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Sat, 19 Feb 2022

INS Visakhapatnam test-fires BrahMos supersonic cruise missile

BrahMos missile system is the main weapon system of the Indian Navy warships. It has been deployed on almost all of its surface platforms.

By Sangeeta Nair

Indian Naval Warship INS Visakhapatnam test-fired naval variant of BrahMos supersonic cruise missile off the western seaboard on February 18, 2022.

The warship has now reached Visakhapatnam to participate in the President's Fleet Review on February 21, 2022.

INS Visakhapatnam is the Indian Navy's newest indigenously built stealth guided-missile destroyer.

INS Visakhapatnam test fires BrahMos missile

BrahMos Supersonic Missile

BrahMos missile system is the main weapon system of the Indian Navy warships. It has been deployed on almost all of its surface platforms.

An underwater version is also being developed that will be used by the submarines of India.

The underwater version of the missile system will also be offered for export to friendly foreign nations.

BrahMos Missile Tests

- India had successfully test-fired a new version of BrahMos supersonic cruise missile off the coast of Odisha on January 20, 2022.
- Prior to that, the Indian Navy had successfully test-fired BrahMos Supersonic Cruise Missile from INS Vishakhapatnam warship on January 11, 2022. The missile had hit the target with pinpoint accuracy.
- Before this, India had test-fired an air version of BrahMos Supersonic Cruise Missile on December 8, 2021. The missile test was carried out from the integrated test range of Chandipur, off the coast of Odisha.
- The Indian Air Force had also successfully test-fired an air version of BrahMos supersonic cruise missile from a Sukhoi fighter aircraft on October 30, 2020. The IAF is integrating the BrahMos missile on over 40 Sukhoi fighter jets.

Background

The BrahMos Supersonic Cruise Missile is a multi-platform missile that can be launched from different platforms including ground, air and sea. It has been deployed in all three arms of the Indian Armed Forces- Indian Army, Indian Air Force and Indian Navy.

The Brahmos supersonic cruise missile is produced by BrahMos Aerospace which is a joint venture between India and Russia.

The missiles have been deployed by India at strategic locations along India's border with China in Ladakh and Arunachal Pradesh.

https://www.jagranjosh.com/current-affairs/indian-navy-testfires-brahmos-supersonic-cruise-missile-1645165191-1

mint

Sat, 19 Feb 2022

Brahmos supersonic cruise missile successfully test-fired from INS Visakhapatnam

BrahMos Aerospace, an India-Russian joint venture, produces the supersonic cruise missile that can be launched from submarines, ships, aircraft, or from land platforms.

India on Friday successfully test-fired a naval variant of the advanced supersonic BrahMos cruise missile from a stealth guided-missile destroyer of the Indian Navy. The Indian Navy's warship INS Visakhapatnam carried out a test firing of BrahMos supersonic cruise missile off the western seaboard. The warship has now reached Visakhapatnam to take part in President's Fleet Review on February 21.

BrahMos Aerospace, an India-Russian joint venture, produces the supersonic cruise missile that can be launched from submarines, ships, aircraft, or from land platforms.

The missile was tested from INS Visakhapatnam which is the latest warship of the Indian Navy inducted recently.

BrahMos is the main weapon system of the Indian Navy warships and has been deployed on almost all of its surface platforms.

An underwater version is also being developed which will not only be used by the submarines of India but will also be offered for export to friendly foreign nations.

Earlier, "Advanced sea to sea variant of BrahMos Supersonic Cruise missile was tested from INS Visakhapatnam today. Missile hit the designated target ship precisely," the DRDO tweeted.

Defence Minister Rajnath Singh said the successful launch of the missile reconfirmed the robustness of the Indian Navy's "mission readiness".

BrahMos Aerospace, an India-Russian joint venture, produces the supersonic cruise missile that can be launched from submarines, ships, aircraft, or from land platforms. BrahMos missile flies at a speed of 2.8 Mach or almost three times the speed of sound.

https://www.livemint.com/news/india/brahmos-supersonic-cruise-missile-successfully-test-fired-from-ins-visakhapatnam-watch-video-11645158506971.html

THE HINDU

Sat, 19 Feb 2022

I&B Ministry warns officials on data security

They have also been told not to use digital assistant devices such as Amazon's Echo, Apple's HomePod and Google Home in office and turn off digital assistants, including Alexa and Siri, in smartphones or watches

By Devesh K. Pandey

New Delhi: The Information and Broadcasting (I&B) Ministry has prohibited the sharing of top secret or secret documents by its officials over Internet. They have also been told not to use digital assistant devices such as Amazon's Echo, Apple's HomePod and Google Home in the office and turn off digital assistants, including Alexa and Siri, in their smartphones or watches.

