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75
Azadi Ka
Amrit Mahotsav

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DRDO AT REPUBLIC DAY-2022





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

Editor: Dipti Arora
Editorial Assistance: Raj Kumar

Printing: SK Gupta
Marketing: Tapesh Sinha



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Ambernath : Dr Susan Titus, Naval Materials Research Laboratory (NMRL)
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director.desidoc@gov.in; drdonl.desidoc@gov.in
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DRDO AT REPUBLIC DAY-2022

Defence Research and Development Organisation (DRDO) displayed two tableaux during the Republic Day Parade-2022; 'Suite of Indigenously Developed Sensors, Weapons and Electronic Warfare Systems for LCA Tejas' and 'Air Independent Propulsion (AIP) System' developed for the submarines of Indian Navy.

The first tableau displayed an indigenously developed advanced

electronically scanned array radar called 'Uttam'; five different aerial launched weapons and an electronic warfare jammer to further enhance the capabilities of fourth-generation Light Combat Aircraft (LCA)-Tejas. The 'Uttam' radar is a highly compact and modular state-of-the-art sensor to provide situational awareness to the pilot.

The 5 aerial launched weapons include air-to-air missile 'Astra'

which is an all-weather, active radar homing missile with beyond visual range striking capabilities; 'Rudram', a new generation anti-radiation missile with a capability to destroy adversary's radar and communication systems; Smart Anti-Airfield Weapon (SAAW), meant to destroy the ground targets and airfields; a long-range guided glide bomb 'Gaurav' and tactical advanced range augmentation, an advanced



precision strike weapon meant for ground targets. These weapons are developed using complex technologies by Hyderabad-based DRDO laboratories.

Tejas is fitted with advanced self-protection jammer designed to provide protection from acquisition radars, fire control radars, anti-aircraft artillery and airborne multi-role radars. Developed by the electronic laboratory at Hyderabad, it provides the electronic warfare capability for the LCA.

Integration of these weapons, radar and EW systems with LCA is an important step towards

increasing the indigenous content of systems and making the LCA mission ready.

The second tableau showcased an indigenously-developed AIP system for propelling the Indian Naval submarines underwater. The AIP system is powered by indigenously-developed fuel cells with a novel onboard hydrogen generator. It is one of the most advanced AIP systems in the world where fuel cell technology is used to generate onboard power.

The AIP allows a submarine to be submerged for longer periods compared to conventional diesel-electric submarines and makes

the sub-surface platform more efficient by making it quieter than even a nuclear submarine.

At present, the AIP is customised for the P-75 class of submarine. Once fitted, it will allow the submarine to stay underwater for a longer time without the need to surface frequently. This will substantially enhance the underwater endurance of the submarine. This niche technology is available only in very few countries in the world. The DRDO has developed this technology with the collaboration of academia and industry.



AZADI KA AMRIT MAHOTSAV

EXHIBITION AT BENGALURU

Hon'ble Chief Minister of Karnataka, Shri Basavaraj Bommai, inaugurated the Azadi Ka Amrit Mahotsav exhibition at State Secretariat Vidhana Soudha, Bengaluru, on 9 December 2021 in the presence of Shri BC Nagesh, Hon'ble Minister of Primary and Secondary Education Government of Karnataka, Dr Anil Dutt Semwal, Director, Defence Food Research Laboratory (DFRL) and Dr TM Kotresh, Director Defence Bioengineering and Electromedical Laboratory (DEBEL) and other dignitaries.

Hon'ble Chief Minister Shri Bommai and other dignitaries paid floral tributes to Chief of Defence Staff General Bipin Rawat. Hon'ble Chief Minister told that Gen. Rawat was a strong votary of Atma Nirbhar (self-reliance) in defence production and was instrumental in starting indigenous production of many arms and equipment within India.

Hon'ble Chief Minister appreciated R&D activities of both DEBEL and DFRL and asked for possible collaboration in the form of technology transfer for the development of defence industries in Karnataka.

Hon'ble Minister Shri Nagesh asked DFRL to develop protein-rich products bars, biscuits, etc. to overcome the problem of malnutrition in children of Karnataka. The two days exhibition was organised jointly by DEBEL and DFRL on the occasion of the celebration of 75 years of



India's independence during 9-10 December 2021 on the theme of life support, food and logistic technologies for the armed forces and civilians.

