata Pakhwada during 01-15 December 2023 with enthusiastic

participation of all employees of NSTL, O/o DG NS&M and other offices such as MES, AO(R&D), Ramnath Secondary School and members of Mahila Kalyan Manch.

As the part of the celebrations, Dr Abraham Varughese, OS & Director, NSTL along with Dr HN Das, Sc 'G' & Associate Director and officers & staff administered swachhata shapath and all the employees voluntarily devoted 100 hours Shramdan to keep the country neat and clean as dreamt by Mahatma Gandhi. An interactive session taken by Doctor at Medical Inspection Room among all staff about maintaining hygiene and a rally was organized inside campus to spread awareness on importance of cleanliness and sanitation in our lives.

Lt. Col. Rahul Dixit, Division Head (W&E) was the coordinator for the event.



RAISING DAY CELEBRATIONS

CAIR, Bengaluru

The Centre for AI & Robotics (CAIR), Bengaluru, celebrated its 37th laboratory raising day and Karnataka Rajyostava on 22 December 2023. The Chief Guest of the occasion was Dr Samir V Kamat, Secretary DDR&D & Chairman DRDO; the Guest of Honour was Smt Suma Varughese, DS & DG (MCC); and Shri N.

Sitaram, Fellow INAE and Former CCR&D (ECS), was the special invitee. Dr Sudhir Kamath, former DG (MCC) & Director, DIA-RCOE, IISc, was the Chief Guest for Karnataka Rajyostava. Prof. Shankar Selvaraj of the Centre for Nano Science and Engineering, IISc, Bangalore, and Lt General (Retd) PJS Pannu, PVSM AVSM VSM, former deputy Chief IDS (Operations), former commander

14th Corps, local laboratory Directors, cluster laboratory Directors, users reps, ED, and GM BEL, EMO, and retired senior scientists were invited.

The event started with a welcome address by Dr Rituraj Kumar, OS & Director, CAIR. In his address, he stressed the need to focus on both user deliveries (high TRL) and R&D (low TRL) to remain relevant. On the occasion of



CAIR Day, Prof. Shankar Selvaraj of the Centre for Nano Science and Engineering, IISc, Bangalore, delivered a talk on Molecular Building Blocks for Brain-Inspired Computing.

Lt. General (Retd) delivered a talk on Mosaic Warfare. He highlighted that the modern battlefield must have C5I2STAR2 capabilities, where autonomous unmanned platforms with in-built cognition and collaboration can carry out targeted weapon delivery. Dr Kamat distributed awards to the CAIR fraternity for their outstanding contributions on 23 December 2023.



DFRL, Bengaluru

The Defence Food Research Laboratory (DFRL), Mysuru, celebrated its 63rd Raising Day on 28 December 2023. Prof. S Ayyappan, Padma Shri Awardee, Chairman, National Accreditation Board for Testing and Calibration Laboratories (NABL), Former Secretary to the Government of India, Dept. of Agricultural Research and Education (DARE), and Director General, Indian Council of Agricultural Research (ICAR), was the Chief Guest. Dr R Kumar, Sc 'G', Assoc. Director, delivered the welcome address. Dr Anil Dutt Semwal, OS & Director, presided over the function and presented the report on the achievements, major activities, and latest R&D initiatives of the laboratory. Prof. S. Ayyappan mentioned that DFRL is an important institution dedicated to conducting research focusing on the food and nutritional needs of armed forces. He emphasised the need to work closely with the armed forces to understand their



specific requirements and meet the challenges related to food supply during different operational scenarios. The event included the distribution of mementos to employees who had completed 25 years of service and awards to the wards of DFRL employees who passed PUC and SSLC. Prizes were distributed to the winners of the sports competitions held as part of the celebrations. The annual Hindi magazine of DFRL, containing

scientific and technical articles, was also released. Dr Johnsy George, Sc 'F' and Chairman, Welfare Committee, proposed the vote of thanks.

LRDE, Bengaluru

DRDO Day and Electronics & Radar Development Establishment (LRDE) Raising Day were celebrated at LRDE with great enthusiasm on 01 January 2024. Shri G Viswam, DS



& Director, LRDE presided over the function. Director addressed the gathering and spoke on the achievements of LRDE in 2023 and goals for 2024. Later, he presented educational awards to the meritorious students, Ayudha Pooja Awards and appreciation certificates for speakers and organizers of Knowledge sharing lectures organised in the Establishment. An Address by Dr SV Kamat, Secretary DD R&D & Chairman on the occasion of DRDO Day was also webcasted.

