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CONTENTS

S. No.	TITLE	Page No.
DRDO News		1-3
DRDO Technology News		1-3
1.	Indian Subs Will Be Fitted With AIP Made in India: DRDO Chief	<i>Financial Express</i> 1
2.	DRDO Develops Indigenous AIP Technology; Will Retrofit All its Kalvari-Class Attack Subs	<i>Indian Defence News</i> 2
Defence News		4-10
Defence Strategic: National/International		4-10
3.	रक्षा मंत्री श्री राजनाथ सिंह ने भूतपूर्व सैनिक अंशदायी स्वास्थ्य योजना (ईसीएचएस) के लिए दवाओं और उपभोग्य वस्तुओं की खरीद हेतु बढ़ी हुई मौद्रिक सीमा को मंजूरी दी	<i>Press Information Bureau</i> 4
4.	Raksha Mantri Shri Rajnath Singh approves enhanced monetary limits for procurement of Drugs and consumables for Ex-Servicemen Contributory Health Scheme (ECHS)	<i>Press Information Bureau</i> 5
5.	रक्षा सचिव और सऊदी अरब के रणनीतिक मामलों के उप रक्षा मंत्री ने द्विपक्षीय रक्षा सहयोग को बढ़ाने के तरीकों के बारे में विचार-विमर्श किया	<i>Press Information Bureau</i> 6
6.	Defence Secretary & Saudi Arabia's Deputy Minister of Defence for Strategic Affairs discuss ways to enhance bilateral defence cooperation	<i>Press Information Bureau</i> 7
7.	Defence Innovations by 22 Startups Demonstrated before Personnel	<i>The Times of India</i> 7
8.	First Flight of Advanced Light Helicopter with 2-Segmented Main Rotor Blades, Pre-Cone Main Rotor Head Carried Out	<i>Indian Defence News</i> 8
9.	Indian Ocean a Great Asset to India, Has Been an Ocean of Peace: NSA Ajit Doval	<i>Financial Express</i> 9
Science & Technology		11-14
10.	DRDO Chairman to Inaugurate ISTF Tomorrow	<i>The Hans India</i> 11
11.	PSLV-C53 Mission: ISRO Sends Three Satellites from Singapore to Space in Textbook Launch	<i>India Today</i> 11
12.	Explained: What is ISRO's 'POEM' Platform?	<i>The Indian Express</i> 13
13.	NASA to Release 'Deepest Image of Universe Ever' Taken with James Webb Space Telescope	<i>The Indian Express</i> 14

Thu, 30 Jul 2022

Indian Subs Will Be Fitted With AIP Made in India: DRDO Chief

In a major boost to Atma Nirbhar Bharat initiative of the government, the Fuel Cell based Air Independent Propulsion (AIP) System of the Defence Research and Development Organisation will soon be ready to be fitted on board INS Kalvari. In an exclusive conversation with Financial Express Online in New Delhi, Secretary, Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy said “When the boat comes up for retrofitting in 2025, it will be fitted with the indigenous AIP which has been made in India by DRDO and Indian industry.”



“Work is going on to develop a module which has to be fitted on the submarine when it comes. There are industry partners including Larsen & Toubro and Thermax, and the Naval Materials Research Laboratory (NMRL) of DRDO which has developed this.” The AIP which is being developed here in India is based on the specifications and requirements shared by the end user – the Indian Navy.

The AIP which is being developed here in India is based on the specifications and requirements shared by the end user – the Indian Navy.

Why is AIP needed?

Financial Express Online has reported earlier that AIP is a critical technology needed for the Kalvari class submarines that will make the diesel electric submarine more lethal by enabling it to stay under water for an extended period of time. In 2021, in an official statement DRDO has said that the Fuel cell-based AIP has merits in performance as compared to other technologies.

How? Because it uses oxygen and hydrogen which is used for generating electricity and there are no moving parts involved which means it makes the submarine not only quieter than a nuclear submarine but also ensures there is minimal waste. In a nuclear submarine the reactor of the ship which is constantly pumping coolant to maintain temperatures of the engine makes a lot of noise. However, AIP equipped submarines remain silent, making them more deadly by enhancing the submerged endurance several fold. Also with fuel-cell based AIP it will help in

taking advantage of internal refraction in equatorial waters because of the differences in temperatures within the ocean and on the surface.

Plans of the Indian Navy

As has been reported in Financial Express Online all the submarines under Project 75 – Kalvari class will be fitted with AIP when they come up for their first upgrades starting 2025.