The officials are required to deposit their smart phones outside the meeting room during discussions on classified issues, said the order that has been issued in view of the finding that a large number of government officials use private messaging platforms like WhatsApp and Telegram for communication of classified information. The Ministry said such a practice violated the Departmental Security instructions and the National Information Security Policy Guidelines.

Accordingly, the Ministry has directed that top secret and secret documents be shared only in a closed network with the leased line connectivity where the Scientific Analysis Group (SAG) grade encryption mechanism is deployed. The SAG functions under the Defence Research & Development Organisation.

The order said that confidential and restricted information could be shared on Internet via networks having a commercial Advanced Encryption Standard (AES) 256-bit mechanism. | Photo Credit: AP

The order said that confidential and restricted information could be shared on Internet via networks having a commercial Advanced Encryption Standard (AES) 256-bit mechanism. The Ministry has recommended the use of government email facility or government instant messaging platforms such as the Centre for Development of Advanced Computing's Samvad and the National Informatics Centre's Sandesh for communicating such information.

The Ministry cautioned that the classification of top secret or secret information should not be downgraded to "confidential" or "restricted" for the purpose of sharing it over Internet.

'Proper firewalls'

"In the context of e-office system, it is advised that proper firewalls and whitelisting of IP addresses are to be deployed. The e-office server may be accessed through a Virtual Private Network (VPN) for enhanced security," it said, adding that top secret or secret information should be shared over the e-office system only with the leased line closed network and SAG grade encryption mechanism.

With respect to videoconferencing for official purposes, the facilities provided by government agencies have to be used. Some additional precautions have been prescribed to ensure better security. Even then, top secret or secret information cannot be shared through videoconferencing.

The officials working from home have been told to use security-hardened electronic devices, including laptops and desktops, connected to the office servers through a VPN and firewall set-up. Top secret or secret information cannot be shared in the work-from-home environment, the Ministry said.

https://www.thehindu.com/news/national/dont-share-top-secret-information-over-internet-ib-ministry-tells-its-officials/article65062137.ece

Sat, 19 Feb 2022

DRDO Chairman Dr G Satish Reddy and Prof. Narayana Rao meets

Amravati: SRM University-AP Pro-Vice-Chancellor Prof D Narayana Rao met DRDO Chairman Dr G Satish Reddy in New Delhi on Friday.

The two discussed various research projects being carried out by university professors. On this occasion, Prof. Narayana Rao requested DRDO to co-operate in setting up two specialized research centres at SRM University-AP in the respective fields for the advancement of research on additive manufacturing (3D technology) and materials genome.

He told Chairman Satish Reddy that the Additive Manufacturing Research Center would be instrumental in developing the laser melting technique in the manufacture of 3D printing components.

He also asked the DRDO Chairman to approve the setting up of a specialized research centre at SRMAP, explaining that Materials Genome technology can be used to rapidly design, develop and innovate new functional materials innovations as compared to the traditional method.

University Pro-Vice-Chancellor Narayana Rao said that Chairman Dr Satish Reddy had agreed in principle to set up research centres for the two projects.

https://indiaeducationdiary.in/drdo-chairman-dr-g-satish-reddy-and-prof-narayana-rao-meets/

THE HINDU

Sun, 20 Feb 2022

DRDO's multi-level strategic ability placed India among top nations, says DRDO D-G

Tessy Thomas addresses the fourth Research Day at SRM University

Guntur: Director-General of Defence Research Development Organisation, Hyderabad, Tessy Thomas said on Saturday that the DRDO's efforts positioned the nation among the top few countries in the world with multilevel strategic capability.

DRDO Director-General Tessy Thomas taking part in a virtual meeting of SRM University AP on Saturday. PRO VC D Narayana Rao hands over a memento | Photo Credit: T. VIJAYA KUMAR

These include the Agni series, anti-ballistic missile programmes, underwater weapon systems, main battle tanks, multi-range radar systems, electronic warfare, fighter aircraft, Light Combat Aircraft and its variants, and airborne early warning and control systems.

