

Major DRDO achievements during 2020



108 Systems & Subsystems towards achieving 'Aatmanirbhar Bharat'

Responding to the call given by India's Prime Minister for *Atmanirbhar Bharat*, the DRDO has taken several initiatives to strengthen the indigenous defence ecosystem. A DRDO delegation has appraised the Defence Minister Rajnath Singh on 108 systems and subsystems identified for design and development by Indian Industry.

LCA Navy operates from INS Vikramaditya

After completing extensive trials on the Shore Based Test Facility (SBTF), Naval version of Light Combat Aircraft (LCA) carried out a successful arrested landing onboard INS *Vikramaditya* on 11 January 2020 (see *Vayu Issue II/2020*).

'Atulya' Air Defence Fire Control Radar (ADFCR)

Air Defence Fire Control Radar (ADFCR) in conjunction with anti-aircraft guns form part of the Ground Based Air Defence System whose main purpose is effective point defence against air threats at short and very short ranges during day and night under all weather conditions, also in presence of enemy jamming. The radar has been developed as an indigenous solution

after DAC approval for large quantities for Indian Army. During February 2020, Phase-I of User Assisted Technical Trials (UATT) i.e. high-altitude low temperature tests were completed.

Software Defined Radio (Airborne)

The SDR secure indigenous system has legacy communication, digital voice/data communication, secure digital voice/data communication for Naval applications with 3 channel, 4-channel for tactical communication and single channel operation in V/UHF and UHF band. During March 2020, two 4-channel CEMILAC SOFT certified SDR-AR system installation and integration were successfully carried out on two Indian Naval Dornier 228s with SDR-AR ground station at HAL.

Dhruvastra 3rd generation helicopter launch anti-tank guided missile

The DRDO successfully conducted three flight tests of its indigenously-developed anti-tank guided missile (ATGM) *Dhruvastra* at the Integrated Test Range at Chandipur in Odisha, in July 2020. This is considered as "one of the most advanced anti-tank weapons extant."

Hypersonic Technology Demonstrator Vehicle flight-tested

The DRDO-developed hypersonic air-breathing scramjet technology was flight tested with the Hypersonic Technology Demonstration Vehicle (HSTDV) at Wheeler Island, off the coast of Odisha in September 2020. The Vehicle was launched using a proven solid rocket motor, which took it to an altitude of 30 kms, where the aerodynamic heat shields were separated at hypersonic Mach number. The hypersonic combustion was sustained and the cruise vehicle continued on its desired flight path at a velocity of six times the speed of sound for more than 20 seconds.

Multi Influence Ground Mine (MIGM)

The Multi Influence Ground Mine (MIGM) has been designed and developed by NSTL, to give the Indian Navy an edge against modern stealth ships. The MIGM is deployable from ships, submarines, and has successfully completed Technology Demonstrations during various Technical Trials.

'Uttam' Active Electronically Scanned Array Radar

The *Uttam* Active Electronically Scanned Array Radar, being developed by DRDO, is a multimode, solid-state active phased array