Earlier the date for the first boat to come up for upgrade was mentioned by top officials as 2023. Six 1615 tonne submarines have been built by Mazagon Dockyards Limited (MDL) Mumbai, and in joint collaboration with the French Naval Group based on Scorpene design.

Which other countries have AIP technology in the world?

Germany, South Korea and France. And soon India will join this exclusive group.

<https://www.financialexpress.com/defence/indian-subs-will-be-fitted-with-aip-made-in-india-drdo-chief/2578408/lite/>



Fri, 01 Jul 2022

DRDO Develops Indigenous AIP Technology; Will Retrofit All its Kalvari-Class Attack Subs

In an exclusive conversation with Financial Express Online in New Delhi, Secretary, Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy said “When the boat comes up for retrofitting in 2025, it will be fitted with the indigenous AIP which has been made in India by DRDO and Indian industry.”



A boost for Atmanirbhar Bharat campaign, AIP-fitted submarines remain sub-surface for a longer period and are quieter than nuclear-powered submarines. The Indian Navy now plans to retrofit all its Kalvari class non-nuclear attack with AIP during their first upgrade, expected around 2025. A day before INS Karanj attack submarine is inducted into Indian Navy, the Defence Research and Development Organization (DRDO) conducted the final development test of Air Independent Propulsion (AIP) in Mumbai a major step that will make Indian submarines more lethal. AIP allows a submarine to be submerged for longer periods under water and makes the sub-surface platform more deadly by making it quieter than a nuclear submarine.

The Indian Navy now plans to retrofit all its Kalvari class non-nuclear attack with AIP during their first upgrade, expected around 2025. The 1,615 ton Kalvari class submarine is being built by Mazagon Dockyards Limited in collaboration with French Naval Group and is based on

Scorpene design. INS Karanj, third of the class, is expected to be commissioned tomorrow. The development of AIP technology is a major boost for the Atmanirbhar Bharat campaign since only the US, France, China, UK and Russia have this key technology. The DRDO's AIP technology is based on a Phosphoric Acid Fuel Cell and the last two Kalvari class submarines will be powered by it. The AIP design was tested on land in Mumbai on Monday night, the last of a series of tests.

The AIP or marine propulsion technology allows non-nuclear submarines to operate without access to atmospheric oxygen (through snorkel or surfacing) and augments the diesel-electric propulsion system of attack submarines. This means that the AIP fitted submarine does not have to surface for charging its batteries and remains underwater for long periods. The AIP is retrofitted into existing submarine hulls by adding an additional hull section. The AIP equipped submarines are identified as SSP while classic diesel attack submarines carry the SSK classification. While the nuclear submarine generates noise due to the ship's reactor constantly pumping coolant to maintain temperatures of the engine, the AIP-equipped submarine maintains a lethal silence. The new technology will add to lethality of Indian submarines, which also take advantage of internal refraction in equatorial waters due to differences in temperatures on the surface and within the ocean.

The DRDO's AIP technology has also got a pat in the back from the French, who were in touch with the Indians in the context of Kalvari class manufacturing. Despite urgent requests, the French have decided not to upgrade the Pakistani Agosta 90 B submarines with AIP technology, forcing Islamabad to either go to China or Turkey.

<http://www.indiandefensenews.in/2022/07/drdo-develops-indigenous-aip-technology.html?m=1>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

गुरुवार, 30 जून 2022 6:06 अपराह्न

रक्षा मंत्री श्री राजनाथ सिंह ने भूतपूर्व सैनिक अंशदायी स्वास्थ्य योजना (ईसीएचएस) के लिए दवाओं और उपभोग्य वस्तुओं की खरीद हेतु बड़ी हुई मौद्रिक सीमा को मंजूरी दी

रक्षा मंत्री श्री राजनाथ सिंह ने आज प्राधिकृत स्थानीय औषधि विक्रेताओं (एएलसी) से पॉलीक्लिनिक की सभी श्रेणियों में अप्राप्य (एनए), आकस्मिक, जीवन रक्षक और आवश्यक दवाओं की खरीद के लिए मौद्रिक सीमा को 100% तक बढ़ाने को मंजूरी दे दी। इस पहल से ईसीएचएस लाभार्थियों के लिए दवाओं की आसानी से और समय पर उपलब्धता सुनिश्चित होगी। (टाइप ए और बी 2.5 लाख रुपये से 5 लाख रुपये तक, टाइप सी 1.5 लाख रुपये से 3 लाख रुपये तक और टाइप डी 1 लाख रुपये से 2 लाख रुपये तक)।