Onboard Oxygen Generation System, Medical Oxygen Plant, Protective Equipment, Flying Clothing, Submarine Escape System, Individual Under Water Breathing Apparatus, One Man Hapo Chamber Mk-II with Light Weight Automation Unit, Portable Telemedicine System for Armed Forces, Mobile Tele-diagnosis System, Limb Function Enhancement Device, Electro-Corticography Electrodes from DEBEL and MRE Ration Technology, Personal Survival Pack Ration, Food Products and Packaging System for CBRN Scenario, Adulteration Detection Kit, Biodegradable Cutlery, Degradable Films, Modular Silo, Instant Food Mixes, Ready-To-

Eat Food Products, Space Food and Delivery System for Space Mission, Freeze Dried Food Product, Ready-to-Drink and Ready-to-Serve Functional Juice and Beverages, Curd Making Machine, Self-Heating System, etc. from DFRL were displayed in the exhibition. The products of both laboratories have been inducted into the Armed Forces in large numbers and are regularly being used by Armed Forces personnel as well as paramilitary forces in their operations. Most of these products and technologies are also readily amenable to civilian spin-off and have been used for societal good from time to time.

Shri P. Ravi Kumar, IAS, Chief Secretary to Government of Karnataka, Additional Secretaries and Secretaries of various Departments and Secretariat staff visited the exhibition and showed keen interest in the R&D activities.

WEBINAR ON INDIA'S ODYSSEY OF PROPULSION AT HEMRL, PUNE

The High Energy Materials Research Laboratory (HEMRL) conducted a half-day webinar on the topic "India's Odyssey of Propulsion" on 18 December 2021 to celebrate Azadi Ka Amrit Mahotsav. Shri PK Mehta, DS&DG (ACE) inaugurated the webinar in the presence of Shri KPS Murthy, OS & Director HEMRL and Dr D Chakraborty, Director, CoPT. On this occasion, two documents on Standardisation of Specifications of Raw Materials and Test Procedures for Analysis of Raw Materials, Intermediate and Final Propellant Product were unveiled.

Shri Mehta and Shri Murthy emphasised the need for participation and involvement of young minds for the bright future of defence technology in India.



During the webinar, current status of propulsion systems in India as well as trends and insights on futuristic propulsion technologies were deliberated. The webinar

elicited a large response and was attended by more than 1000 defence enthusiasts, researchers and college students both in online and offline mode.

FAMILIARISATION PROGRAMME AT DGRE, CHANDIGARH

Defence Geoinformatics Research Establishment (DGRE) under the aegis of 'Azadi Ka Amrit Mahotav' organised familiarisation programme and field visit of students of Jyothy Institute of Engineering, Bengaluru regarding DGRE R&D activities in Indian Himalaya at Advanced Field Research Station situated at Dhundi (Himachal Pradesh) on 15 December 2021. Eleven engineering students along with their faculty were apprised of DGRE activities for weather forecasting, avalanche forecasting, avalanche control measures and basic snow research in Indian



Himalaya and were also facilitated to perform glacier surface velocity

measurement experiments on snow at Dhundi.

EXHIBITION-CUM-INTERACTION PROGRAMME AT DRL, TEJPUR

Defence Research Laboratory (DRL), Tezpur organised an exhibition-cum-interaction programme at Kaliabor College, Kaliabor, Assam on 18 December 2021, as a part of Iconic Week celebration. The products developed by DRL, Tezpur have been displayed during the event for providing exposure to the latest R&D products and technologies of DRDO. Dr Bipul Rabha, Technical Officer delivered a talk on DRDO products and technologies. The R&D activities of DRL were discussed by Dr B Das, Technical Officer, while lecture on bio-

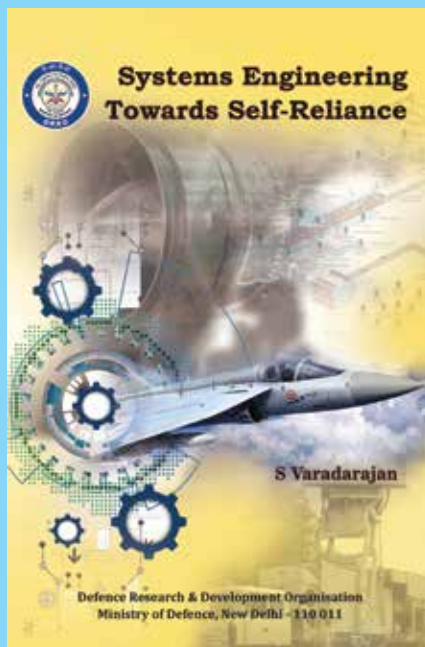


toilet technology was delivered by Shri Vijay Pal, Technical Officer. More than fifty students from the college participated actively and interacted with the speakers.