NMRL, Ambernath

71th Naval Materials Research Laboratory (NMRL), Ambernath Raising Day was celebrated at NMRL with great zeal and enthusiasm on 05 January 2024. Dr Y Sreenivas Rao, DS & DG (NS&M) graced the occasion as the Chief Guest. Chairman, CEPTAM, Directors of sister laboratory, and senior scientists from sister DRDO laboratories along with NMRL employees attended the event. Shri PT Rojatkar, OS & Director NMRL, addressed the gathering and presented an overview of growth and achievements made by the laboratory in year 2023. He also highlighted future research work intended to be undertaken by NMRL.

Dr Rao expressed a sense of great pride in the accomplishments



made by NMRL over the years. He inspired the NMRL fraternity to achieve greater heights in their mission and motivated them for progressing in R&D with new ideas and innovation.

NMRL Annual Report 2023 was released on this occasion. Chief Guest felicitated the employees who completed 25 years of service. Certificates to laboratory level awardees were also handed over.

INTERNATIONAL YEAR OF MILLETS

DL, Jodhpur

Defence Laboratory, Jodhpur celebrated International Year of Millets (IYM) during 15-30 December 2023. As part of the

celebration, a poster competition on 'Shree Anna-Ek Vardan' was organised. DLJ employees took part in the competition. Dr Kavita

Chouhan, Sc'E', Shri Bharat Malik, SPS, and Dr Abhinandan Jain, Sc 'F' secured first, second and third prizes, respectively.



NPOL, Kochi

Naval Physical and Oceanographic Laboratory (NPOL), Kochi celebrated IYM by organizing various programmes for awareness about health and nutritional benefits of millets during 01-14 December 2023. Dr Jinu Jacob, Senior Scientist at IIMR, delivered a talk on 'The Glorious Journey of Millets: From Ancient Grains to Nutricereals'. Dr K Ajith Kumar, OS & Director, NPOL was also present during the occasion. An exhibition featuring various value-added millet products was arranged.



DRDO AT 24TH RASHTRA KATHA SHIVIR

A total of 17 DRDO exhibitors participated from various DRDO laboratories, viz. Armament Research & Development Establishment (ARDE), Pune; High Energy Materials Research Laboratory (HEMRL), Pune; Naval Materials Research Laboratory (NMRL), Ambernath; and DL Jodhpur, in the 24th Rashtra Katha Shivir event organized by Vedic Mission Trust Pransla, Rajkot. DL, Jodhpur, was the nodal laboratory for organizing the event. Approx. 20,000 students visited the event from different states of the country.



DRDO PARTICIPATION IN VIBRANT GUJARAT

Gujarat State Government organised a Vibrant Gujarat Global Trade Show exhibition at Gujarat during 09-13 January 2024. Seven DRDO laboratories, viz. Naval Materials Research Laboratory (NMRL), Ambernath; Defence Laboratory Jodhpur

(DLJ); High Energy Materials Research Laboratory (HEMRL), Pune; Armament Research & Development Establishment (ARDE), Pune; Research & Development Establishment (Engrs.) R&DE (E), Pune; Vehicles Research and Development





Establishment (VRDE), Ahmednagar; and DRDO Young Scientist Laboratory (DYSL) participated in this exhibition. Hon'ble Prime Minister Shri Narendra Modi

inaugurated the exhibition. The state government, psu, central government agencies, government banks, startup companies and private industries participated

in the exhibition. NMRL scientists also showcased the major technologies developed at NMRL for contributing towards empowerment of defence forces.

RAJBHASHA ACTIVITIES

DESIDOC, Delhi

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi, celebrated one day Hindi Karyashala on 'Hindi Bhasha aur Sahitya ka Antarsambandh' on 10 January 2024. Dr Debashish Benarjee, Sc 'G', Institute for Systems Studies & Analyses (ISSA), Delhi, was the Guest Speaker. He spoke about the Hindi literature and how it connecting the young generations to the values given by ancient Indian writers. He also discussed about the Hindi literature and about world famous stories translated in Hindi. Shri Vivek Kumar, Sc 'E', was the coordinator for the event.



