

# DRDO HANDS OVER AHSP OF AKASH WEAPON SYSTEM (IA) TO MISSILE SYSTEMS QUALITY ASSURANCE AGENCY





43rd Year of Publication

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# DRDO HANDS OVER AHSP OF AKASH WEAPON SYSTEM (IA) TO MISSILE SYSTEMS QUALITY ASSURANCE AGENCY

Defence Research and Development Organisation (DRDO) handed over Authority Holding Sealed Particulars (AHSP) of the Akash Weapon System (Indian Army Version) to Missile Systems Quality Assurance Agency (MSQAA) in Hyderabad on 3 December 2022. The handing over was held at Defence Research and Development Laboratory (DRDL), Hyderabad which as a nodal agency, has designed and developed the Akash weapon system. The technical specifications, quality document and the drawing of complete weapon system elements were sealed and handed over by Project Akash to MSQAA as part of the AHSP transfer.

Raksha Mantri Shri Rajnath Singh congratulated DRDO, the Indian Army, and the industry, terming the AHSP transfer a landmark event. He exuded confidence that this would go a long way in fulfilling the requirement of Services.

Secretary, Department of Defence R&D and Chairman DRDO, Dr Samir V Kamat congratulated the Project Akash team for the first AHSP transfer from missile cluster to MSQAA for such a complex system involving missiles and multiple ground systems. He said, the transfer process will enable the roadmap for future missile systems, which are under production.

Akash is the first state-of-the-art indigenous surface-to-air missile system that has been with Armed Forces for nearly a decade defending the Indian skies and providing national security.

Apart from DRDL, several other DRDO laboratories are involved in the development of the system. These include Research Centre Imarat (RCI); Electronics & Radar Development Establishment (LRDE); Research & Development Establishment (E); Integrated Test Range (ITR); Armament Research & Development Establishment (AR&DB); High Energy Materials Research Laboratory (HEMRL); and Vehicles Research Development Establishment

(VRDE). The systems are produced by Bharat Dynamics Limited (BDL), Bharat Electronics Limited (BEL), Larsen & Toubro (L&T), Tata Advanced Systems Limited (TASL), Electronics Corporation of India Limited (ECIL), and BEML along with Micro, Small and Medium Enterprises (MSME) and other industries partner.

Dr BHVSN Murthy, DG-MSS; Shri Sanjay Chawla, DG-AQA; Shri GA Srinivas Murthy, Director, DRDL; Brig. OP Singh, PD-MSQAA; Cmde S Mishra, CMD, BDL; Shri BP Srivastava, CMD-BEL; Shri Ajit Chaudhary, PD-Akash; and Shri Narendra Kale, PD-Akash Prime were also present during the occasion.





# RAISING DAY CELEBRATIONS

## DGRE, Chandigarh

The Defence Geoinformatics Research Establishment (DGRE) celebrated its 3rd Raising Day with grandeur on 15 November 2022. Dr PK Satyawali, Director, DGRE in his address highlighted various achievements, progress of several ongoing project activities as well as briefed about upcoming projects of DGRE and various operational activities and solutions furnished by DGRE to its new users, viz. Indian Navy (DAPSA), 16 J&K Rifles (Indian Army), Himalayan Mountaineering Institute (HMI), IB, Ministry of Home Affairs (MHA), REC Power Development Corporation Ltd (REC PDCL), Border Road Organization (BRO) and Uttarakhand Tourism Development Board, Dehradun. He emphasised the need of taking new research and developmental activities to meet futuristic technological requirements of DRDO and the nation. DRDO Awards and Mementos to employees, who have completed 25 years of service were presented.

Various sports activities and a cultural programme was organised portraying in-house talents. All members of the DGRE family participated with full zeal and enthusiasm. Prizes were also distributed to the winners of the various events. Shri PS Negi, AD, Chairman, Raising Day Committee proposed the vote of thanks.

## DLRL, Hyderabad

Defence Electronics Research Laboratory (DLRL), Hyderabad celebrated its 61st Annual Day on



Raising Day Celebration at DGRE, Chandigarh

19 November 2022. Shri N Srinivas Rao, OS & Director, DLRL gave annual report of all the activities and achievements of DLRL. Dr BK Das, OS & DG (ECS) graced the occasion as Chief Guest and mentioned that innovativeness and motivation are very important for success of all projects. He insisted that this can happen

only when operational difficulties and needs of the Armed Forces are understood and appreciated. Mentioning that DLRL is already into import substitution in various systems held by the Armed Forces, he wished DLRL to raise to the level of exporting EW payloads and systems instead of importing certain subsystems. A balloon was



Dr BK Das, OS & DG (ECS) lighting the lamp during Raising Day Celebration at DLRL, Hyderabad

raised by the Chief Guest as a mark of achievements made till date and wishes for the future endeavours.

Prominent audience apart from DLRL employees were the former Directors of DLRL and former DG (ECS), GM BEL, GM ECIL, IFA and Directors of sister laboratories in Hyderabad.

The celebration started off with sports competitions during 3 November to 11 November 2022 in which indoor and outdoor games were played. Annual Report was presented by the Chairman, Works Committee. The two employee Unions, 'AIDEF' and 'Karmik Sangh' of DLRL spoke about the need of helping the survivals of the deceased employees on humanitarian grounds and problems related to the promotions of technical/ministerial/admin staff.

It was indeed a thorough joyful and successful series of events conducted by a Central Organising committee and the subcommittees which rejuvenated all the employees with new enthusiasm back at work.

### DRL, Tezpur

Defence Research Laboratory (DRL), Tezpur celebrated its Diamond Jubilee and Lab Raising Day on 21 November 2022. Prof. Ramesh Ch. Deka, Vice Chancellor, Cotton University, Guwahati was

the Chief Guest of the occasion and Shri CB Gogoi, District and Sessions Judge, Sonitpur, Assam was the Guest of Honour. Besides many eminent personalities from academia, Army and Central Armed Police Force (CAPF) also graced the occasion. Dr Dev Vrat Kamboj, Director, DRL delivered 61 Lab Raising Day speech and Dr Vanlalhmuka, Scientist briefed about the 60 years journey of DRL. The moment turned more special with the presence of retired officers and staff. A coffee table book capturing six decades of DRL's resplendent past and a video documentary showcasing the journey of DRL, highlighting

technologies and products was released.