दवाइयों की आपूर्ति को लेकर पूर्व सैनिकों की ओर से तरह-तरह के अभ्यावेदन पत्र आए हैं। सरकार पहले ही ईसीएचएस लाभार्थियों के लिए दवाओं की खरीद की प्रक्रियाओं में कई संशोधन कर चुकी है। ईसीएचएस पॉलीक्लिनिक वाले सभी केंद्रों में, स्थानीय मेडिकल स्टोर/औषधि विक्रेता आवश्यक आधार पर अप्राप्य (एनए), आकस्मिक, जीवन रक्षक और आवश्यक दवाओं की आपूर्ति के लिए सूचीबद्ध हैं। पैनल में शामिल स्थानीय मेडिकल स्टोर/औषधि विक्रेता को स्टेशन कमांडर द्वारा गठित अधिकारियों के एक बोर्ड द्वारा नियंत्रित किया जा रहा है। इस सीमा से अधिक के किसी भी व्यय को एमडी, ईसीएचएस द्वारा अनुमोदित किया जाएगा। यदि आवश्यक हो तो सीओ, ईसीएचएस द्वारा अन्य ईसीएचएस पॉलीक्लिनिक से आवश्यक धनराशि का पुनः नियोजन कर सकते हैं।

यह देखा जा सकता है कि सरकार ने 25.03.2022 को खुदरा बाजार से खरीदी गई उन दवाओं और उपभोग्य सामग्रियों की लागत की प्रतिपूर्ति के लिए पहले ही 15 दिनों से 30 दिनों की अधिकतम अवधि के लिए मंजूरी दे दी थी, जो ईसीएचएस पॉलीक्लिनिक / अधिकृत स्थानीय औषधि विक्रेता के पास उपलब्ध न हों।

दवाओं और उपभोग्य सामग्रियों के अधिकतम मूल्य के अधीन, सामान्य परिस्थितियों में हर बार 25,000/- रुपये से अधिक नहीं और विशेष परिस्थितियों में हर बार 75,000/- रुपये से ज्यादा नहीं, कैंसर की दवाओं के मामले को छोड़कर जहां दवाओं और उपभोग्य वस्तुओं का अधिकतम मूल्य हर बार के 5 लाख रुपये होंगे जो पहले हर बार के 2 लाख रुपये था। यह पहल पूर्व सैनिकों को आवश्यक दवाएं उपलब्ध कराने की दिशा में एक बड़ा कदम साबित होगी।

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1838343>



Press Information Bureau
Government of India

Ministry of Defence

Thu, 30 Jul 2022 6:28PM

Raksha Mantri Shri Rajnath Singh approves enhanced monetary limits for procurement of Drugs and consumables for Ex-Servicemen Contributory Health Scheme (ECHS)

Raksha Mantri Shri Rajnath Singh today approved the enhancement of the monetary ceiling for purchase of Not Available (NA), emergent, lifesavings and essential drugs by 100% in all categories of polyclinics from Authorised Local Chemists (ALC). This will ensure easy & timely availability of medicines for ECHS beneficiaries. (Type A & B from Rs 2.5 lakh to 5 Lakh, Type C from Rs 1.5 lakh to 3 Lakh, Type D from Rs 1 lakh to 2 Lakh).

There have been various representations from the veterans regarding supply of medicines. The Government has already undertaken a series of modifications to procedures of procurement of medicines for ECHS beneficiaries. In all stations with ECHS Polyclinics, local medical stores/chemists are empanelled for supply of Not Available (NA), emergent, life-saving and essential drugs on as required basis. The empanelled local medical stores/chemists are being done by a Board of Officers constituted by the Station Commander. Any expenditure above this limit will be approved by MD, ECHS. The CO, ECHS may re-appropriate the required funds from other ECHS Polyclinics, if required.

It may be seen that the Government on 25.03.2022 had already conveyed the sanction for reimbursement of cost of medicines and consumables, purchased from open market, not Available at ECHS Polyclinic/Authorized Local Chemist for a maximum period of 30 days from earlier 15 days at a time subject to the maximum value of medicines and consumables not exceeding Rs. 25,000/- each time under the general conditions and Rs. 75,000/- each time under the special conditions except in the case of Cancer Medicines where the maximum value of medicines and consumable would be Rs.5 lakhs each time from the earlier Rs.2 lakhs each time. This will be a big move towards making essential medicines available to the Veterans.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1838285>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

गुरुवार, 30 जून 2022 6:06 अपराह्न

रक्षा सचिव और सऊदी अरब के रणनीतिक मामलों के उप रक्षा मंत्री ने द्विपक्षीय रक्षा सहयोग को बढ़ाने के तरीकों के बारे में विचार-विमर्श किया