DMSRDE, Kanpur

A Hindi Karyashala on 'Rajbhasha Hindi Evam Anuprayog' was organised by Rajbhasha Karyanvayan Samiti at Defence Materials and Stores Research & Development Establishment (DMSRDE),

Kanpur on 15 December 2023. Dr Paritosh Malaviya, Assistant Director (Rajbhasha), DRDE, Gwalior was the invited speaker. He spoke about increasing the use of Hindi in day-to-day official work by using the various tools such as Anuvaad Tool-Kanthasth 2.0. Dr Mayank Dwivedi, OS & Director, DMSRDE was also present during the occasion. Dr Rakesh Kumar Gupta, Sc 'E' & Rajbhasha Adhikari coordinated the event.

Rajbhasha Puruskar

Smt Kanchana S, TO 'B', Defence Laboratory Jodhpur (DLJ), has secured first position in 'Hindi Tippam Aalekhan Pratiyogita (Hindittar Bhashi)' for the non-Hindi speaking employees working in various

central government offices in Jodhpur region. The event was organised by the Nagar Rajbhasha Implementation Committee (NARAKAS)-2, Jodhpur, operational at the Central Arid Zone Research Institute (CAZRI), Jodhpur. She was awarded a certificate and a trophy during the biannual NARAKAS-2 Review Meeting held at CAZRI, Jodhpur, on 22 December 2023.



Hindi Karyashala at DMSRDE, Kanpur



UNMESH 2024 at CVRDE, Chennai

The All India Official Language Technical Conference (UNMESH 2024) was organized by Combat Vehicles Research & Development Establishment (CVRDE), Chennai, during 10-11 December 2024. The event was inaugurated by Ms Ansuli Arya, IAS, Secretary, Department of Official Language, Ministry of Home Affairs. Dr SV Gade, DS & DG (ACE), Shri P Bej, OS & DG (R&M), Dr Ravindra Singh, OS & Director, DPARO&M, Shri J Rajesh Kumar, OS & Director, CVRDE were the Guest of Honours.

While addressing the gathering, the Chief Guest recalled the PM's drive of Hindi's projection for all to understand. Further, she stressed



upon the importance of Hindi in empowering the country with national unity, despite the various cultural and regional differences.

As part of the programme,

a souvenir was released by the dignitaries. Further, an exhibition was also arranged wherein the CVRDE developed products were displayed.

AVALANCHE AWARENESS TRAINING AT SIACHEN BATTLE SCHOOL BY DGRE

Siachen is a glaciated region of the Indian Himalaya and is prone to snow and ice avalanches. The mobility of troops gets restricted, and operational activities are severely hampered by the avalanches. To enhance troop preparedness, snow-meteorological data collection and avalanche awareness, trainings were conducted by DGRE in batches during December 2023 to January 2024 at Siachen Battle School, Base Camp for Officers, JCOs, and OR of various units undergoing SBS training before induction. Lt. Col. Saurav Sharma, Capt. Sumit Ojha, Bhupendar Kumar, TO 'B', Hav Ashwani Kumar Parmar made the troops



aware of different forms of snow and avalanches, trained on snow-meteorological data collection from instruments, and installed AWS and its transmission.

Avalanche awareness training helps deployed troops with enhanced preparedness for their efficient performance in the snowbound region of Siachen.



COURSE ON AI/ML IN AIRBORNE SYSTEMS

A course on 'AI/ML in Airborne Systems' was held at Centre for Airborne Systems (CABS), during 29 November 2023 to 01 December 2023. The course was inaugurated by Prof. PM Soundar Rajan, Professor NIAS & Former Director, DARE, in the august presence of Dr K Rajalakshmi Menon, DS & Director, CABS and Dr R Rajesh, Sc 'F', Course Director. The course witnessed a wider participation from across 18 DRDO laboratories including CABS, as well as from BrahMos Aerospace.

Well-curated and thought-provoking lectures involving a mix of expert talks from eminent professors from the academia, leading experts from the industry as well as from CABS. The talks



introduced the basics of AI/ML in terms of theory and relevant tools, and proceeded with a discussion on automatic target recognition, natural language processing, computer vision, certification aspects and AI-based sensor signal

processing.

Various AI-enabled products developed by the CABS were also showcased in realtime video analysis as well as speech transcription, translation and synthesis.

POST INDUCTION TRAINING-BATCH 24.1

Post Induction Training School (POINTS-24) Batch 24.1 for the newly recruited Sc 'B' is being conducted by Directorate of Human Resource Development (DHRD) at DIAT, Pune from 18 December 2023 to 23 February 2024. The Programme was inaugurated by Secretary DD R&D & Chairman DRDO through video conferencing. A total 133 Sc 'B' from various DRDO laboratories/establishments are attending the course.