As a part of the year-long Diamond Jubilee celebration, several programmes were organised, such as national level competition for ideas on Life Support Technologies for Enhancing Combat Efficiency under Different Terrains of NE India among school and college students, science model competition, lectures on entrepreneurship, DRDO Kisan-Jawan-Vigyan Mela at Tawang, etc. Prizes were given by the Chief Guest to the winners of various competitions organised during Diamond Jubilee year.



Release of Coffee Table Book during the Raising Day Celebration at DRL, Tezpur

## NATIONAL PETROCHEMICAL AWARD FOR TECHNOLOGY INNOVATION

The 11th National Petrochemical Award for Technology Innovation

by the Ministry of Chemicals & Fertilizers, GoI was conferred on Dr D Ratna, Sc 'F', Shri

VS Mishra, TO 'B' and Shri Ramakant Kushwaha, TO 'B' for their outstanding contribution in



Development of Fiber Reinforced Polymer (FRP) Composite Ball Valve for Naval Applications. These valves are corrosion free, three times lighter, and much easier to operate compared to conventional metallic valves. These valves not only have weight benefits but also save heavy expenditure incurred by the Indian Navy on regular replacement/maintenance of metallic valves due to corrosion caused by the harsh marine environment. The award was presented by Shri Bhagwanth Khuba, Hon'ble Minister of State, Ministry of Chemicals and Fertilizers on 27 October 2022, Delhi.



Dr D Ratna, Sc 'F' with his team receiving the award from Shri Bhagwanth Khuba, Hon'ble Minister of State, Ministry of Chemicals and Fertilizers

## TRIBUTE TO DR APJ ABDUL KALAM AT CAS

Centre for Advanced Systems (CAS), Hyderabad observed the 91st Birth Anniversary of Dr Avul Pakir Jainuladbeen (APJ) Abdul Kalam. The former President of India and DRDO Chief was born in Rameshwaram on 15 October 1931. He was a versatile man with an array of experience in multiple roles such as teacher, scientist, author, and eloquent speaker. He also contributed immensely to the growth of India in several fields including science, defence, and health. He is also the esteemed author of several worldwide acclaimed books. Known as the Missile Man of India, he is especially known for his contributions to the development of ballistic missiles and launch vehicle technology.

Shri BV Papa Rao, OS & Director, CAS paid his respects to Dr Kalam and shared his experience of working with him. He said that Dr Kalam was Laboratory



Director when he joined DRDL as Sc 'B' and told that he always used to interact with young scientists and motivate them to develop the new and advanced propulsion system for Integrated Guided Missile Development Programme (IGMDP). He also highlighted some of his achievements, namely, the development of the first indigenous Satellite Launch Vehicle (SLV) at ISRO which is widely regarded as one of the greatest scientific achievements of the country, the Pokhran-II

nuclear power tests which enlisted India in the list of few nations with the said capability, development of Indigenous Guided Missiles in DRDO, namely, the Agni and Prithvi series, creating a cost-effective Coronary Stent called 'Kalam-Raju-Stent' to save the lives of people who could not afford expensive alternatives. He has been awarded India's highest civilian honor 'the Bharat Ratna' along with several other honors including Padma Bhushan and the Padma Vibhushan.

## OBSERVANCE OF VIGILANCE AWARENESS WEEK IN IRDE

**I**nstruments Research & Development Establishment (IRDE), Dehradun observed Vigilance Awareness Week during 31 October 2022 to 6 November 2022 to increase awareness about the perils of corruption. Vigilance Awareness Week is observed every year during the week in which the birthday of Sardar Vallabhbhai Patel (31 October) falls. The theme of this year's Vigilance Awareness Week was 'Corruption Free India for a Developed Nation'. The observance of Vigilance Awareness Week commenced with the integrity pledge by all the officers and staff of IRDE. On the occasion, a lecture was delivered by Shri Dharendra Guniyal, SP Vigilance of Dehradun on 31 October 2022.



## NPOL PARTICIPATION AT UCC CENTENNIAL VISTA

**N**aval Physical and Oceanographic Laboratory (NPOL), Kochi participated in the 'UCC Centennial Vista', organised during 7-12 November 2022, in connection with the centenary celebrations of the prestigious institute of Kerala, Union Christian College, Aluva. The defence pavilion setup by NPOL garnered a lot of attention from the visitors comprising dignitaries from Kerala, students of colleges and schools, and the general public.

The NPOL pavilion exhibited ranging from helicopter-borne sonar, models of ship-borne sonar,





submarine sonars, and exploded component displays of the latest sonobuoys, augmented with digital media and supergraphics elucidating the basics of sonars to advanced features of indigenously developed systems. The AV

presentation also comprised the gist of NPOL's activities. The event also had pavilions from ISRO, M/s Cochin Shipyard, Indian Navy, Indian Army, Indian Air Force Kerala Police, *et al.* apart from numerous state government,

central government, public sector, and private industries. The 6-day event witnessed a huge turnout with a typical footfall of more than two lakhs. The NPOL pavilion also grabbed the significant attention of both print and visual media.

## CELEBRATION OF WORLD QUALITY WEEK-2022

### ACEM, Nasik

World Quality Week 2022 was celebrated at Advanced Centre for Energetic Materials (ACEM), Nasik during 7-11 November 2022. The theme of the World Quality Week for this year was 'Quality Conscience: Doing the Right Things'. As a part of the celebration slogan and suggestion writing competitions were organised. The main event was conducted on 9 November 2022. Shri TV Jagadeeswar Rao, General Manager, ACEM inaugurated the programme. The programme was attended by Joint Directors and other officers and staff of ACEM. The General Manager delivered a talk on 'Quality in R&D Project Management'. In his talk, General Manager emphasised the importance of quality in R&D



Project Management and stressed the importance of continuous improvement of quality with all stakeholders. Shri RS Patil Joint Directors and Shri Sandeep Kumar also addressed the programme and talked about the importance and relevance of quality during rocket motor processing. Winners of the competitions were awarded by General Manager, ACEM. The programme was organised by Shri Ravi Shankar, Sc 'E' (Head R & QA), and his team.

