

## Challenge No: 4

Directorate & organization	DSOD
Problem Statement/ Challenge title	To design and develop a free flooding submersible craft capable of operating both on surface and fully submerged in water for discreet insertion and extraction of combatants (at least six) for special operations
Challenge brief/ definition	These are specialised craft capable of carrying out induction into designated coast to undertake special operation missions. The available means is through inflatable craft, these are not discreet platforms and thus not suitable for covert operations and have a high likelihood of detection by the adversary. The solution offered has to be compact and be capable of being launched from a ship / torpedo tube of a submarine.
Future Expectations	For special operations
MoQ	05
Project Officer	Cdr Anjani Kumar

## Challenge No: 5

Directorate & organization	DSOD
Problem Statement/ Challenge title	To design and develop a submersible boat capable of operating at high speed on surface and fully submerged in water as well at comparatively lower speeds for discreet insertion and extraction of combatants (at least eight) for special operations
Challenge brief/ definition	These are specialised craft capable of carrying out clandestine induction into designated coast to undertake beach surveillance for enemy presence, direct attack mission, hostage rescue situation at Sea or on land and other missions requiring covert insertion of the special operatives with full combat load.
Future Expectations	For special operations
MoQ	06
Project Officer	Cdr Anjani Kumar

## Challenge No: 53

Directorate & organization	DNAS
Problem Statement/ Challenge title	Multi Utility Long Endurance (MULE)
Challenge brief/ definition	<p>Design and Development, qualification, certification and trials of NSUAS class Multi Utility Long Endurance (MULE) drones for use in maritime domain for C4ISR duties. MULE should be deployable from ships and should be recoverable from launching as well as an alternate platform afloat up to sea state 3 (essential) or sea state 4 (desirable). The RPA will be launched from a ship and used for surveillance including SIGINT, COMINT (desirable), Target Acquisition, Reconnaissance and building MDA (Maritime Domain Awareness) around a Task Group. The secondary roles of RPA would include anti-piracy, anti-terrorist activities and assistance in Search and Rescue (SAR). The payload should be modular and include inter alia EO/IR, AIS, Maritime Patrol Radar, EW and communication relay. The minimum payload capacity should be 50 Kgs. The endurance of the RPA should preferably be 12 hrs with standard payload plus one special payload (EO/IR + AIS) and would depend on the payload carried.</p>
Future Expectations	<p>a) Obviate dependency on foreign OEMs for niche technology/ spares/ service. (b) Reduction in cost. (c) Building expertise in niche technology.</p>
MoQ	10
Project Officer	Cdr Amit Kumar

## Challenge No: 56

Directorate & organization	DNA
Problem Statement/ Challenge title	Next Generation Helo Harnessing And Traversing System (NGHHTS)
Challenge brief/ definition	Next generation helo harnessing and traversing system shall be capable of assisting the pilot in landing the helicopter in the designated landing area, harness the helicopter immediately on landing and thereafter traversing the helicopter to the hangar for storage and from hangar to landing grid for take-off. Presently, Helo traversing system in use are manpower intensive and restrict the landing area of the pilot to a limited envelope. NGHHTS is envisioned to carry out the dual function of securing helicopter following landing until release (prior take-off) as well as traverse the helicopter in and out of hangar without any manual intervention.
Future Expectations	The utility of NGHHTS on ships will increase the operating envelope of pilots and also reduce the manpower intensive task of harnessing and traversing the helo in/out of hangar.
MoQ	Will be intimated
Project Officer	Will be intimated

## Challenge No: 57

Directorate & organization	DME
Problem Statement/ Challenge title	Environmentally benign fixed firefighting (suppression) system for machinery spaces
Challenge brief/ definition	The machinery spaces inside a warship consists of various engineering equipment (that employs fuel oil (diesel), lube oil etc.) and other inflammable material (such as lagging, cleaning material, electrical cabling) that could become the source of a fire. Therefore, fixed firefighting systems such as Halon, CO2, Water Mist, FM 200, NOVEC 1230 etc. are installed in the machinery spaces to suppress fire caused due to the aforesaid sources. However, the extinguishing agents/ systems that are currently being used in IN are lethal, high Ozone Depletion Potential (ODP)/ Global Warming Potential (GWP)/ being imported. Hence, there is a requirement to develop a fixed fire suppression system for machinery spaces that employs clean agents which are environmentally benign and easily available in the Indian market.
Future Expectations	a) Obviate dependency on foreign OEMs for niche technology/ spares/ service. (b) Reduction in cost. (c) Building expertise in niche technology.
MoQ	Will be intimated
Project Officer	Will be intimated

## Challenge No: 58

Directorate & organization	DNA
Problem Statement/ Challenge title	Autonomous Hull Maintenance Crawler
Challenge brief/ definition	<p>The repetitive and labour-intensive nature of many maintenance activities during the refit of ships/ submarines creates an ideal scenario for capability augmentation by the introduction of automation and robotics. The challenge is to make a remotely operable crawler capable of attaching to the ship's hull onto which respective modules/ attachments for hull cleaning, hydro-jetting, hydro-blasting and vacuum blasting can be affixed for undertaking associated dry-dock maintenance activities. This will greatly reduce the labour-intensive nature of dry dock works (viz, scaffolding, rigging of heavy-duty equipment in dry dock etc.) while ensuring saving in time and enhancing safety of personnel in dry dock. Hull cleaning, hydro-jetting, hydro-blasting, hull survey, and painting are repetitive activities undertaken during the dry dock phase of ship/submarine maintenance. These activities are repetitive in nature, labour-intensive and are traditionally undertaken manually using scaffoldings and other COTs equipment.</p>
Future Expectations	<p>The product should be a remotely operable magnetic hull surface and ship-side crawler with replaceable modules for blasting, hull survey and paint application in dry dock. It will be remotely operated by a human operator and the crawler should be able to move on the surface of the entire underwater external hull when the ship is docked.</p>
MoQ	Will be intimated
Project Officer	Will be intimated