5वीं भारत-सऊदी अरब रक्षा सहयोग संयुक्त समिति की बैठक नई दिल्ली में आयोजित हुई

सऊदी अरब के रणनीतिक मामलों के उप रक्षा मंत्री श्री अहमद ए. असीरी ने आज नई दिल्ली में रक्षा सचिव डॉ. अजय कुमार से मुलाकात की। उन्होंने दोनों देशों के बीच रक्षा सहयोग बढ़ाने के तरीकों के बारे में विचार-विमर्श किया। श्री अहमद ए. असीरी ने रक्षा सचिव को 29 जून, 2022 को आयोजित 5वीं भारत-सऊदी अरब रक्षा सहयोग संयुक्त समिति (जेसीडीसी) की बैठक के बारे में जानकारी दी।

जेसीडीसी बैठक की सह-अध्यक्षता संयुक्त सचिव (सशस्त्र बल) श्री दिनेश कुमार और श्री अहमद ए. असीरी ने की थी। बैठक के दौरान दोनों पक्षों ने दोनों सेनाओं के बीच संयुक्त अभ्यास, विशेषज्ञों के आदान-प्रदान और उद्योग सहयोग सहित संबंधों में हुई प्रगति की समीक्षा की। रक्षा उद्योग सहयोग बढ़ाने के लिए संयुक्त उद्यम हेतु नए रास्तों की पहचान करने और पारस्परिक हित के क्षेत्रों की जांच करने का निर्णय लिया गया। मौजूदा संयुक्त नौसैनिक अभ्यासों का दायरा और जटिलताओं को बढ़ाने तथा अन्य क्षेत्रों में द्विपक्षीय अभ्यासों के विस्तार के बारे में भी विचार-विमर्श किया गया।

यह भी सहमति व्यक्त की गई है कि जेसीडीसी की अगली बैठक का आयोजन वर्ष 2023 में पारस्परिक रूप से सुविधाजनक तिथियों पर सऊदी अरब में किया जाए। जेसीडीसी भारत और सऊदी अरब के रक्षा मंत्रालयों के बीच एक शीर्ष निकाय है जो द्विपक्षीय रक्षा सहयोग के सभी पहलुओं की व्यापक समीक्षा और मार्गदर्शन करता है।

उप मंत्री ने चेयरमैन चीफ ऑफ स्टाफ कमेटी (सीआईएससी) के चीफ ऑफ इंटरग्रेटेड डिफेंस स्टाफ के साथ भी बातचीत की। प्रतिनिधिमंडल के लिए एक रक्षा उद्योग बातचीत भी आयोजित की गई जिसमें कई भारतीय रक्षा उद्योगों ने भाग लिया।

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1838272>



**Press Information Bureau
Government of India**

Ministry of Defence

Thu, 30 Jul 2022 3:29PM

Defence Secretary & Saudi Arabia's Deputy Minister of Defence for Strategic Affairs discuss ways to enhance bilateral defence cooperation

5th India – Saudi Arabia Joint Committee on Defence Cooperation held in New Delhi

Saudi Arabia's Deputy Minister of Defence for Strategic Affairs Mr Ahmed A Aseeri called on Defence Secretary Dr Ajay Kumar in New Delhi on June 30, 2022. They discussed ways to enhance defence cooperation between the two countries. The Deputy Minister briefed the Defence Secretary about the 5th meeting of India – Saudi Arabia Joint Committee on Defence Cooperation (JCDC) that was held on June 29, 2022. The JCDC meeting was co-chaired by Joint Secretary (Armed Forces) Shri Dinesh Kumar and Mr Ahmed A Aseeri. During the meeting, the two sides reviewed the progress made in military-to-military engagements, including joint exercises, expert exchanges and industry cooperation. It was decided to identify new avenues and examine areas of mutual interest for Joint Venture in order to enhance defence industry cooperation. Enhancing the scope and complexities of the existing joint naval exercises and expanding bilateral exercises in other domains were also discussed.