### DGRE, Chandigarh

World Quality Week was organised at Defence Geoinformatics Research Establishment (DGRE) during 7-11 November 2022 to create awareness of various quality standards & reliability aspects in scientific organisation specially with reference to DGRE. During the week activities, quiz competition based on quality & reliability was organised, table top awareness generated among technical group members on how R&D culture and conscience can help an organisation to make decisions and do the right things for the stakeholders. Technical essay writing competition on



'Importance of Quality & Reliability in Scientific Organisations' and 'Quality & Reliability Aspects in Avalanche & Landslide Forecasting' were also conducted. In all the events DGRE employees actively participated and winners were honoured with certificates by Dr PK Satyawali, Director, DGRE. Shri Dinesh Yadav, Sc 'E' was identified as 'Best R&Q Manager' for the year 2022. The programme was organised by Shri Vivek Saxena, AD, Directorate of Reliability and Quality Assurance (DR&QA) and his team.

### DSP, Hyderabad

World Quality Month was celebrated in a ceremonial way at Directorate of Special Projects (DSP), Hyderabad on 25 November 2022. Dr A Swarna Bai, Group Head, QRG welcomed the

gathering followed by her welcome address. Dr PSR Srinivasa Sastry OS & Director, DSP emphasised the significance of quality for space projects and also encouraged to work towards zero defect and first time right. On the occasion, Shri HR Nagendra, Former Deputy Director, URSC, ISRO graced the event as Chief Guest and gave the inaugural address on 'Quality Management for Space Systems Balancing Tradition & Trend'.

Guest of Honour, Cmde Mayank Pathak, Officiating ADG, SSQAG gave a talk on 'QA Coverage Experience in MSS Cluster' and Shri CVS Sai Prasad, Sc 'H', Director, SQR O/o DG (MSS) gave a talk on 'DRDO Quality & Reliability Policy Guidelines'.

On the occasion, various competitions, like essay writing, speech, poster presentation, quiz competition, quotes/slogans, cross word puzzle, poetry were organised. Programme was concluded with vote of thanks proposed by Smt B Rukmini, Group Head, SQAG, DSP.



### IRDE, Dehradun

The World Quality Week was celebrated at Instruments Research & Development Establishment (IRDE), Dehradun during 7-11 November 2022. The inaugural ceremony was held on 7 November 2022. The Chief Guest of the occasion was



Dr Ajay Kumar, Director, IRDE. Addressing the gathering, he emphasised for practicing the total quality management in IRDE. Various lectures on Quality Assurance were also organised during the Week. An introductory talk was delivered by Shri Vishal Garg, Joint Director, Directorate of Quality Reliability and Safety, DRDO HQ on 'DRDO Quality and Reliability Policy Guidelines and Implementation'.

Shri Amit Kumar, Sc 'F', IRDE delivered a lecture on 'FRACAS and Lesson Learnt from Failures' while Shri Brij Kishore, Sc 'F', IRDE covered the topic 'Inspection and Audits for Quality & Reliability' in his talk. Shri Binod Kumar, Sc 'E', IRDE and Shri Bijendra Kumar, Sc 'D', IRDE delivered lectures on the topics 'Software Quality' and 'Quality Aspects in LIDAR Technology' respectively. Quiz and essay writing competitions related to quality and reliability were organised during the Week. Dr Sudhir Khare, Group Director, R&QA presented the prizes to the winners of the competitions on the final day of the Week.

### NMRL, Ambernath

Naval Materials Research Laboratory (NMRL), Ambernath

observed World Quality Week during 7-11 November 2022. To bring quality culture awareness among NMRL employees, a lecture on 'Quality Assurance' was arranged on 7 November 2022. Shri CVS Sai Prasad, Sc 'G' & Director SQR, MSS cluster, gave a presentation on the topic 'Mission Assurance'.

The lecture covered various aspects of quality such as cost of quality, quality system, product and process control, continuous improvement, quality methods, and tools, and risk management. The lecture also covered failure analysis with a few case studies. Heads of technical departments, scientists at various levels, technical officers, and staff of NMRL attended the lecture.





## TRAINING PROGRAMME AT DRDL

Defence Information & Documentation Centre (DESIDOC), Delhi and Defence Research and Development Laboratory (DRDL), Hyderabad jointly organised a short term training programme on 'Maximizing Usage of e-Resources using DRDO e-Library and Writing High Quality Research papers' on 25 November 2022 for Hyderabad-based DRDO laboratories at DRDL. The objective of the short-term training programme was to create awareness and make the maximum use of the e-resources subscribed by DESIDOC for the DRDO scientific community through DRDO e-library portal, popularising DRDO publications among the scientific community and how to write quality research articles in various national and international journals.

The training programme was attended by 110 participants including officers, staff and specially library professionals from various Hyderabad-based DRDO laboratories.

Shri Rajeev Kumar Sharma, Sc 'E', DRDL welcomed the directors and the participants and briefed the importance of the training programme. Dr K Nageswara Rao, Director, DESIDOC gave the welcome address and highlighted the efforts and initiatives taken by DESIDOC in fulfilling the information requirements of the DRDO fraternity. He extended his sincere thanks to Director, DRDL for accepting to host the event at DRDL. He briefed about

the various e-resources and its importance to the participants. Shri GAS Murthy, OS & Director, DRDL delivered the inaugural address. He emphasised that the e-Resources and services provided by DESIDOC has to be effectively utilised and advised the scientific community to use the e-resources for research activities. Shri Tapesha Sinha, Sc 'E', DESIDOC explained the DESIDOC library services available on Intranet as well as on Internet. He briefly showed various important services being provided by DESIDOC through its Single Window Services available on Intranet. Ms Rashika Anand, Customer Support Manager, IHS Janes showed a Live Demo of 'Janes Defence Equipment & Technology (JDET)' Database and

Janes Year Books of which access is being provided by DESIDOC to various DRDO laboratories.

Smt Alka Bansal, Sc 'F' talked about various publications of DESIDOC, and how authors can submit their manuscripts/materials to DRDO scientific journals. She also explained the scope of DRDO journals, open access policy, the review process etc; to the audience. Ms Vinita Saroha, Customer Consultant, Elsevier delivered a talk on how to publish high quality research papers and discovery of literature using Scopus Database.