The objective of the POINTS programme is to orient the freshly recruited Sc 'B' towards organization structure of



DRDO, DRDO flagship projects, cluster functioning, overview of CCS conduct rules, officers' like qualities, etiquettes and

mannerism, etc. and also to give them broad exposure to various defence technologies.



TRAINING COURSES AT DIPR, DELHI

GTO Conclave

A two-day Platinum Jubilee Group Testing Officers (GTO) Conclave was organised by the Defence Institute of Psychological Research (DIPR), Delhi, during 20-21 November 2023. Group Testing Technique is one of the three assessment techniques to assess the candidates at Service Selection Boards for ascertaining their suitability for selection as Commissioned Officers in the Indian Armed Forces.

Lt Gen NS Sarna, SM, VSM, DG Rtg was the Chief Guest and Dr UK Singh, DS & DG (LS) was the Guest of Honor. In her inaugural address, Dr Arunima Gupta, Director, DIPR, complimented the efforts of the training school in organizing the conclave and shared her insights on the way ahead for further strengthening the selection system.

Counseling Program

The DIPR conducted a two-week training programme for 34 Service Officers of Indian Army from 04 to 15 December, 2023. The course was inaugurated by Maj Gen KM Adhikari, ADGMS (IS, H & PS). The training focused on orienting officers in basic skills of counseling. These trained officers will further provide psychological services to their troops towards up keeping their mental health and wellness. During her address, Dr Arunima stressed on the emerging challenges in promoting psychological well-being in armed forces, shared her experiences and complimented the efforts of the organising team.



Various aspects of counseling skills were imparted as a part of the training curriculum including identification of markers and indicators of psychological distress, counseling for anxiety, dealing with grief and trauma & managing issues of marital discord.

T.Officer/Psych Course

An eight-week Technical Officer/Psych Course was conducted by the DIPR, during

16 October 2023 to 08 December 2023. Officers from the Tri-Services and Coast Guard attended the course.

The course had several sessions pertaining to personality assessment, military psychology, and the officer selection system, and the trainee officers were imparted specialized training on psych technique for the assessment of candidates for officer cadre. On completion of both theoretical and practical training, successful trainees become TO/Psych/Assessors at the Selection Board.

Dr Arunima appreciated the participants for their active engagement during the training and for their positive feedback about the conduction of the course.





First All India Virtual Conference

The first All India Virtual Conference was organised by DIPR on 05 January 2024, with the aim of providing an interactive platform for deliberating on strengthening the Officers' Selection System of the Indian Armed Forces. Dr

Arunima chaired the conference and highlighted the future action plan of the laboratory, including the development of infrastructure and the conduct of a seminar in the area of personnel selection. Commandants and Presidents of various selection centers across all services, Director Rtg, senior representatives from service HQs,

reps from selection boards, senior service officers, and scientists from DIPR joined the conference. Dr Arunima thanked Services for their collaboration and continuous support towards maintaining the effectiveness of the officer selection system, and she also thanked all the participants for the successful conduct of the event.

LECTURE ON MENTAL HEALTH AT DMSRDE

A lecture on 'Important Attributes of Mental Health' was organised at Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, on 14 December 2023. Dr Swati Misra, Clinical Psychologist was the Invited Speaker on the occasion. She stressed on use of yoga and meditation for better mental health. Dr Mayank Dwivedi, OS & Director, DMSRDE felicitated the speaker. Dr Kavita Agarwal, Sc 'F' & Head, Women's Cell coordinated the event.



COURSE FOR RETIRING EMPLOYEES OF NPOL

Naval Physical and Oceanographic Laboratory (NPOL), Kochi organised a two day training course INCREON (In-house Course for Retiring Employees of NPOL) for the superannuating employees in the calendar year 2024 during 09-10 January 2024. NPOL is conducting INCREON consecutively for the 12th year.

The training course was conducted for 32 participants and their spouses. The course was inaugurated by Dr Ajith Kumar K, OS & Director, NPOL. Shri Mohanan K, Sc 'G' & Director (Management) and Shri Wilson



K Cherukulath, Sc 'G', offered participants for an active and productive retired life through lectures on various topics. The objective of the course was to prepare the

participants for an active and productive retired life through lectures on various topics.