Ms. Thomas was addressing a virtual meeting of fourth edition of SRM University- Research Day, in which she appreciated the efforts of SRM AP in entering into new areas of research and encouraged the scholars to contribute to the country's growth by developing indigenous technologies. The Research Day was an excellent opportunity for the faculty members, research scholars and students of SRM University-AP to exchange and exhibit their ideas on research, she said.

Pro Vice Chancellor, SRM University, D. Narayana Rao said that India needed to gradually move from a net consumer of knowledge to a net producer of knowledge as the country emerged as one of the world's largest economies.

"The SRM University-AP provides faculty members and research scholars the required support to carry out research in new domains of knowledge," Mr. Narayana Rao said.

During the next 25 years, the faculty members and research scholars of SRM AP would pursue significant and outstanding research in the areas of water resources and management, blue economy, self-diagnostic medical devices, new-age medicine, hydrogen as a potential replacement of fossil fuels and many more branches of scientific knowledge, he said.

Vice-Chancellor V.S. Rao recollected the interaction he had with Ms. Thomas in BITS Hyderabad, and invited her to visit the SRM University-AP campus to converse with the students.

During interaction with students and faculty members, Ms. Thomas elaborated how industrial and academic collaborations facilitated the development of indigenous technologies.

Among the 285 submissions from students and from the faculty community of SRM AP on various thematic areas, selected papers were awarded gold and silver medals.

https://www.thehindu.com/news/national/andhra-pradesh/drdos-multi-level-strategic-ability-placed-india-among-top-nations-says-drdo-d-g/article65065548.ece

ThePrint

Sun, 20 Feb 2022

Develop indigenous technologies, DRDO Scientist tells young researchers

Amaravati: Defence Research and Development Organisation (DRDO) Director General Tessy Thomas took part in the fourth annual Research Day event organised by the SRM University-AP here on Saturday and asked young research scholars to contribute to the country's growth by developing indigenous technologies.

Popularly known as the 'Missile Woman of India', Thomas elaborated DRDO's efforts that positioned India among the top few countries in the world with multi-level strategic capability.

These included the Agni series, anti-ballistic missile programmes, underwater weapon systems, main battle tanks, multi-range radar systems, electronic warfare, fighter aircraft, Light Combat Aircraft (LCA) and its variants, and airborne early warning and control systems, she said.

SRM Pro Vice-Chancellor D Narayana Rao said India needed to gradually move from a net consumer to a net producer of knowledge as it emerged as one of the world's largest economies.

He outlined SRM University-AP's 25-year vision in research and development beginning this year.

"In the next 25 years, the faculty members and research scholars of SRM AP will pursue significant and outstanding research in the areas of water resources and management, blue economy, self-diagnostic medical devices, new-age medicine, hydrogen as a potential replacement of fossil fuels and many more branches of scientific knowledge," Narayana Rao added.

University Vice-Chancellor V S Rao and other academicians attended the event.

Gold and silver medals were awarded on the occasion to select faculty and research scholars for their research contribution in various thematic areas.

https://theprint.in/india/develop-indigenous-technologies-drdo-scientist-tells-young-researchers/838438/

Hindustan Times

Sat, 19 Feb 2022

34 yrs since Prithvi, India's missile plan continues to soar

The 1988 launch delivered a firm footing for India's credible minimum deterrence

New Delhi: Thirty four years after India successfully test-fired the Prithvi surface-to-surface weapon, the country's missile programme has come a long way, put its credible minimum deterrence on a firm footing, and defence scientists have now set their sights on developing a new class of ultra-modern weapons that can travel six times faster than the speed of sound (Mach 6), officials familiar with the development said.

Hindustan Times front-paged the first Prithvi launch in its February 25, 1988 edition after Prime Minister Rajiv Gandhi broke the news of the historic launch in both Houses of Parliament. The announcement was greeted with jubilation and prolonged thumping of desks on all sides. The missile had a range of 250km.

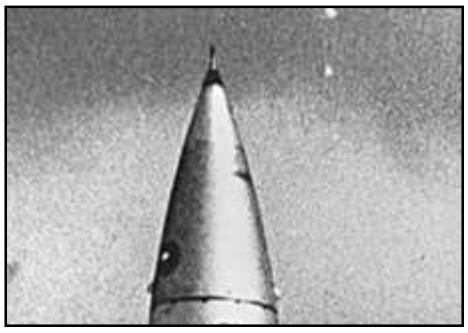
Describing the launch as a milestone in India's quest for self-reliance, Gandhi stressed that no foreign knowhow or collaboration was involved in the missile's development.