An exhibition showcasing various DRDO Publications being brought out by DESIDOC was also arranged during the event which was very much appreciated by the participants.



## TALK ON SAFETY AND SECURITY IN SOCIETY AND CYBER SPACE

Safety Committee and HRD Division of Naval Physical and Oceanographic Laboratory (NPOL), Kochi jointly conducted two invited talks, one on 'Safety and Security in Society and Cyber Space' by Shri S Sasidharan, IPS, Deputy Commissioner of Police, Kochi and other by Shri Binoy Joseph, Asst. Sub Inspector of Police, Kochi. The talks were organised at NPOL on 22 November 2022. The event was presided by Dr K Ajith Kumar, Sc 'G' & Director, NPOL.

Shri A Babu, TO 'A', Member, NPOL Safety Committee welcomed the gathering and gave an introduction about the speakers. Shri S Sasidharan, IPS delivered the talk on the security aspects of society in general and the need to 'know your neighbour' and keep good relations with them,



the serious issue of use of drugs by students and young generation, in particular. He explained different 'apps' developed by Kerala Police for rescuing people in case of emergency and the need for nurturing safe driving attitudes. Shri Joseph delivered the talk on 'Online Safety' and he crisply explained the digital

footprints, cyber financial frauds, social engineering attacks, etc. He explained the need for becoming a good netizen, cautious use of mobiles and told that securing a cyberspace starts with individuals. Ms Sinchu P, Sc 'F' & Division Head, HRD proposed the vote of thanks.

## AWARENESS-CUM-SENSITIZATION PROGRAMME ON POSH ACT-2013

For creating awareness about the Sexual Harassment of Women at Work place POSH Act-2013, Internal Complaint Committee, Defence Electronics Research Laboratory (DLRL), Hyderabad conducted 'Awareness-cum-Sensitization Programme on POSH Act-2013' on 6 December 2022 under the guidance of Shri N Srinivas Rao, OS & Director, DLRL.

Dr Y Hemalatha, Sc 'G', Chairperson delivered



Shri AP Ghosh, JD (Admin) delivering his talk



welcome address. As part of the programme, three speakers were invited to discuss different perspective of POSH Act-2013. First talk was by Shri AP Ghosh, Joint Director (Admin), DLRL. He gave an overview of POSH Act and presented the CCS perspective of it and discussed guidelines and rules. Second talk was by Dr Neha Hebalkar, Sc 'F', Presiding Officer-ICC, ARCI, Hyderabad. She was accompanied by Ms Priya Mathew, Member Secretary, ICC, ARCI, Hyderabad, Dr Neha explained the guidelines, Do's and Don'ts about sexual harassment through an interactive session with participation of all the audience. The last talk was by Smt Mathukumalli Pavani Kalyan, senior lawyer. She was accompanied by Ms Vangmayee, Junior Lawyer.



Dr Neha Hebalkar, Sc 'F', ARCI along with Ms Priya Mathew

Smt Pavani focussed on the practical issues of the society related to sexual harassment and shared her vast experience with the audience highlighting

the POSH Act rules. Both male and female employees attended the programme and interacted with the speakers. Programme concluded with National Anthem.

## NATIONAL CONFERENCE ON CHEM-BIO DEFENCE

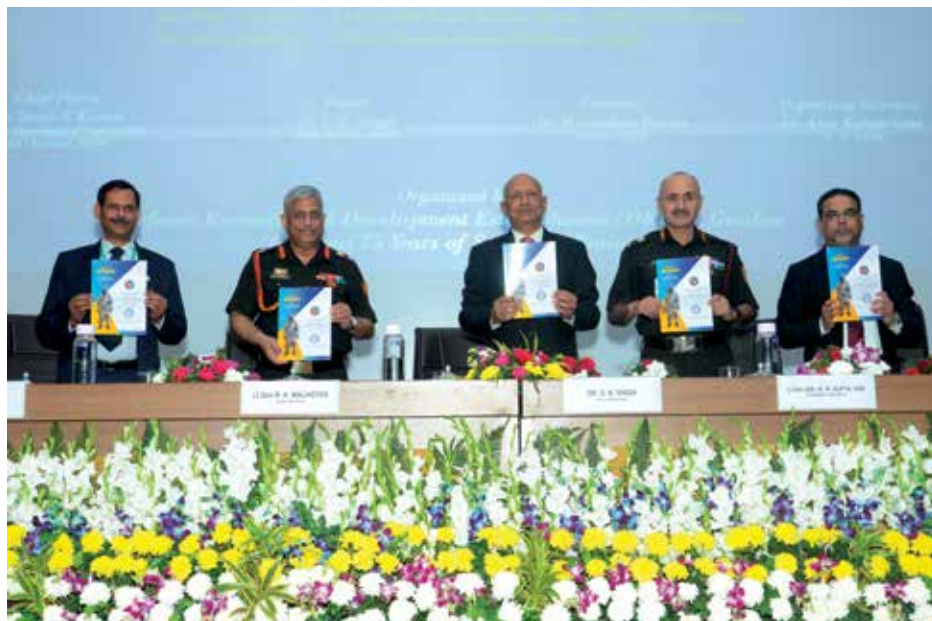
Defence Research & Development Establishment (DRDE), Gwalior organised a national conference on 'Chem-Bio Defence: Futuristic Tools & Technologies' during 16-18 November 2022. Dr UK Singh, DGLS was the Chief Guest of the occasion. Lt Gen RM Gupta, VSM, DCIDS (Med) and Lt Gen RK Malhotra, DGQA delivered the inaugural lectures on 16 November 2022. The plenary oration was given by Dr Debasisa Mohanti, Director, National Institute of Immunology (NII), Delhi. More than 200 delegates participated in the conference from the Services, Industries, Academia and DRDO laboratories.