It was agreed to hold the next meeting of JCDC in Saudi Arabia on mutually convenient dates in 2023. The JCDC is the apex body between the Defence Ministries of India and Saudi Arabia to comprehensively review & guide all aspects of bilateral defence cooperation. The Deputy Minister also interacted with the Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee (CISC). A Defence Industry interaction was also organised for the delegation in which a number of Indian defence industries participated.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1838207>

THE TIMES OF INDIA

Thu, 30 Jul 2022

Defence Innovations by 22 Startups Demonstrated before Personnel

Ahmedabad-based private university recently organised a demonstration of defence innovations. Some 22 startups in the defence segment showcased their products and prototypes before 20 personnel of the Indian Army led by Major General Mohit Wadhva, GoC, Golden Katar Division. The demonstration was organised by the Defence Design and Technology Incubator of

India (DDTII) at Karnavati University at Uvarsad, near Gandhinagar at the varsity's campus. The start-ups which will presented their information include Holo World, Sagar Defence Engineering, BigBangBoom Solutions, ArmedBots, SecureFire Safety Industries, RDL Technologies, Plutomen Technologies, Disecto Technologies, Achuk Environmental Solutions, Teamcognito Solutions, SpaceFields, EyeROV Technologies and Elcomponics Aerob Technologies, among others.

Ritesh Hada, president of the varsity said, "The idea behind this demonstration is to let startups understand the ground-zero challenges faced by the Indian Defence Forces and let them know about the innovations. This will mark the beginning of a healthy dialogue between startups and the defence sector personnel that will provide an opportunity to startups to understand the requirements so that their needs can be better addressed with ultramodern technology."

<https://timesofindia.indiatimes.com/home/education/news/defence-innovations-by-22-startups-demonstrated-before-army-personnel/articleshow/92575895.cms>



Fri, 01 Jul 2022

First Flight of Advanced Light Helicopter with 2-Segmented Main Rotor Blades, Pre-Cone Main Rotor Head Carried Out

The first flight of Advanced Light Helicopter (wheeled version) with segmented MRBs (Main Rotor Blades) and MRH (Main Rotor Head) in pre-cone configuration was carried out in Bangalore, according to an official statement issued by Hindustan Aeronautics Limited (HAL) on Thursday. The flight was carried out by Wing Cdr Unni Pillai, ED (CTP-RW). The two-segment Main Rotor Blades (MRBs) and pre-cone configuration of Main Rotor Head (MRH) are developed to address the stringent stowage dimension requirement specified by the Indian Navy and to improve the Time Between Overhauls (TBO) life of the Main Gear Box, said R Madhavan, Chairman and Managing Director, HAL in an official statement.



On completion of mandated ground testing of various factors, the prototype helicopter was built with 'Segmented Pre-Cone MRBs' and 'Pre-Cone MRH'. The RTB runs, Ground Resonance test and Clamped Power Ground Run were carried out to be found satisfactory, the statement read. The Indian Navy and Coast Guard are operating ALH for the last 18 years supporting their operations for various missions. However, the ship deck-based operations of ALH have been limited as the storage size required for ALH exceeds the hangar sizes available in Navy ships, the statement said.

The segmented blade feature reduces the folded length and width of ALH making it compatible with the hangar space available on most Indian Navy ships. Further, the time required for folding or unfolding operations is reduced, it added. Arup Chatterjee, Director (Engg. and Research and

Development), HAL also said the project was carried out in the shortest possible time with the support of RCMA and DGQA.

<http://www.indiandefensenews.in/2022/07/first-flight-of-advanced-light.html?m=1>



Thu, 30 Jul 2022

Indian Ocean a Great Asset to India, Has Been an Ocean of Peace: NSA Ajit Doval

To ensure a seamless approach to India's maritime security cutting across geographical and functional domains, security forces, agencies and all stakeholders in maritime affairs met to address maritime contingencies which require urgent and coordinated response. Emphasising the salience of maritime security in an increasingly complex and challenging landscape, National Security Advisor Ajit Doval on Thursday said, "In view of geopolitical developments, seas have become much more important." The NSA asked all the agencies and stakeholders in the maritime sphere to work together in line with India's approach of growth and development. Highlighting the example of UNCLOS, NSA said that nations cannot take decisions unilaterally and underscored the need for seamless coordination.

"The trajectory of this nation is well defined; we know where we are going. And when our time comes, India will not be able to become the power it deserves to be unless it has a very strong maritime system. This is perfect timing for it," said the NSA. According to the NSA with the changing geopolitical scenario, the Indian Ocean which is a great asset to India has been an ocean of peace and is now becoming more competitive. He urged all to be vigilant and protect it.

"With the cardinal principle of security, our vulnerabilities are directly proportional to our assets. More we develop more assets we create, more prosperous we get, greater would be vulnerability and greater would be needed for security." He also talked about the neighbouring countries in the region and cited the example of how countries came together recently for the Colombo Security Conclave which was held to tackle maritime threats in the Indian Ocean.