DRDO MONOGRAPH FOR SALE

Systems Engineering Towards Self-Reliance

Shri S Varadarajan



Pages: 428

ISBN : 978-81-86514-77-1

Price : INR 1700/- US \$ 45 UK £ 40

The monograph describes the best systems engineering practices during the development of any complex system in general and defence system in particular. The case studies are brought out of real systems developed successfully for the Armed Forces. It stresses on the holistic view of any system in its totality, lateral thinking by the stake holders with wider perspective for the successful system acquisition. It will enable the user, acquisition, development, inspection, manufacturing and field deploying agencies to exploit the past experience and be successful in highly demanding circumstances. The monograph can be useful to the young professionals dealing with the development and production of military systems.

(<https://www.drdo.gov.in/monograph/systems-engineering-towards-self-reliance>)

DRDO DAY CELEBRATION

DIPR, DELHI

Defence Institute of Psychological Research (DIPR) Celebrated DRDO Day on 3 January 2022. Director DIPR, addressed the gathering and highlighted the achievements of the establishment during the year 2021. He thanked one and all for the accomplishment and gave the road map for the year 2022.

Personnel selection is one of the most important mandates of DIPR. Through long years of systematic and extensive research, DIPR has developed a unique and comprehensive system of selection of officers of the armed forces. DIPR has been regularly involved in conducting Psychologist and Technical Officers Course



for Psychologists and Service Officers who manned the Services Selection Boards (SSB) across the country.

The laboratory has come up with the revised edition of the

manual. Director DIPR released the manual on the occasion.

The current edition is a comprehensive handbook of 31 chapters; contributed by scientists of DIPR and SSB.

ITM, MUSSOORIE

Institute of Technology Management (ITM) celebrated DRDO Day-2022 on 3 January 2022. The celebration commenced with the web telecast of address by Dr G Satheesh Reddy, Secretary DDR&D and Chairman DRDO. He extended warm wishes to all DRDO employees and their families. He appreciated the achievements of DRDO during the year 2021 in spite of the Covid 19 pandemic. He further elaborated the handing over of DRDO developed products to armed forces, successful user trials and a roadmap for the future.

Thereafter, Shri SA Katti, Director ITM addressed the ITM fraternity. He appreciated the achievements of ITM during the year 2021 such as the



implementation of New Training Policy, MoU signed with DIAT, Pune for academic exchange, MoU signed with IIM, Vizag for R&D management courses, etc. He also highlighted the roadmap for the

future and urged all employees to focus on key areas like fruitful life, dedication towards responsibilities and discipline. He also encouraged for sharing of ideas without hesitation.

NSTL, VISAKHAPATNAM

Naval Science & Technological Laboratory (NSTL), Visakhapatnam celebrated DRDO Day-2022 on 3 January 2022. The programme started with the webcasting of address by Dr G Satheesh Reddy, Secretary DDR&D & Chairman DRDO. In his address, he congratulated all DRDO fraternity who worked hard in the tough period of the COVID pandemic. He listed out the achievements of DRDO in the year 2021 and concluded with the hope that all DRDO scientists, officers and staff commit towards outputting efficient, advanced technological, and first-of-its-kind systems within stipulated timelines in 2022.

Dr Samir V Kamat, DS & DG (NS&M) reiterated the Chairman DRDO's message saying that all NSTL fraternity should work hard towards delivering efficient, advanced technological, and first-of-its-kind systems within stipulated timelines, with proper utilisation of industrial and academic resources. He congratulated the NSTL staff who continued to work in spite of the COVID pandemic. He aspired NSTL to become global leaders in the areas of warship technology and hydrodynamic research with more zeal and dedication.

Dr Y Sreenivas Rao, Director, NSTL said that the collective cooperation of NSTL fraternity, the expectations of Chairman DRDO can be met. He wished that the charter of duties of NSTL would be performed in a more scientifically structured way. Various directorates of NSTL will

be strengthened in the coming year and the existing test facilities will be upgraded. He concluded his address by applauding the NSTL civil employees union for the successful conduct of the vaccination drive and various social activities.