A DRDE product exhibition was also organised on the first day where DRDE developed products were showcased. The poster session was organised on second day to give a glimpse of the ongoing R&D activities in the field of Chem-Bio defence at DRDE and other sister laboratories. A book of abstracts including summary of all the lectures and posters was released by the Chief Guest during the inaugural function. Newly developed products of DRDE including light weight Individual Chemical Agent Detector (ICAD), and Low Freeze Decontamination Solution were launched by DGLS at this occasion. ToT documents of DRDE-developed products were

handed over to 11 industries by Director, DRDE in the presence of Rear Admiral Ranjit Singh, Director, DIITM, DRDO Hqrs. The experts in the technical sessions were invited from the industries (L&T Defence, Mumbai; Shiva Taxyarn Ltd, Coimbatore; BEL, Pune), academic institutions (IIT (BHU), Varanasi; IIT, Roorkee; Jamia Milia Islamia, Delhi; NII, Delhi; National Institute of Virology, Pune; National Institute of Disaster Management, Delhi; DBT, Delhi; National Authority on Chemical Weapon Convention, Delhi; Indian Chemical Council, Mumbai, Tri-Services, and DRDO laboratories. Dr AK Goel, Sc 'F' & Organising Secretary gave



the conference introduction. Dr MM Parida, Director, DRDE delivered the welcome address. Dr Singh in his speech mentioned about the importance of working together with Industries, Services and Academia to provide the technological solutions in the realm of Chem-Bio Defence. All the previous directors of DRDE including Dr RV Swamy, Dr K Sekhar, Dr R Vijayaraghavan, Dr MP Kaushik, Dr Lokendra Singh and Dr DK Dubey were felicitated for their contribution in the area of Chem-Bio defence. Dr SI Alam, Sc 'F' and Dr MK Meghvansi, Sc 'E' conducted various technical sessions of the conference. Dr K Ganesan, Sc 'G' gave the vote of thanks.



**Dr UK Singh, DGLS, Lt Gen RM Gupta, VSM, DCIDS, Lt Gen RK Malhotra, DGQA, and Dr MM Parida, Director, DRDE releasing the book of abstracts**

## DRDO ADMIN CONCLAVE

**A** two-day DRDO Admin Conclave was organised by Dte of Personnel, DRDO Hqrs during 24-25 November 2022 at Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi. The conclave was inaugurated by Dr Sameer V Kamath, Secretary DD (R&D) & Chairman DRDO who emphasised the need for an effective, transparent, trustworthy, and robust administrative system.

Admin Heads of over 40 DRDO laboratories/estt participated in the conclave which had 9 sessions on first day and 6 sessions on second day including APAR/SPARROW, eCOP, ICC & Grievance Redressal, issues related to Disciplinary Proceedings, Handling of Court Cases, Compassionate Appointments/Medical Issues, Managing JCM matters, issues

pertaining to Armed Forces & Apprenticeship, DRTC & Special Reservation Cell on the first day and a very useful and informative session on 'SPARSH' by a Defence Accounts Officer that followed by

sessions on issues pertaining to Chairs & Fellow and Consultants, Central DPCs. Dte of HRD, Director, CEPTAM and DESIDOC also presented and discussed issues related to their areas of





functioning.

There were two open house discussions with Directors of RAC, DHRD and DOP addressing concerns and clarifying doubts

of the participants. The conclave ended with the valedictory address by DS & DG(HR), Shri KS Varaprasad emphasised the need for involvement and

participation of the Admin Heads in ensuring better functioning of the laboratories in coordination with the concerned Directorates of DRDO Hqrs.

## DESIDOC PARTICIPATION AT CALIBER-2022

**D**r K Nageswara Rao, Director, Defence Scientific Information & Documentation Centre (DESIDOC), Delhi delivered a lecture on 'Inceptive Approach of Libraries for National Education Policy (NEP 2020)' during 13th International Conference CALIBER. The theme of the conference was 'Envisioning Digital Transformation in Libraries for NextGen Academic Landscape'. CALIBER is an International Convention organised by the Information and Library Network (INFLIBNET) Centre, Gandhinagar at different parts of the country in collaboration with universities, invites high quality



papers on research & technical works, case studies, technology updates, etc. related to the themes and sub-themes of the convention. In his talk, Dr Rao discussed NEP-2020 and how it differs from NEP-1986. He told several points undertaken specifically

for the upliftment of libraries in NEP-2020. He emphasised that libraries will be benefitted and will get strengthened with the new education policy in the coming years. Shri Sudhanshu Bhushan, Sc 'F', DESIDOC also chaired a session during the conference.

## LECTURE ON PREVENTION OF SEXUAL HARASSMENT OF WOMEN AT WORKPLACE

**D**efence Institute of Psychological Research (DIPR), Delhi organised a lecture for generating awareness amongst the officers and staff on the crucial topic of Prevention of Sexual Harassment of Women at Workplace on 25 November 2022 as per the directives of Secretary, Ministry of Women & Child Development and DOP, DRDO. Advocate Shri Sanjay K Chadha delivered a talk and shared his vast knowledge and expertise in



this area. The lecture covered the background of the Act of 2013, the other laws that exist, the details of every section of the Act of 2013. The speaker covered all aspects, provisions, rights of the

women employees, what sexual harassment implies as per law and other such details. Practical examples from workplace setting were also discussed for a better understanding of all employees.

The lecture was followed by an open house discussion where in the employees clarified their doubts and gained better clarity on the practical applicability of the Act.

## WORKSHOP ON RESERVATION POLICY

**A** one-day workshop/interaction on reservation matters was organised at DRDO Hqrs by the Special Reservation Cell of Dte of Personnel (DoP) on 3 November 2022. The workshop was organised specifically for interaction with representatives (Liaison Officers/Sr. Admin Officers/Admin Officers) of all Delhi-based laboratories. It was inaugurated by the OS & DG(HR) who in his address stressed the fact that the Reservation policy should be followed in its true spirit by all the laboratories. He appreciated the initiative taken by Pers/SRC in conducting the workshop and emphasised that more such workshops should be conducted at other laboratories as well. In his address, the Director, DOP, spoke about the workings of the Parliamentary Committee on the Welfare of SCs and STs, and stressed the need for all laboratories to remain prepared for such visits. He also commented on the requirement for a proper understanding of reservation



matters by all concerned in the various laboratories. The faculty, Shri Sandeep Singh, Dy Director, DOP, an expert in reservation matters, conducted the workshop skillfully, explaining the salient points of Reservation policy followed by exercises on preparation and maintenance of Reservation rosters. Feedback was obtained from all the participants. They appreciated the effort made by the DoP and found the session to be informative. The participants

also requested more such interactions, both on Reservation matters and other subjects as well. The Addl Director, Pers/SRC, closed the workshop with an emphasis on the need for all the laboratories to properly follow the reservation policy and maintain up-to-date data pertaining to reservations. He insisted upon the need for the labs to work in tandem with DRDO Hqrs, forwarding any information asked for in a timely fashion.