WORKSHOP ON MATERIALS & TECHNOLOGIES AT NMRL

Naval Materials Research Laboratory (NMRL), Ambarnath, organised one-day workshop on 'Materials and Technologies for Futuristic Energy Systems' on 04 January 2024 at NMRL. The workshop was graced by Vice Admiral DSP Varma (Retd.), PVSM, AVSM, and VSM as the Chief Guest, and Dr Y Sreenivas Rao, DS & DG (NS&M) as the Guest of Honour. Shri PT Rojatkar, OS & Director, NMRL, in his address, he brought out the motivation and purpose behind organising the workshop. About 70 participants from the Indian Navy, M/s L&T Defence, Academia, sister DRDO laboratories, and NMRL attended the workshop. Eminent



personalities from academia, industries, and DRDO laboratories engaged in the development of energy systems delivered lectures. R Adm Ashish Kulkarni, VSM, DG P-75, Dr MO Garg, former DG CSIR, Shri Arun Ramchandani,

Executive VP L&T Defence, Prof RR Sonde, IITD, Dr Satyavani, Sc 'G', NSTL, Prof Debabrata Das, IITKgp (Retd.), Prof Atul Bhargav, IITGn, Cdr Saurab Sharma, and Prof Pratibha Sharma, IITB delivered lectures in the workshop.

NUCLEAR SPECIALIZATION COURSE AT DLJ

Defence Laboratory, Jodhpur (DLJ) organised a nuclear specialization course for Nuclear Biological Chemical Defence Instructor (NBCD-I) training for personnel from the Indian Navy and Coast Guard during 11-12 January 2024. A total of 25 personnel from NBCD School, Lonavla, attended the course. Topics such as nuclear weapon effects, nuclear radiation detectors, and responding to nuclear or radiological emergencies have been covered in the course. The course also included a demonstration of various technologies and systems developed by DLJ pertaining to nuclear radiation management.





INAUGURATION OF A SELFIE-POINT

As per the instructions of the Ministry of Defence and DRDO HQrs to establish A Selfie Point, it has been designed and established at DRDO Township, Kanchanbagh, Hyderabad, under the banner 'Amrit Bhoomi-Amrit Kaal'.

The facility was inaugurated by Shri U Raja Babu, DS & DG (MSS) on 24 January 2024.

He appreciated the efforts of EMU (R&D), Hyderabad, for conducting different programs and hoped that the selfie point would



certainly bring new excitement to the residents and their families but also to the visitors of DRDO.

NATIONAL GEOMATICS AWARD FOR EXCELLENCE

Dr Narayan Panigrahi, Sc 'G' from the Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru, received the 'National Geomatics Award for Excellence', in recognition of his outstanding contribution in the design and development of indigenous GIS technology to make the defence forces self-reliant and contributing to the growth of education in Geographic Information Systems (GIS) in the country. The Indian Society for Geomatics conferred the award for the year 2023 on Dr Narayan Panigrahi.



PATENT GRANTED TO NPOL

1. A Patent No. 432264 for 'A Scissors-based Extendable Boom' has been granted by Indian Patent Office to Shri R Genesh, Dr OR Nandagopan and Shri K Manoharan, Naval Physical & Oceanographic Laboratory (NPOL), Kochi.

2. A Patent No. 443192 for 'Low Density Acoustic Gel for Towed Sensor Array' has been granted by Indian Patent Office to Shri Reji John, Shri Manoth Mathew, Shri AV Ramesh Kumar, Shri Subash Subramanian and Shri RS Arun Sundar, NPOL.



VOLLEYBALL TOURNAMENTS

North Zone

DRDO North Zone Volleyball tournament was organised at Defence Laboratory, Jodhpur (DLJ) during 03-05 January 2024. Thirteen teams from north zone laboratories participated in the tournament. The tournament was inaugurated by the Director, DLJ on 03 January 2024. DMSRDE, Kanpur won the tournament.

South Zone

DRDO South Zone volleyball tournament was conducted at CVRDE, Chennai, during 03-05 January 2024. Eight teams participated in it and NPOL, Kochi and CVRDE secured the winners & runners position, respectively. Shri J Rajesh Kumar, Director, CVRDE graced the inaugural function Dr V Balamurugan, OS & Asso. Director attended the valedictory function of the tournament. Sports council, CVRDE along with 21st Works committee of CVRDE made all the arrangements for the event.