Dr Kamat and Dr Rao unveiled NSTL's e-brochure having details of NSTL products and world-class facilities in NSTL. Dr Kamat inaugurated lab science council. On the occasion, two science council talks were also delivered: 'Propellers for Marine Application' by Sri M Nageswara Rao, Sc 'F'; 'Work-Life Balance—a Vedic View'

by Dr Bhaktadasa, President, Akshaya Patra Foundation, Visakhapatnam being run by International Society for Krishna Consciousness (ISKCON).

The celebration concluded with the distribution of cash awards and certificates to the students of Ramanath Secondary School, who won the quiz and poster competitions of "Kaushal-2021" organised by Bharatiya Vignana Mandali by the dignitaries.

Scientists, officers, staff of NSTL and members of NSTL civil employees union and works committee participated in the programme.



REPUBLIC DAY CELEBRATION – 2022

LRDE, BENGALURU

The 73rd Republic Day was celebrated at Electronics and Radar Development Establishment (LRDE) with great enthusiasm on 26 January 2022. Dr P Radhakrishna, OS & Director, LRDE unfurled the national flag and addressed the gathering. The programme was conducted maintaining social distancing and following COVID-19 guidelines by MHA.



Dr P Radhakrishna, Director addressing the gathering during Republic Day celebration on 26 January 2022

ITM, MUSSOORIE

Institute of Technology Management (ITM) celebrated the 73rd Republic Day with great enthusiasm, in spite of inclement weather and continual snowfall on 26 January 2022. During the celebration, ITM employees followed the Covid-19 guidelines. Dr DK Panda, Sc 'F' (Officiating Director) unfurled the national flag followed by National Anthem. He congratulated all the employees on 73rd Republic Day.

He expressed his joyous and heartfelt feelings on the Republic Day parade on 26 January 2022; which reflected the unity on diversity, the contribution of DRDO and tri-services for self-reliance in national security. He also appreciated the sacrifice of soldiers for the safety of citizens. In his address, he highlighted the achievements of ITM in various aspects and thanked the entire team for their whole-hearted



support in achieving targets within a time schedule. He congratulated the MI division for its best efforts in managing Covid-19 pandemic

at this institute. He dwelt upon all employees to continue their best efforts to achieve excellence in all endeavors.

ITR, CHANDIPUR

The 73rd Republic Day was celebrated in Integrated Test Range (ITR) on 26 January 2022 with the unfurling the national flag by Shri HK Ratha, Director ITR followed by National Anthem.

ITR director, in his address, appreciated the officers, staff and their families and contributions

made by the military wing, DSC jawans and home guards round the clock to safeguard the sovereignty of ITR and missile complexes.

Plantation of fruit-bearing trees was carried out to mark the Motto 'Green and Clean ITR' campaign. The programme was conducted in accordance with COVID-19

guidelines. About seventy officers and staff of ITR attended the programme.

The programme was conducted by Dr SK Sahu, Sc 'F', Chairman, Republic Day Celebration Committee and his team.



GOOD GOVERNANCE WEEK

An exhibition on good governance initiatives with a focus on special campaign on disposal of pending matters was organised by the Department of Administrative Reforms & Public Grievances (DAR&PG) at Dr Ambedkar International Centre, New Delhi, from 20-26 December 2021. DRDO participated in good governance week with the theme “Empowering the nation with state-of-the-art indigenous defence technologies and systems”. Dr Ravindra Singh, Director



DPARO&M was the nodal officer for DRDO for this event. DRDO showcased Records Management Policy-2021 which was released by Hon'ble Raksha Mantri, during Director's Conclave on 4 October 2021.

Under the theme, DRDO also showcased 2DG drug approved for emergency use of adjunct therapy to the standard of care in the treatment of COVID patients in the hospital settings and bio-toilet, eco-friendly solution for human waste disposal.

AVALANCHE AWARENESS PROGRAMME

In snow-bound areas, the mobility of troops and various military activities during winters are much prone to avalanches getting serious threat restricting their movement and overall well-being. The DGRE is committed to minimise avalanche hazards due to snow avalanches and facilitating the mobility of troops in high altitude snowbound regions of the Himalayas. A

special training programme by DGRE on avalanche awareness, safety and rescue was conducted for the troops deployed in the avalanche-prone areas in the Area of Responsibility (AoR) of 56 Mountain Brigade, Dras, Ladakh from 4 to 6 January 2022.