Responding to members' queries in the Rajya Sabha, Gandhi made it clear that it was a purely defence missile and India, being a peace-loving country, would continue to work for peace.

"After a number of necessary test launches, we plan to induct Prithvi in numbers into our defence forces," he said.

The launch was part of the integrated guided missile development programme (IGMDP), conceived by former president and missile scientist APJ Abdul Kalam, approved by the government in July 1983 to develop an array of missiles including Prithvi, Agni and Akash.

In the decades that followed the maiden Prithvi launch, India developed a series of conventional and strategic missiles that give it the capability to hit targets at ranges of 250km to more than 5,000km.



Hindustan Times front-paged the first Prithvi launch in its February 25, 1988 edition after Prime Minister Rajiv Gandhi broke the news of the historic launch in both Houses of Parliament.

India is now tapping into advanced technologies to develop a new class of weapons. In September 2020, the Defence Research and Development Organisation (DRDO) carried out a successful flight test of the hypersonic technology demonstrator vehicle (HSTDV) for the first time from a launch facility off the Odisha coast. India could develop hypersonic cruise missiles in about four years, the officials said.

"Congratulations to DRDO for successful flight of the Hypersonic Test Demonstration Vehicle today. The scramjet engine developed by our scientists helped the flight achieve a speed 6 times the speed of sound. Very few countries have such capability today," Prime Minister Narendra Modi said on the day of the flight test.

Only the United States, Russia and China have developed technologies to field fast-manoeuvring hypersonic missiles that fly at lower altitudes and are extremely hard to track and intercept. Mach 6 translates into a speed of 7,408kmph.

India has sharpened its focus on exporting weapons, including missiles. In December 2020, the Union Cabinet, chaired by PM Modi, gave its go-ahead to the sale of Akash missile systems to friendly foreign countries and created a high-powered panel for swifter approval to export of military hardware. India has set a target of clocking defence exports worth $5 billion by 2024.

Last month, India's BrahMos Aerospace and the Philippines signed a deal worth almost $375 million for the Philippine Marines to acquire three batteries of the BrahMos cruise missile, a shot in the arm for New Delhi's efforts to emerge as an exporter of major defence hardware.

https://www.hindustantimes.com/india-news/34-yrs-since-prithvi-india-s-missile-plan-continues-to-soar-101645216274858-amp.html

NBT नवभारत टाइम्स

Sun, 20 Feb 2022

Prithvi Missile : 34 साल पहले जब दुनिया ने देखी पावरफुल इंडिया की झलक, देश की पहली मिसाइल की कहानी

दुनिया के परमाणु संपन्न देशों में आज भारत का जिक्र होता है। पाकिस्तान और चीन जैसे पड़ोसी मुल्कों के बीच आज भारत की ऐसी धाक है कि दुश्मन कोई दुस्साहस करने से पहले सौ बार सोचेगा। लेकिन भारत का यह सफर इतना आसान नहीं था। पढ़िए भारत के पहले मिसाइल टेस्ट (Indian Missile Prithvi) की गौरवगाथा।

By अनुराग मिश्र

वैसे तो, आजादी मिलने के फौरन बाद भारत ने स्पेस और एटॉमिक एनर्जी के क्षेत्र में कदम बढ़ा दिए थे लेकिन तब हालात इतने आसान नहीं थे। दुनिया में दो गुट थे। भारत पर प्रतिबंधों का साया था। होमी

जहांगीर भाभा के 1956 में एशिया का पहला एटॉमिक रिएक्टर शुरू करने के साथ ही देश की उम्मीदें परवान चढ़ने लगी थीं। इस बीच, देश को पहले 1962 और फिर 1965 और आखिर में 1971 की लड़ाई लड़नी पड़ी। वैज्ञानिकों और देश की सरकार यह बात समझ चुकी थी कि पावरफुल बनने के लिए हमारे पास मिसाइल और परमाणु बम जैसे हथियार जल्द से जल्द चाहिए। शांतिप्रिय देश होने के बावजूद भारत के लिए डिटरेंस के लिहाज से ऐसा करना जरूरी थी, जिससे दुश्मन भारत की तरफ आंख उठाने की जुर्रत न कर सके। साल था 1988, इंदिरा गांधी की हत्या को चार साल होने को थे और 25 फरवरी के दिन भारत ने अपना पहला मिसाइल टेस्ट कर दिया। यह दुनिया के मानचित्र में भारत की एक दमदार उपस्थिति थी।

Prithvi Missile : 34 साल पहले जब दुनिया ने देखी पावरफुल इंडिया की झलक, देश की पहली मिसाइल की कहानी

34 साल पहले की बात है...