Today's meeting was attended by senior officials from important central government ministries, security forces and all agencies dealing with maritime affairs. Also present were maritime security coordinators from 13 coastal states and UTs. And the Chief of Indian Navy Admiral R Hari Kumar and Deputy NSAs from NSCS were present too. Several crucial policy issues related to the maritime security including security of ports, and to identify gaps the stakeholders reviewed existing policies and orders on maritime security, standard operating procedures for maritime contingencies, and creation of a maritime database.

In the last few years, the Government has given special attention to the maritime domain under the SAGAR initiative of Prime Minister Narendra Modi launched in 2015, India's Indo-Pacific Policy in 2018 and focus on the blue economy. Therefore the constitution of the MAMSG by bringing together diverse stakeholders at the Centre and coastal States/UTs is a significant step.

More about Multi-Agency Maritime Security Group (MAMSG)

To discuss important policy matters which impact maritime security, the first meeting of the MAMSG was inaugurated by the NSA. It was chaired by the National Maritime Security Coordinator Vice Admiral G Ashok Kumar (Retd). He is India's first NMSC and took charge earlier this year in February. In 2021 November, the proposal for the creation of the NMSC post was cleared by the Cabinet Committee on Security (CCS). The NMSC office is under the National Security Council Secretariat headed by NSA Ajit Doval and Vice Admiral G Ashok Kumar (Retd) was appointed as the first NMSC. His role is to ensure cohesion among various stakeholders – Indian Navy, the Coast Guard, security agencies, the coastal states and the UTs.

Importance of MAMSG

Following the 26/11 the government has been taking several steps to ensure there are no more attacks through the coastal route. There are several layers of maritime surveillance in place.

These steps are taken to ensure coastal and maritime security is critical for India as it has a vast coastline of around 7,500 kms. And with the growing threats in the region, especially Chinese belligerence, efforts are made to further strengthen maritime security and surveillance of India's coastline and the Indian Ocean Region (IOR). The MAMSG is envisaged to provide a standing and effective mechanism to ensure coordination of all aspects of maritime security including coastal and offshore security, as well as fill the institutional, policy, technological and operational gaps in meeting present and future security challenges. Importantly, the group will also address maritime contingencies requiring an urgent and coordinated response. With the setting up of the NMSC, a longstanding recommendation of the 2001 Group of Ministers (GOM) Report on 'Reforming the National Security System' has finally been implemented. According to officials the MAMSG will provide an effective mechanism to ensure coordination of all aspects of maritime security including coastal and offshore security. And will help in plugging the operational and technological gaps needed to meet the emerging security challenges.

India is a maritime nation

It has interests that are beyond the country's maritime zones. Almost 95 percent of India trade by volume is through the sea route involving 12 major and around 200 non-major ports. India's 90 percent hydrocarbon requirements are met through seaborne imports and offshore production.

Blue economy

As India's economy grows, so will its dependence on maritime resources and sea borne trade. Marine fisheries sector is one major contributor to the economy and livelihood of the fishing community. There are almost three lakh fishing vessels. At the inaugural meeting, a number of crucial policy issues on maritime security were taken up, including mapping of existing orders and policies on maritime security to identify gaps, review of standard operating procedures for maritime contingencies, security of ports and coastal infrastructure, creation of a national maritime database, capacity building of coastal States and UTs, promotion of blue economy, etc.

A separate session was dedicated to discussion with State Maritime Security Coordinators.

<https://www.financialexpress.com/defence/indian-ocean-a-great-asset-to-india-has-been-an-ocean-of-peace-nsa-ajit-doval/2578198/lite/>

Fri, 01 Jul 2022

DRDO Chairman to Inaugurate ISTF Tomorrow

The temple city, which is fast emerging as a knowledge hub in AP, is going to add one more feather to its cap. DRDO Chairman and Secretary Defence Research (GoI) G Satheesh Reddy will inaugurate the 'Innovation, Science & Technology Foundation (ISTF)', a non-profit organisation based in the pilgrim city for promotion of science on July 2. A host of Vice-Chancellors, senior academicians, scientists, technocrats and bureaucrats from various educational and other establishments based at Tirupati will participate.

Speaking to media here on Thursday, ISTF president Prof D Narayana Rao said that the reason for choosing Tirupati to set up the Foundation was the functioning of premier institutions like IIT, IISER and also many universities here. The objectives of the Foundation are to promote the scientific temper and a zeal for science among students from university to school level. The Foundation also aims to institute Young Scientist Awards, Lifetime Achievement Awards and also arrange visits for students and teachers to scientific organisations like SDSC, SHAR Centre and National Atmospheric Research Laboratory to update knowledge and motivate them to take up science and technology as their career. More importantly, he said the Foundation headquartered at Tirupati, will also interact with the TTD to focus on critical areas concerning the pilgrim management, waste management, water and bio-aesthetic management, water conservation etc.