The course was designed in such a way that participants could use the information gained in their day-to-day

operations in avalanche-prone areas. Lectures were delivered regarding avalanche safety and rescue procedures, health issues in snow-bound areas; and general avalanche and snow awareness. The participants found the course direct relevant to their nature of the job and had a view that this had enhanced their preparedness for present and future assignment.



RAISING DAY CELEBRATION AT DFRL, MYSURU

The Defence Food Research Laboratory (DFRL), Mysuru celebrated its 61st Laboratory Raising Day with grandeur on 28 December 2021. Chief guest, Prof. G. Hemantha Kumar, Hon'ble Vice-Chancellor, Mysore University of Mysore inaugurated the event. Dr Anil Dutt Semwal, Director, DFRL, presided over the function and briefed about the R&D achievements of DFRL in the year 2021 and requested the staff of DFRL to strive hard in the coming years and make landmarks in their area of research work. He thanked Hon'ble Vice Chancellor, University of Mysore, for recognising DFRL as Board of Studies (BoS) in the field of food science technology under the University of Mysore.

In his presidential address, Prof. Hemantha Kumar, appreciated the R&D efforts of DFRL in developing food products for extreme weather conditions and services rendered



by DFRL during COVID-19 management in Karnataka. He informed the august gathering about his association with DRDO for establishing the first Computer Science Department in India at the University of Mysore under funding from DRDO.

He presented various awards to the meritorious employees. Besides these, DRDO Cash Awards, Foundation Day Awards,

Rolling Trophies and Best Research Paper awards were also distributed during the function. Sports activities were organised and prizes were distributed to the winners.

Dr Johnsy George, Sc 'F', Chairman, DFRL Welfare Committee thanked chief guest, dignitaries and staff for their support in the successful organisation of programme.

KANNADA RAJYOTSAVA CELEBRATION AT DFRL, MYSURU

The 66th Kannada Rajyotsava was celebrated at Defence Food Research Laboratory (DFRL), Mysuru, on 24 November 2021 to commemorate the formation of Karnataka State on 1 November 1956. On this day, in 1956 all the Kannada-speaking areas of South India were merged into a new state.

Ms Bhavana Ramanna, Indian Film Actress, Bharatanatyam Dancer and Social Activist, was



the chief guest and Dr AD Semwal, Director, DFRL presided over the function. The function began with the lighting of a lamp, singing of Nada Geete (Kannada Anthem) and offering flowers to goddess Bhuvaneshwari.

Dr Rudragoud P, Secretary, Welfare Committee welcomed the guest and audience. The Chief Guest's speech touched upon the history of Rajayotsava, and the culture and growth of the Kannada language in the recent

past, and expressed her happiness about services offered by DFRL to the armed forces as well as to the nation. The programme ended with a vote of thanks from Mr Madhukar, TO 'B', member of Welfare Committee

KEY NAVAL STEALTH SYSTEM HANDED OVER TO INDIAN NAVY

The handing over ceremony of 3 MW diesel engine Infrared Suppression Signature (IRSS) system, designed and developed by Naval Science & Technological Laboratory (NSTL), Visakhapatnam for the prestigious indigenous aircraft carrier project was held on 22 December 2021.

Vice Admiral Sandeep Naithani, AVSM, VSM, Chief of Material, Integrated Naval Headquarters, New Delhi received the IRSS system on behalf of the Indian Navy and stated that stealth is a key factor for the survivability of ships at sea. He said that the

Indian Navy maintains a close partnership with NSTL in the development of various systems critical to achieving strategic independence.

Dr Samir V Kamat, DS & Director General (Naval Systems & Materials) said that the handing over of IRSS systems to the Indian Navy signifies a major milestone in achieving Atma Nirbhar in the design and development of naval stealth systems. He complimented the team for the achievement and advised them to continue work for timely delivery of other ongoing projects.

Dr Y Sreenivas Rao, OS & Director NSTL stated that the NSTL designed and developed systems have been integrated onboard INS Vikrant, which is under construction at Cochin Shipyard Limited, Kochi, and have completed all performance trials successfully.

Shri PVS Ganesh Kumar, OS & Technology Director (Warship Technology), and Captain AVSN Murty, Head of Infrared Department were also present during the occasion.