देश के दुश्मनों को संदेश देते हुए हमारे वैज्ञानिकों ने दिखा दिया कि भारत अब करारा जवाब देने की हैसियत रखता है। इस घटना को 34 साल हो रहे हैं। तब भारत ने सतह से सतह पर मार करने वाली पृथ्वी मिसाइल का सफलतापूर्वक टेस्ट किया था। इसके बाद देश का मिसाइल प्रोग्राम मजबूत होता गया। देश के डिफेंस साइंटिस्ट अब नए क्लास के अल्ट्रा-मॉडर्न वेपन्स बनाने की दिशा में बढ़ रहे हैं जो साउंड की स्पीड (मैक 6 यानी 7,400 किमी प्रति घंटे से अधिक) से 6 गुना अधिक तेज गति से वार कर सकता है।

जब संसद में राजीव गांधी ने की घोषणा, भारत ने....

ऐसे समय में इतिहास को पलटकर देखें तो पता चलता है कि 25 फरवरी 1988 के दिन भारत की ताकत कितनी बढ़ गई थी। प्रधानमंत्री राजीव गांधी ने संसद के दोनों सदनों में ऐतिहासिक लॉन्च की घोषणा की थी। यह देश की आन-बान और शान से जुड़ी खबर थी। उस दिन संसद में मौजूद हर सदस्य ने पूरे गौरव के साथ मेज पीटते हुए शक्तिशाली भारत की गर्जना की थी। भारत को ऐसा हथियार मिल चुका था जो 250 किमी के इलाके में दुश्मन को तबाह करने की ताकत रखता था और यह तो अभी शुरुआत थी।

कलाम का था बड़ा रोल

लॉन्च के बारे में बताते हुए राजीव गांधी ने आत्मनिर्भर भारत की बात कही थी। उन्होंने जोर देते हुए कहा था कि दुनिया को नहीं पता कि हमारी मिसाइल कैसे और किसके सहयोग से तैयार हो गई। राज्यसभा में सदस्यों के सवालों का जवाब देते हुए राजीव गांधी ने साफ कहा था कि यह पूरी तरह से भारत की अपनी डिफेंस मिसाइल है। उन्होंने कहा था कि शांति पसंद मुल्क होने के नाते भारत शांति के लिए काम जारी रखेगा। इस लॉन्च में पूर्व राष्ट्रपति और मिसाइल साइंटिस्ट एपीजे अब्दुल कलाम का सबसे बड़ा योगदान था। दरअसल, उन्होंने ही इसकी कल्पना की थी और जुलाई 1983 में सरकार ने पृथ्वी, अग्नि और आकाश मिसाइलें विकसित करने के प्रोग्राम को हरी झंडी दी थी।

चीन और पाक भारतीय मिसाइलों की जद में

पृथ्वी की लॉन्चिंग के बाद आगे के दशकों में भारत ने कई पारंपरिक और सामरिक मिसाइलें विकसित कर ली जो 250 किमी से लेकर 5,000 किमी तक के टारगेट को नेस्तनाबूद कर सकती हैं। सितंबर 2020 में डीआरडीओ ने हाइपरसोनिक टेक्नॉलजी डिमॉन्स्ट्रेटर वीकल (HSTDV) का पहली बार सफलतापूर्वक टेस्ट किया गया। प्रधानमंत्री नरेंद्र मोदी ने इस उपलब्धि पर DRDO को बधाई देते हुए कहा कि हमारे वैज्ञानिकों की ओर से विकसित किए गए स्क्रैमजेट इंजन की मदद से साउंड की स्पीड से 6 गुना तेज स्पीड की

फ्लाइट हो सकती है। उन्होंने आगे लिखा कि आज के समय में कुछ ही देशों के पास यह क्षमता है। अधिकारियों का कहना है कि भारत अगले चार वर्षों में हाइपरसोनिक क्रूज मिसाइल तैयार कर सकता है। संकेत साफ है भविष्य की चुनौतियों से निपटने के लिए भारत अब वर्ल्ड क्लास वेपन्स तैयार करने की दिशा में बढ़ रहा है।