TT & CARROM TOURNAMENTS

DRDO Sports Board organised Women only Table Tennis and Carrom tournaments for the Delhi-based laboratories/estts during 17-19 January 2024 at DRDO Hqrs, Delhi. Shri Sunil Sharma, OS & President, DRDO Sports Board inaugurated the event. A total of 50 women employees enthusiastically participated in the event. Ms Prabhjot Kaur, Tech Officer 'B', INMAS & Ms Rachna Thakur, Sc 'G', DRDO Hqrs were the winner and runner-up in the Table Tennis event and Ms Dipti



Arora, Tech. Officer 'C', DESIDOC & Ms Kshama Sharma, Store Assistant 'A', DESIDOC were

the winner and runner-up in the Carrom event. President, Sports Board awarded the winners.



VISIT OF STAFF COURSE DSSC WELLINGTON

Seventy Nine student officers (including ten foreign national) of the rank of Lt Col, Major, Cdr (IN), Lt Cdr, Wg Cdr, and Sqnlr undergoing 79th Staff Course Defence Staff College Wellington along with ten directing staff of the rank of Maj Gen, Brig, Col, Rear Adm, Capt (IN), AVM, and Wg Cdr visited Armament Research and Development Establishment (ARDE), Pune, on 08 January 2024. Shri A Raju, OS & Director, ARDE briefed him about ARDE projects, operational activities and services. The visitors interacted with Air Deliver Ammn (ADM) Group and visited to EMRG facility followed by demonstration of ATAGS Gun, Pinaka MBRL and small arms.



VISITORS AT CAIR, BENGALURU

Vice Admiral Tarun Sobti, Deputy Chief of Naval Staff

Deputy Chief of Naval Staff visited Centre for Artificial Intelligence & Robotics (CAIR), Bengaluru on 11 December 2023. There was a briefing by Dr Rituraj Kumar, OS & Director, CAIR followed by discussion and demonstration of various technologies developed by CAIR in the area of command and control.



AVM Devendra Shrivastava, ACAS OPS (Comm & IT)

AVM Devendra Shrivastava, ACAS OPS (Comm & IT) visited CAIR on 19 December 2023. There was a briefing by Dr Rituraj Kumar, followed by discussion and demonstration of technologies developed by CAIR in the area of Communication Security.



Air Vice Marshal II Kuttappa

Air Vice Marshal II Kuttappa visited CAIR on 26 December 2023. There was a briefing by OS & Director, Dr Rituraj Kumar, CAIR followed by discussion and demonstration of various technologies developed by CAIR in the area of intelligent systems and robotics and geographic information system.



VISIT OF DIRECTOR, IIT-BOMBAY AT DGRE

Prof. Subhasis Chaudhuri, Director, Indian Institute of Technology Bombay (IITB) visited Defence Geoinformatics Research Establishment (DGRE), RDC, Manali on 22 December 2023. Dr Sunil Bhardwaj, Sc 'F' briefed him of various avalanche forecasting models used by DGRE in predicting avalanche hazards of Indian Himalaya and further its dissemination to troops deployed in snow terrain on operational duties. He also visited DGRE Snow Studies and Training Center and observed various ongoing snow science experiments at cold lab related to behavioral change of snow with passage of time.



PCDA VISITS AT DLJ, JODHPUR

Dr Mayank Sharma, Indian Defence Accounts Service (IDAS), Principal Controller of Defence Accounts (PCDA) R&D, Delhi,

visited Defence Laboratory, Jodhpur (DLJ) on 28 December 2023. Shri RV Haraprasad, OS & Director, DLJ briefed him about

the ongoing R&D activities of the laboratory.

Dr Sharma also visited various facilities of DLJ.





VISITORS AT IRDE, DEHRADUN

AVM Tarun Chaudhry, VSM and ACAS (Projects)

Air Vice Marshal Tarun Chaudhry, VSM & Assistant Chief of Air Staff (Projects) visited Instruments Research & Development Establishment (IRDE), Dehradun on 12 December 2023. Dr Ajay Kumar, OS & Director, IRDE presented major R&D initiatives taken by IRDE and technologies developed by IRDE. He also briefed about various products which have been developed and inducted into the Services. AVM Tarun Chaudhry appreciated the efforts of IRDE in developing state-of-the-art systems.