## MET+HTS INTERNATIONAL CONFERENCE AND EXHIBITION-2022

**I**nternational Conference and Exhibition-2022 on 'Material Engineering & Technology

and Advances in Heat Treatment (MET+HTS)' was organised by ASM International, India Chapter

at Bombay Exhibition Centre, Goregaon (Mumbai) during 2-4 November 2022. Responsibility





for coordinating DRDO's participation in the event was given to Naval Materials Research Laboratory (NMRL), Ambarnath. Various products developed by NMRL; Defence Metallurgical Research Laboratory (DMRL), Hyderabad; Defence Materials and Stores Research and Development Establishment (DMSRDE), Kanpur and Defence Laboratory, Jodhpur (DLJ) were displayed in the DRDO pavilion during the exhibition. Shri Ajay Bhatt, Hon'ble Union Minister of State (Defence) inaugurated the MET-HTS 2022 exhibition and conference on 2 November 2022. Dr Samir V Kamat, Secretary DD R&D & Chairman DRDO was the Chief Guest for the event.

During the three days of exhibition, the DRDO stalls attracted numerous visitors from industry, enterprises, academic institutions, corporate, and students from various colleges and



universities. DRDO pavilion won the best 'Product Display' award. A seminar entitled 'Advance Materials and Processes for Use in Transport, Defence and Energy Sector' was held during the event. A paper on 'Studies on Influence

of POSS on Functional Properties of Poly (2,5-Polybenzimidazole) for High-Temperature Polymer Electrolyte Fuel Cell Application' authored by Smt Sonali Anbhule, JRF, NMRL won the best paper award.

## TRAINING PROGRAMME AT ISSA, DELHI

Institute for Systems Studies and Analyses (ISSA), Delhi organised a 5 days Continuing Education Program (CEP) on 'Modelling and Simulation Techniques in Defence Analyses' during 28 November 2022 to 2 December 2022. Shri SB Taneja, OS & Director, ISSA delivered the inaugural address. The course was designed for DRDS personnel with an objective to introduce the participants with mathematical techniques used in studies of defence

analyses problems. Participant from different clusters attended the course. Experts from Academia, Industry and ISSA delivered lectures on Systems

Analysis & Application, Modelling & Simulation Approaches, Optimization Techniques with Applications and other related research areas.



## NATIONAL S&T RAJBHASHA SEMINAR- 2022

Under DRDO Delhi Cluster-1, a two-day 'Akhil Bharatiya Sanyukt Rajbhasha Vaigyanik evam Takniki Sangoshti' was organised by Defence Scientific Information & Documentation Centre (DESIDOC), Delhi during 20-21 December 2022. The Sangoshti was co-organised by Metcalfe House-based laboratories—Centre for Personnel and Talent Management (CEPTAM), Institute for Systems Studies & Analyses (ISSA), Joint Cipher Bureau (JCB), Scientific Analysis Group (SAG), and CCE (R&D) North.

The Sangoshti was inaugurated by Chief Guest Shri KS Varaprasad, DS & DG (HR) and Guest of Honor Dr Vinod Tiwari, Prof., University of Delhi. Dr Ravindra Singh, Director, Directorate of Parliamentary Affairs, Rajbhasha and O&M (DPARO&M) graced the occasion as Distinguished Guest. Dr R Appavuraj, Chairman, CEPTAM, Shri SB Taneja, Director, ISSA; Shri Raju Aggarwal, Director, JCB; Smt Jeya Santhi, Director, SAG; Dr Shailesh Kumar Singh, Director, DHRD along with Dr K Nageswara Rao, Director, DESIDOC were also present.

The Chief Guest commended the efforts made by DESIDOC in collaboration with other Delhi cluster-1 laboratories of DRDO to organise this two-day Sangoshti to promote the usage of Hindi in scientific works. A wide range of scientific and technical topics related to defence technologies, cyber security, defence research, role of science in India's development, self-reliance in



defence, and challenges for human resource development were deliberated during the seminar. Dr Rao was overwhelmed to see the wide participation of authors from various DRDO laboratories and urged them to work towards generating more scientific and technical literature in Hindi. Dr Singh in his talk said that usage of Hindi has increased in every walk of life now and also in different activities during last few years. In his speech, Dr Tiwari encouraged the participants to continue the use of Hindi at their workplaces. The conference proceedings 'Smarika' and Hindi magazine 'Gyandeeep' were released by the dignitaries. A Hindi book 'Man Gata Hai' authored by Ms Archana Pandey, DRDL was also released during the inaugural ceremony.

Dr Gopeshwar Singh, Professor

(Retd), University of Delhi graced the occasion during the valedictory session of the sangoshti. In his address he said, "I am ecstatic to see the Hindi presentations of deep technical subjects of DRDO scientific community".

The sangoshti observed around 60 papers from 82 authors on various subjects related to the theme of the sangoshti. Smt Alka Bansal, Chairperson, Organising Committee conveyed thanks and congratulated all the participants and entire organising team for making the event a grand success. Shri Vivek kumar, Sc 'E' was the organising Secretary for the event.





## FOUNDATION STONE LAYING OF PC & ID FACILITIES AT HEMRL

Secretary DD R&D and Chairman DRDO, Dr SV Kamat laid the foundation stone for the civil work for Primary Explosives and Initiating Devices (PC & ID) facilities at High Energy Materials Research Laboratory (HEMRL), Pune on 19 November 2022 in the presence of Dr SV Gade, OS & DG (ACE), Dr AP Dash, Director, HEMRL, Shri GI Wadhwa CE (CW&E), CCE (R&D) West.