अब एक्सपोर्ट भी कर रहा भारत

हाइपरसोनिक मिसाइलों की तकनीक अभी केवल अमेरिका, रूस और चीन के पास है। यह कम ऊंचाई पर उड़ते हुए अपने टारगेट को भेद सकती है और इसे ट्रैक या इंटरसेप्ट करना भी काफी मुश्किल होता है। भारत अब हथियार बनाने के साथ ही उसका निर्यात भी शुरू कर चुका है। दिसंबर 2020 में भारत सरकार ने आकाश मिसाइल सिस्टम को मित्र देशों को बेचने की मंजूरी दी। भारत ने 2024 तक 5 अरब डॉलर के डिफेंस एक्सपोर्ट का लक्ष्य रखा है। पिछले महीने भारत ने फिलीपींस के साथ ब्रह्मोस क्रूज मिसाइल की डील की। 1988 के बाद आज इन तीन दशकों में भारत और भी शक्तिशाली हो चुका है। चीन हो या पाकिस्तान उन्हें पता है कि भारत के पास ऐसे हथियार हैं जो उन्हें काफी नुकसान पहुंचा सकते हैं।

https://navbharattimes.indiatimes.com/india/prithvi-india-first-missile-story-contribution-by-apj-abdul-kalam/articleshow/89680591.cms?story=4

The EurAsian Times

Sat, 19 Feb 2022

IAF Pilot heaps praises on 'Make-in-India mascot' Tejas Jets while BHEL adds more indigenous tech to 4.5-Gen Aircraft

By Shreya Mundhra

The Tejas Light Combat Aircraft (LCA) and its upcoming variants have put India in the elite group of countries, which have designed and manufactured fourth-generation warplanes. Although most of its major components are still sourced from abroad, Tejas is still the face of India's indigenization drive in defense production.

The Indian Air Force Tejas performs at the opening ceremony of the Singapore Air Show on February 15, 2022.

The Tejas Story

The Tejas entered service with the Indian Air Force in 2016 as a single-engine, lightweight, supersonic fighter aircraft. Its design and development program was led by the Aeronautical Development Agency (ADA) with HAL being the prime industrial contractor. The development of the multi-role LCA began in the 1980s.

Tejas was slated to replace India's huge fleet of Soviet-era MiG-21 jets acquired in the 1960s. In May 2020, its final operational clearance (FOC) configuration, the first Tejas Mk1 entered service with the IAF.

In February 2021, at a ceremony in Bengaluru, HAL signed a $6.58 billion contract to deliver 73 new Tejas Mk1A LCA jets and 10 new Tejas Mk1 two-seat training jets to the IAF.

As of 2021, 50 percent of Tejas components were indigenous. It was announced that this number would increase to 65 percent. However, as of now, the jet incorporates several important components that are not indigenously built. The most important such components are the US-built F404 turbofan engine, the Israeli radars, and Russian weapon systems.

The weapon system accounts for several parts as Tejas has eight external hardpoints to carry munitions, with three under both the wings, one on the center fuselage and one under the air intake on the port side. The aircraft can be equipped with air-to-air, air-to-ground and anti-ship missiles.

It can also employ precision-guided munitions, rockets, and bombs. The hardpoints have the scope of carrying training pods, electronic warfare, targeting, surveillance, or reconnaissance. Despite the foreign components on the plane, it is still the face of India's defense indigenization program.

A Competitive Fighter Aircraft

The Indian Air Force (IAF) is displaying the might of its Tejas Light Combat Aircraft in Singapore to position the fighters to meet local requirements of the region including Malaysia and other ASEAN nations. The IAF has deployed three combat jets for Singapore Airshow 2022 to demonstrate the prowess of IAF's indigenous fighters.

Tejas fighter pilot Group Captain Manish Tolani described the Tejas as a 4.5 Generation fighter plane with proven capabilities across various climatic conditions including the subcontinent's harsh northern mountainous regions and the southern regions' tropical weather, according to Janes.

Earlier as EurAsian Times had reported, the Tejas fighters demonstrated 'exceptional flying capabilities' at the Singapore Air Show 2022, which began on February 15. Tejas, which had enthralled the audience not too long ago at the Dubai Air Show made a stunning appearance at the airshow and the Indian Air Force tweeted and called it 'A Diamond In The Sky'.