GEM PROFICIENCY COURSE

As part of Azaadi Ka Amrit Mahotsav, Naval Science & Technological Laboratory (NSTL) Visakhapatnam conducted a short-term course on GeM Proficiency in association with the Institute of Technology Management (ITM), Mussoorie during 13-14 December 2021. Shri GK Sahu, Sc 'F' and Course Director gave the welcome address and explained the importance of GeM and how NSTL is increasing procurement through GeM. He told that now GeM is has more than 34 lakhs of products being used in government offices for online purchase.

Vice Admiral Sreekumar Nair, AVSM, NM & DGNP in his address complimented NSTL for organising such a useful course. He told that GeM is transparent, cashless, contactless and paperless and hence must be utilised to the full extent possible in all government offices.

Shri Sangam Sinha, OS & DG (Resources & Materials), attended through VC, complimented NSTL for organising the course. He appreciated NSTL for increasing the usage of GeM portal for all procurements, through which

considerable price reduction can be obtained. He narrated GeM as a money saver to the exchequer. He suggested the participants enrich their knowledge on GeM usage.

Shri R Srihari, Sc 'G' was the Chief Mentor and Shri D Sreedhar Pattnayak, Sc 'E' was the Course Coordinator. Outstanding Scientists Shri PVS Ganesh Kumar, Shri BVSS Krishna Kumar, Dr A Srinivas Kumar, senior scientists, officers, members of NSTL civil employees union and works committee and staff of NSTL participated in the event.





HIGHER QUALIFICATION ACQUIRED



Dr Guddati Vamsi Krishna, Sc 'F' Advanced Systems Laboratory (ASL), Hyderabad has completed his PhD from Indian Institute of Technology (IIT) Hyderabad, Telangana for his thesis entitled *"Modelling and Experimental Investigations on the Buckling Behavior of FRP- Strengthened Metallic Shells"*.



Shri Sanjay Kumar Sahoo, Sc 'F', Advanced Systems Laboratory (ASL), Hyderabad has completed his PhD from National Institute of Technology (NIT) Warangal, Telangana for his thesis entitled *"Non-destructive Evaluation of Multi-layered GFRP Composite Structures Using Low Field NMR"*.

CRICKET TOURNAMENT AT DGRE, CHANDIGARH

Azadi ka Amrit Mahotsav, commemorating the 75 years of India's Independence number of events are being carried out by DGRE and in continuation one such event, a cricket tournament was organised by DGRE RDC, Manali in collaboration with Administration Manali and Winter Carnival Committee. Total ten nos. of teams participated in this tournament, viz., DGRE RDC Manali XI, Press Club Manali XI, Rotract XI, Bar Association XI, Administration Manali XI, MC Manali XI, 38 BRTF XI, HPSEBL Manali XI, ABVIMAS XI and GSSS Manali XI.

Dr Surender Thakur, SDM Manali inaugurated the tournament on 28 December 2021. Officials from DGRE, District Administration, Winter Carnival Committee members and participating teams attended



the same. The tournament was conducted in nine matches starting from 28 December 2021 to 3 January 2022 at Helipad ground of DGRE RDC, Manali. A DGRE team comprising of Shri Chander Kiran, Shri Manoj Kumar Thakur

(Captain), Shri Vijay Kumar, Shri Devender Kumar, Shri Dalveer Gussain, Shri.Vijender Kumar, Shri Kundan, Shri Mondal, Shri Rajesh Kumar, Shri Hemraj, Shri Teetu (Wicket Keeper) played and won the championship.

VISITORS TO DRDO LABS

CABS, BENGALURU

Secretary DDR&D and Chairman DRDO Dr G Satheesh Reddy visited Centre for Airborne Systems (CABS) on 1 February 2022 and reviewed the progress and status of the programme and projects sanctioned to the establishment.

DIBER, UTTARAKHAND

* Defence Institute of Bio-Energy Research (DIBER) has long been involved in providing technological solutions to farmers in border districts Uttarkashi, Chamoli and Pithoragarh. In addition, several technology disseminations have also been carried out in army units stationed at these districts. In recent years, the institute has aggressively taken initiatives in improving the livelihood opportunities and socioeconomic status of farmers of border regions. The annual income of the farmers registered with DIBER has evidently been improved in the last 2 to 3 seasons. As a result, there is more produce available in the market for consumption. The army is a lucrative consumer. GOC-in-C UB Area in his visit on 7 December 2021 expressed the requirement of organised sale outlets at remote villages for them to procure fresh food from the farmers.