<https://www.thehansindia.com/andhra-pradesh/drdo-chairman-to-inaugurate-istf-tomorrow-751359?infinitemscroll=1>



Thu, 30 Jul 2022

PSLV-C53 Mission: ISRO Sends Three Satellites from Singapore to Space in Textbook Launch

The Indian Space Research Organisation (Isro) on Thursday launched three satellites for Singapore from its Satish Dhawan Space Centre, Sriharikota. The PSLV-C53 mission lifted off at 06:02 pm to deploy the three satellites in Low Earth Orbit (LEO). The spacecraft carried DS-EO satellite, NeuSAR, a 155 kg satellite, and Scoob-1 of Nanyang Technological University (NTU), Singapore. This was the second launch mission for Isro in the year and was the second commercial launch for the Indian space agency.

The DS-EO satellite carried an Electro-Optic, multi-spectral payload with 0.5 m resolution imaging capability. Meanwhile, the SCOOB-I is the first satellite in the Student Satellite Series (S3-I), a hands-on student training program from the Satellite Research Centre (SaRC) at Singapore's NTU School of Electrical and Electronic Engineering.

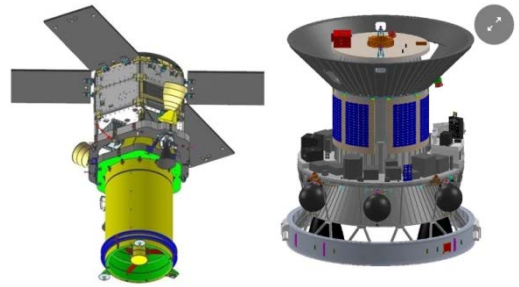


Figure 1 DS-EO, a 365 kg and NeuSAR, a 155 kg satellite both belonging to Singapore and built by Starec Initiative, Republic of Korea.

Isro is attempting a new experiment with the four-stage rocket and use the fourth stage (PS4) to perform PSLV Orbital Experimental Module (POEM) activity. Under this, the team will perform in-orbit scientific experiments using the spent PS4 stage as an orbital platform. POEM carries six payloads, including two from Indian Space Start-ups M/s Digantara and M/s Dhruva Aerospace, enabled through IN-SPACE and NSIL. The PSLV is Isro's workhorse and has been its most successful launch vehicle developed indigenously. It has been launched 54 times in the past and was also responsible for launching India's highly successful Chandrayaan-1 mission in 2008 and the Mars Orbiter Spacecraft in 2013 that later traveled to Mars. The launch vehicle is capable of taking up to 1,750 kg of payload to Sun-Synchronous Polar Orbits of 600 km altitude. It has also been used to launch various satellites into Geosynchronous and Geostationary orbits, like satellites from the IRNSS constellation.



PSLV-C53 ahead of launch on the pad

PSLV is 44 meters in length and has a diameter of 2.8 meters with a lift off mass of 320 tons. The second launch pad has so far conducted 29 other launches. This was the second PSLV mission of the year after Isro successfully launched the PSLV-C52 mission in February this year by injecting the Earth Observation Satellite (EOS-04), into an intended sun-synchronous polar orbit of 529 km altitude. The mission also placed two small satellites, a student satellite INSPIRESat-1, and a technology demonstrator satellite, INS-2TD, a precursor to India-Bhutan Joint Satellite INS-2B.

<https://www.indiatoday.in/science/story/isro-oslvc53-mission-launch-singapore-satellite-nsil-department-of-space-s-somnath-1968643-2022-06-30>

Explained: What is ISRO's 'POEM' Platform?

What is POEM?

The PSLV Orbital Experimental Module is a platform that will help perform in-orbit experiments using the final, and otherwise discarded, stage of ISRO's workhorse rocket, the Polar Satellite Launch Vehicle (PSLV). The PSLV is a four-stage rocket where the first three spent stages fall back into the ocean, and the final stage (PS4) — after launching the satellite into orbit — ends up as space junk. However, in PSLV-C53 mission, the spent final stage will be utilised as a “stabilised platform” to perform experiments. “It is the first time that the PS4 stage would orbit the earth as a stabilised platform,” ISRO said in a statement prior to the launch. After the primary mission, the fourth stage will “write some poems in orbit”, ISRO Chairman S Somanath said in a post-launch address from Mission Control. POEM is carrying six payloads, including two from Indian space start-ups Digantara and Dhruva Space.