A guided tour was conducted to IRDE Diamond Jubilee Gallery. Dr Ajay Kumar explained AVM Chaudhry in detail about the features of Gallery and showed the Technology Area which displays all technology verticals along with future roadmap and systems.

AVM Tarun Chaudhry appreciated the efforts of IRDE in achieving the self-reliance in India's defence sector. He wished all the very best to the lab towards excellence.

Dr (Ms) Chandrika Kaushik, DG (PC&SI)

Dr (Ms) Chandrika Kaushik, OS & DG (PC & SI) and Shri Arun Chaudhary, Director, Directorate of Industry Interface and Technology Management (DIITM), DRDO HQrs visited Instruments Research &



Development Establishment (IRDE), Dehradun on 16 December 2023. Dr Ajay Kumar presented major R&D initiatives taken by IRDE and technologies developed by IRDE. They were also briefed about various products which have

been developed and inducted into the Services. Dr (Ms) Chandrika Kaushik and Shri Arun Chaudhary interacted with the senior scientists of IRDE and appreciated the efforts of IRDE in developing state-of-the-art systems.



CISF Board of Officers

A Board of Officers (BOO) from the Central Industrial Security Force (CISF) visited IRDE on 29 November 2023 for a technical discussion and demonstration of the Terahertz (THz) package scanner developed by IRDE. Shri SD Arya, Sr. Comdt., BHEL Haridwar, Uttarakhand, was the Presiding Officer of the BOO. The board witnessed the demonstration, discussed the technical aspects, and operated the prototype machine to get hands-on experience with different objects under different scenarios. The capabilities of the scanner



were assessed vis-à-vis the on-ground requirements of CISF in particular and security services in general. The BOO appreciated the THz package scanner developed by

IRDE, submitted their feedback, and suggested the required modifications to be incorporated for the usefulness of the developed system.

VISIT OF SHRI BANDARU DATTATREYA, HON'BLE GOVERNOR OF HARYANA TO TBRL

Shri Bandaru Dattatreya, Hon'ble Governor of Haryana, visited Terminal Ballistics Research Laboratory (TBRL) Ranges, Ramgarh, on 04 January 2024. Prof. Prateek Kishore, OS & Director, TBRL, welcomed the Hon'ble Governor of Haryana. Prof. Kishore briefed him about the technologies on which scientists and technologists are working as well as the products developed by the laboratory. The Governor was apprised of initiatives taken by TBRL for the design and development of warheads, electronic fuzes, and other products for low-intensity conflicts by Prof. Prateek Kishore.

During the visit, the Hon'ble Governor witnessed the TBRL-developed products and national test facilities. The governor took a keen interest in the test and evaluation facilities of TBRL,

which are unique in the world. The Governor appreciated the role of scientists working in the field of testing and evaluating the armaments and protective systems of TBRL.

He also appreciated the role

TBRL and DRDO played in making India self-reliant in defence production. On this occasion, he congratulated the TBRL fraternity for its contribution and achievements in making India self-reliant in defence production.





HON'BLE RAKSHA RAJYA MANTRI SHRI AJAY BHATT VISITS MISSILE COMPLEX, HYDERABAD

Hon'ble Raksha Rajya Mantri Shri Ajay Bhatt visited Dr APJ Abdul Kalam Missile Complex, Hyderabad, on 14 January 2024. He reviewed the ongoing missile technologies and related programmes at Research Centre Imarat (RCI).

Shri U Raja Babu, DG DG(MSS) briefed the Raksha Rajya Mantri on various technological development. Laboratory Directors of DRDL, ASL and RCI, explained critical systems and technologies developed by them to RRM.

Speaking on occasion,

RRM said that knowledge and infrastructure base of the DRDO needs to be tapped by the MSME, private industries, which in turn will lead to the establishment of a self-reliant defence industrial ecosystem in our country. He also said that DRDO should emerge as world leader in exporting weapon systems to other nations. He emphasized that defence today is no longer limited to the land, sea or sky but encompasses space as well.

Raksha Rajya Mantri witnessed the display of the

missile systems and the enabling critical technologies indigenously developed by the DRDO establishments. He congratulated all DRDO scientists for the recent successful missions including AGNI-PRIME, AKASH, AKASH-NG, VSHORADS, PRALAY, etc. He complimented the Dr APJ Abdul Kalam Missile Complex for indigenizing various state-of-the-art technologies and for strengthening the defence industrial base in the country in line with the national goal 'Atmanirbhar Bharat'.