Shri MP Tripathi, MD, Uttarakhand State Cooperative Federation (UCF), Dehradun visited DIBER recently and has promptly agreed to provide an organised sector for the sale of fresh produce by creating a



Secretary DDR&D and Chairman DRDO Dr G Satheesh Reddy during his visit to CABS, Bengaluru



Shri MP Tripathi, MD, Uttarakhand State Cooperative Federation (UCF), Dehradun in conversation with Director, DIBER

cooperative society. This is a major breakthrough because the establishment of such societies for selling fruits and vegetables will provide a much-needed organised sector in the area to serve as a market to the army and troops deployed in the region. It will also

provide the right price to farmers which would have long-term benefits in controlling migration from hills.

* Shri VS Rawat, Coordinator, Uttarakhand Defence Manufacturing visited Defence Institute

of Bio-Energy Research (DIBER) on 10 December 2021. Shri Rawat appreciated IS:15607 compliant bio-diesel production technology of DIBER, biomass to bio-energy solutions using pine needles, polyol production, hydroponics and in vitro culture technology of *Ophiocordyceps sinensis*. He also praised DIBER's efforts in reaching out to border districts for providing trainings and technologies in the field of vegetable production to farmers and ex servicemen. Shri Rawat agreed to channelise suitable industry partners from Uttarakhand to scale up and commercialisation of the technologies developed by DIBER, DRDO.



Shri VS Rawat, Coordinator, Uttarakhand Defence Manufacturing taking keen interest in DIBER products

DIHAR, LEH

Shri RK Mathur, Hon'ble Lt Governor Ladakh, UT visited DIHAR project sites at Karu and Thiksey village on 6 February 2022. He was briefed in by Dr OP Chaurasia, Director DIHAR, about the R&D activities being undertaken by DIHAR and how demonstrations are being conducted at grassroots field level to help disseminate the developed technologies.

First, Shri Mathur visited the winter potato storage structures at Karu, wherein Cooperative society has stored approx. 90 MT of potatoes and being supplied to army on regular intervals. Shri Mathur appreciated DIHAR for this zero-energy based green technology for storage of potatoes during winter months. He was accompanied by GOC 3 DIV Maj Gen RS Raman, YSM, officers of 503 ASC Karu, and members of cooperative society. He visited



the greenhouse technology demonstration at Thiksey village, wherein DIHAR has established greenhouses at farmers' field to show its efficacy. Looking at the quality vegetables being grown inside these greenhouses and listening to the growers, Hon'ble LG appreciated DIHARs efforts

and suggested UT Ladakh to further establish such greenhouses in the coming years in all villages of Ladakh. He was accompanied by Secretary Agriculture UT Ladakh, Chief Agriculture Officer, Leh and local farmers.

NPOL, KOCHI

Principal Advisor to the Govt. of India-DBL Heritage Project Dr C V Ananda Bose IAS (Retd) visited Naval Physical & Oceanographic Laboratory (NPOL), Kochi on 15 December 2021. Shri S Vijayan Pillai, OS & Director, NPOL received the guest and briefed him on the significant role of NPOL in the indigenisation of underwater sensor systems for the Indian Navy, realising the 'Atmanirbhar Bharat' vision of India. He also gave a detailed presentation on the ongoing and planned projects of NPOL. Dr Ananda Bose also interacted

with directors and programme directors.

As part of the on-going Azadi ka Amrit Mahotsav invited talk series at NPOL, Dr Bose addressed the scientists of NPOL. He emphasised the need for original research and opined that the future of our country lies in the hands of scientists and technologists who are involved in building a self-reliant India. He congratulated NPOL scientists for the indigenous design and development of sonar systems and significantly reducing the dependency on imported systems

in this niche area of strategic importance. Due to the prevailing Covid-19 pandemic situation, a large gathering was avoided and the function was a webcast within NPOL. Dr Bose visited the acoustic tank facility, equipped with state-of-the-art technology equipment for the evaluation of sensitive underwater sensors. He also visited the DARPAN simulation facility—a versatile sonar design and simulation centre capable of end-to-end simulation of sonar systems and the ocean environment for testing and evaluation prior to sea trials.



Dr CV Ananda Bose being briefed by Shri S Vijayan Pillai, OS & Director, NPOL