Director, HEMRL briefed about the Primary Explosives (PEs) project to the Chairman, DRDO. PEs are essentially used to cause detonation by spark, friction, impact, or heat and which can initiate the detonation of relatively insensitive explosives.

PE like Lead Azide, Lead Styphnate, Mercury Fulminate,

LDNR, etc. that are in use during the past and present times are manufactured by Ordnance Factories (OF) using technologies from OEMs (Non-DRDO developed technologies).

No significant R&D work on the development of both conventional and advanced PEs has taken place in the last three to four decades. To overcome these limitations, DRDO needs to establish R&D scale/pilot plant production of conventional/advanced PEs there by it can be made available to all DRDO-developed munitions as well as ToT can be made available to industries.

In this project of PE, it is proposed to manufacture conventional as well advanced PEs for the development of initiatory devices. The project involves

the creation of a state-of-the-art infrastructure facility for the manufacture of primary explosives up to 100 to 500 g level and also the establishment of an automated filling plant for initiating devices and their testing and evaluations.

Since the PE are very sensitive towards friction, impact, and spark, the technology for safer synthesis of these explosives is very critical and not easily available. Hence, the proposed plant for the manufacture of conventional as well as advanced PEs is very much essential for the successful completion of the project.

Considering the importance of the PE, Dr Kamat appreciated the HEMRL team for working on the development of PEs and initiating devices and emphasised the completion of the project on priority.

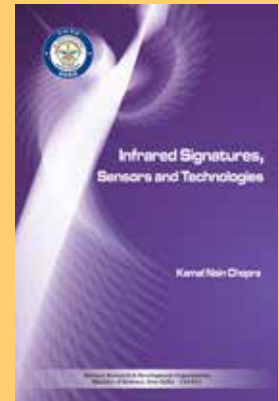




# Latest DRDO Monographs For Sale

## Infrared Signatures, Sensors and Technologies Dr Kamal Nain Chopra

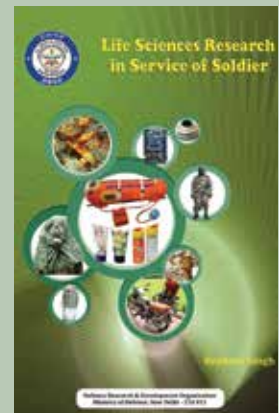
This monograph on 'Infrared Signatures, Sensors, and Technologies', a topic, on which the availability of literature, especially at one place, is the need of the hour for the scientists engaged in Infrared (IR) signatures, sensors and technologies in particular, and the researchers and academicians in general. Practically, all types of the IR signatures, sensors, and technologies including IR spectrum and sensors, IR signatures, deceiving technologies - types, analysis and modeling of IR signatures and countermeasures, thermal and radar signature management, fabrication of IR sensors, detector technology, etc., have been discussed in this monograph, thereby making it very useful indeed for the scientific community in the world.



Price: INR ₹ 1000,  
US \$ 25, UK £ 20

## Life Sciences Research in Service of Soldier Prof Brahma Singh

DRDO Monograph, Life Sciences Research in Service of Soldier, has been compiled by Prof Brahma Singh, Padma Shri Awardee, Former Director & Emeritus Scientist, Life Sciences, DRDO HQrs. Life science cluster of laboratories of DRDO is mainly researching upon various aspects of human (soldier) life to improve the logistics leading to not only for better quality of life and better fighting performance but helping him/her to remain in fighting fit mode always particularly in difficult terrain, adverse environment and other adversaries on ground (army), in water (navy) and in air (air force) and allied services (at borders). This monograph explains briefly the significant research and development of DRDO life science cluster of laboratories since their inception till date, in a language understandable by the readers.



Price: INR ₹ 2100,  
US \$ 45, UK £ 40

For Purchase, contact:  
Director, DESIDOC, Metcalfe House, Delhi-110 054  
marketing.desidoc@gov.in; 011-23902612





## PROMOTIONS

### DMRL, Hyderabad



Dr G Appa Rao has been promoted to Sc 'H' in November 2022. He obtained his Bachelor's degree in Metallurgical Engineering from Andhra University, Visakhapatnam in 1986 and PhD in Metallurgical Engineering from Banaras Hindu University, Varanasi in 2002. He joined Defence Metallurgical Research Laboratory (DMRL), Hyderabad as Sc 'B' in 1987. He made outstanding contributions to the processing of a wide range of advanced high temperature materials through PM route involving Cold Isostatic Pressing (CIP) and Hot Isostatic Pressing (HIP) techniques. He has established a state-of-the-art CIP-Technology for the first-time in the country to manufacture high quality ceramic radar-radomes for missiles. Dr Rao has received several awards including DRDO Scientist of the Year Award-2018, Technology Group Awards in 2005 & 2018, Laboratory Scientist of the Year Award-2007, Prof. G S Tendulkar Award-2010, DMRL Best Technical Paper Awards in 2006 & 2022 and the best PM Product Awards from PMAI in 1992, 1998, and 2005.



Dr R Balamuralikrishnan has been promoted to Sc 'H' in November 2022. He obtained his BTech from IIT Madras and PhD (1998) from Carnegie Mellon

University (CMU), Pittsburgh, USA. Following a three year post-doctoral stint, also at CMU, he joined Defence Metallurgical Research Laboratory (DMRL), Hyderabad as Sc 'D' in 2001.

Dr Balamuralikrishnan has received the DMRL Technology Group Award (Team Member) in 2003, DRDO Agni Award (Team Member) for Excellence in Self-Reliance in 2005, Hubert I Aaronson Fellowship from the Indian Institute of Science in 2010, DRDO National Science Day Oration Silicon Medal in 2011, National Metallurgists' Day Metallurgist of the Year Award by the Ministry of Steel in 2017, Outstanding Researcher (Steel) in an Academic Institute and R&D Labs by Indian Steel Association in 2019, and DMRL Technology Group Award (Leader of the Awarded Team) in 2019.

## HIGHER QUALIFICATION

### DGRE, Chandigarh



Dr Rajesh Kumar Garg, Sc 'G', Defence Geoinformatics Research Establishment (DGRE), Chandigarh has been awarded PhD from the Department of Electronics and Communication Engineering, National Institute of Technology, Hamirpur (Himachal Pradesh) on 5 November 2022 for his thesis entitled, 'Energy Efficient Wireless Sensor Network Systems for Environmental and Health Monitoring in Snow Bound Region'.