ISRO's PSLV-C53 carrying DS-EO satellite along with two other co-passenger satellites successfully launched from the Sathish Dhawan Space Centre, in Sriharikota, Thursday, June 30, 2022.

How will ISRO keep POEM 'alive and stable' in orbit?

According to ISRO, POEM has a dedicated Navigation Guidance and Control (NGC) system for attitude stabilisation, which stands for controlling the orientation of any aerospace vehicle within permitted limits. The NGC will act as the platform's brain to stabilize it with specified accuracy.

POEM will derive its power from solar panels mounted around the PS4 tank, and a Li-Ion battery. It will navigate using “four sun sensors, a magnetometer, gyros & NavIC”. “It carries dedicated control thrusters using Helium gas storage. It is enabled with a telecommand feature,” ISRO said.

Has ISRO repurposed and used PS4 rocket junk earlier?

The Indian space agency first demonstrated the capability of using PS4 as an orbital platform in 2019 with the PSLV-C44 mission that injected Microsat-R and Kalamsat-V2 satellites into their designated orbits. The fourth stage in that mission was kept alive as an orbital platform for space-based experiments. In a statement after the successful PSLV-C44 launch, ISRO had said: “Subsequently, the fourth stage (PS4) of the vehicle was moved to a higher circular orbit of 453 km after two restarts of the stage, to establish an orbital platform for carrying out experiments. Kalamsat-V2, a student payload, first to use PS4 as an orbital platform, was taken to its designated orbit about 1 hour and 40 minutes after lift-off.”

While in that mission, the fourth stage had Li-Ion batteries, solar panels are an addition this time. The latest repurposing and upgrade of the fourth stage of the PSLV rocket involves stabilization of the orbital platform.

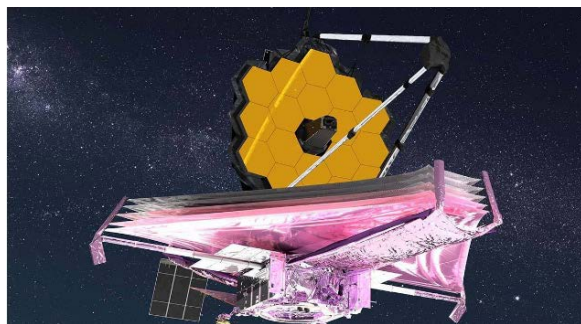
<https://indianexpress.com/article/explained/everyday-explainers/explained-what-is-isros-poem-platform-8001754/>



Thu, 30 Jul 2022

NASA to Release ‘Deepest Image of Universe Ever’ Taken with James Webb Space Telescope

Ahead of NASA’s release of the James Webb Space Telescope’s first full-colour images and spectroscopic data, we may finally have hints of what the first few operational images will look like. The first pictures from the \$10 billion-dollar deep-space observatory will include “the deepest image of our universe that has ever been taken,” according to NASA administrator Bill Nelson. Space.com reports that while NASA didn’t specify which early-universe objects Webb will focus on, the space agency’s administrator suggested that the image will show some of the earliest objects yet seen. This should mean that we would see objects older than the ones seen in the Hubble Space Telescope’s series of deep image fields that show galaxies that formed as little as a few hundred million years after the Big Bang.



Artist's impression of the James Webb Space Telescope in space. (Image credit: NASA GSFC/CIL/Adriana Manrique Gutierrez)

Nelson was speaking at a press conference at the Space Telescope Science Institute in Baltimore. During the event, NASA discussed Webb’s forthcoming operational image release on July 12 as well as the different science experiments that will be conducted using the observatory in its early life. The first set of images will also involve Webb’s first spectrum of an exoplanet, according to Thomas Zurbuchen, associate administrator at NASA’s science mission directorate, who spoke during the same event. Measuring the amount of light emitted at certain wavelengths with such spectra will provide hints of a planet’s chemistry and its formation history. NASA has shared an image comparing the same cluster of stars captured by the Spitzer Space Telescope’s Infrared Array and Webb’s MIRI (Mid-Infrared Instrument). The test image shows part of the Large Magellanic Cloud, a small satellite galaxy of the Milky Way with a dense star field.

Even though Spitzer, which was decommissioned on January 30, 2020, was responsible for many important scientific observations, it is now outclassed by Webb’s better imaging system. Webb’s significantly larger primary mirror and improved detectors allow it to capture higher resolution images with better clarity than the Spitzer ever could.

<https://indianexpress.com/article/technology/science/nasa-james-webb-space-telescope-deepest-image-universe-8000396/>