### DIPAS, Delhi



Shri Saroj Kumar Verma, Technical Officer 'A' from DIPAS, Delhi, has been awarded PhD from Bharathiar University, Coimbatore, Tamil Nadu for his thesis entitled, 'Lipid Profile and Nutritional Status of Healthy Personnel during Ascent from Moderate to High Altitude'.

### MTRDC, Bengaluru



Shri Venkat, Sc 'E' of Microwave Tube Research & Development Centre (MTRDC), Bengaluru has been awarded with PhD Degree from Bangalore University, Bangalore on 13 July 2022. His research title was 'Vibration Analysis of Plates using Different Boundary Conditions'. The research work includes the study on effect of vibration on resonance amplitudes, resonance frequencies, phase angles and damping factors, surface crack and through crack parameters, and properties of aluminium plates.

## PATENT GRANTED

### NPOL, Kochi

A Patent No. 408598 for 'A Portable Underwater Imaging Device and a Method Thereof' has been granted by Indian Patent Office to Shri Manoj G, Sc 'E' and Smt Sreedevi K, Sc 'F', Naval Physical & Oceanographic Laboratory (NPOL), Kochi.

## VISITORS TO DRDO LABS

### DGRE, Chandigarh

\* Dr Samir V Kamat, Secretary, DD (R&D) and Chairman, DRDO visited Defence Geoinformatics Research Establishment (DGRE), Chandigarh on 25 November 2022. At the outset, Dr PK Satyawali, Sc 'G' & Director, DGRE welcomed Dr Kamat and showed him the static display of exhibits, VR facility, products and models of DGRE. Chairman interacted with the scientists of DGRE. A brief about DGRE operational activities, Ongoing R&D and support services to users were presented by respective teams. Shri Prateek Kishore, OS & Director, TBRL was also present during the meeting.



Dr Samir V Kamat, Secretary, Dept of Defence R&D and Chairman DRDO, being briefed on DGRE activities

\* Dr Shailendra Vasant Gade, OS & DG (ACE), Pune visited DGRE on 2 November 2022. Dr PK Satyawali, Director, DGRE welcomed OS & DG (ACE), and briefed him on the ongoing projects, R&D activities, operational activities and support services to user (BRO). An aerial reconnaissance was also conducted for familiarisation and assessment of geohazards in high altitude area. Dr Gade visited DGRE Field Research Station, Patsio (3800 masl) through strategically important Atal tunnel in which DGRE contributed in various engineering control structures as solutions against avalanches to provide all-weather connectivity for Manali to Ladakh Axis. DG (ACE) also inaugurated the Chandigarh Cluster Hindi



Dr Shailendra Vasant Gade, OS & DG(ACE), Pune visit to DGRE RDC, Manali

Sangosthi (3-4 November 2022) organised by DGRE at Manali. He had interaction with all the employees of DGRE.



## IRDE, Dehradun

✧ Maj Gen CS Mann, VSM, ADG, ADB visited Instruments Research & Development Establishment (IRDE), Dehradun on 2 November 2022. Dr Ajay Kumar, Director, IRDE welcomed him and explained him about the products and technologies developed by IRDE. Maj Gen Mann visited IRDE Diamond Jubilee Gallery and was overwhelmed watching the Technology Area, System Area, Down-the-Memory Lane and Lab WOW moments in the Gallery. He was highly delighted watching these developments. He appreciated the role of IRDE in providing electro-optics solutions for users.

✧ Vice Chief of Army Staff (VCOAS) Lt Gen Baggavalli Somashekar Raju, UYSM, AVSM, YSM, along with his team visited IRDE on 3 November 2022. He was welcomed by Dr BK Das, OS & DG (ECS) and Dr Ajay Kumar, Director, IRDE. Dr Ajay Kumar presented major R&D initiatives taken by IRDE and technologies developed by IRDE towards Atmanirbhar Bharat. He also briefed about various products that have been developed and inducted into the Services. VCOAS Lt Gen Raju appreciated the efforts of IRDE in developing state-of-the-art systems. A guided tour was conducted to IRDE Diamond Jubilee Gallery. Dr Das explained Lt Gen Raju in detail about the features of Gallery and showed the Technology Area which displays all technology verticals along with future roadmap and systems. Dr Das also explained about the System Area where all the products of yesteryears have been displayed.



Dr Ajay Kumar, Director IRDE explaining the products developed by IRDE to Maj Gen C S Mann



Dr BK Das, OS & DG (ECS) showing the IRDE Diamond Jubilee Gallery to Lt Gen BS Raju

Lt Gen Raju was overwhelmed watching the Down-the-Memory Lane and Lab WOW moments in the Gallery. He also saw the 'Wall of Honour' and future road map. He was extremely happy with the products and systems

being developed by the laboratory. Lt Gen Raju 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 Mayank Sharma, IDAS and PCDA (R&D), New Delhi visited IRDE on 4 November 2022. Dr Ajay Kumar, Director, IRDE welcomed him and explained in detail about the products and technologies developed by IRDE. Dr Mayank Sharma appreciated the efforts of IRDE for successful development of these products. He visited IRDE Diamond Jubilee Gallery and was highly impressed watching the Technology Area, System Area, Down-the-Memory Lane and Lab-WOW moments in the Gallery.



Dr Mayank Sharma, PCDA (R&D) taking keen interest in IRDE developed products

\* Shri Manoj Jain, Director (R&D) of Navratna Defence PSU Bharat Electronics Limited (BEL) visited IRDE on 9 November 2022. He was welcomed by Dr Ajay Kumar, Director IRDE. Various products and technologies developed by IRDE were shown to Shri Jain by Dr Ajay Kumar. He was delighted for the R&D activities happening in the field of electro-optics in IRDE. He was very happy to see the presence of IRDE products in land, water and space. He appreciated the efforts of officers in achieving the targets. He promised to have strong relationship between BEL and IRDE in future.



Shri Manoj Jain, Director (R&D), BEL along with Dr Ajay Kumar, Director, IRDE and other senior scientists