Make-In-India Mascot

An important step towards greater indigenization of the Tejas has recently come up. On February 14, the state-owned BHEL said it had received an order from HAL to provide compact heat exchanger (CHEs) sets for Tejas aircraft.

"Bharat Heavy Electricals Limited has received a prestigious order for the supply of compact heat exchanger sets for 83 LCA Tejas MK1A aircraft, from Hindustan Aeronautics Limited," BHEL said in a statement.

The order will not only involve manufacturing, but also assembly, testing, and supply of CHEs to be fitted in the aircraft.

BHEL's Heavy Plates and Vessels Plant (HPVP) in Visakhapatnam has been the sole supplier of heat exchangers to HAL since 1996. The BHEL-HPVP has dedicated manufacturing and inspection facilities for CHEs used in various types of HAL aircraft.

What Are Compact Heat Exchangers?

Heat exchangers are used for various types of processing such as heating, cooling, etc. using a variety of media. CHEs are generally made of thin plates & fins which are stacked together, usually brazed or welded. They use metal plates to transfer heat between two streams of fluid.

They are used in all sizes and types of aircraft, and in different systems. A heat exchanger is also used to cool something, for example, the air in the cabin. It may also be utilized to warm something – for instance, the fuel in the tanks.

Typically, the type and size of heat exchanger used can be custom-made to suit a process depending on the type of fluid, its temperature, density, chemical composition, etc. Thus, the CHEs are vital to the performance of military and commercial aircraft alike.

Heat exchangers are vital for the accurate running of an aircraft's electronics. They are also used in satellites to prevent overheating of electrical components.

The widespread use of CHEs in aerospace applications is justified by their less weight, greater compactness, and high-performance levels. Aerospace industries place a premium on size and weight without compromising on performance aspects.

Studies show that the aircraft heat exchanger market is expected to grow from approximately $1.3 billion in 2021 to $2.0 billion by 2026. This spurt is largely attributed to the increasing number of commercial and combat aircraft.

https://eurasiantimes.com/iaf-pilot-heaps-praises-on-make-in-india-mascot-tejas-jets/

#SWARAJYA

Sun, 20 Feb 2022

Test Pilot who made first LCA Navy landing on Aircraft Carrier talks about the fighter programme

Snapshot

- ***Commodore Maolankar's first contact with the LCA Navy programme began when, in his own words, a "massive fat document" related to the project landed on his table.***

Commodore Jaideep Maolankar, who conducted the maiden landing of the naval version of Light Combat Aircraft (LCA) Tejas (called LCA Navy) on aircraft carrier INS Vikramaditya in January 2020, has discussed in detail his experience during the programme in a multi-part conversation on the Blue Skies Podcast.

Jaideep Maolankar

Maolankar, who served as the Chief Test Pilot of National Flight Test Centre, was commissioned into the Navy in 1985, selected and trained as a naval aviator in 1987, and became a test pilot, a graduate of the Indian Air Force Test Pilot School in Bengaluru in 1994.

Commodore Maolankar's first contact with the LCA Navy programme began when a "massive fat document" related to the project landed on his table.

"I was made to write the Navy's comments on [the project]. This was my first interaction with the LCA Navy," Maolankar says in a conversation with P R Ganapathy, the host of the Blue Skies Podcast.

"So around 2005, I had pretty much finished with my mandatory QRs as a commander in the Navy...So that's about the time when they start pulling you out for giving back to the Navy and make you do staff jobs. So all the fun jobs are over, and now the hard work starts...And I kind of kept touch with kept track of where the LCA was going and what little bit of news used to come out occasionally once in a while, but it was pretty much deadly fear of being stuck behind a desk, which is when this thing came about that that's about the time when NFTC was also being asked to start providing inputs and feedback for the LCA Navy program," he says.

'Ambitious, but a recipe for failure'

Talking about LCA Navy, Maolankar says the plan was to piggyback on the work done for the air force version of the LCA.

"So the basic concept of the LCA Navy program was that piggybacking on the efforts and the investments that have been made in the Air Force Tejas, they would attempt to build a carrier-borne aircraft. Now, when I'm saying it like this now, it does sound, you can straight away, see everybody rolling their eyes," Maolankar says, adding, "The LCA program by itself was an extremely ambitious program. From nothing, you are straight away jumping to a Fourth Gen aircraft in the package of a final finished product...So as it is, very ambitious. Now, on top of that, you add carrier-borne to it and actually it is a recipe for failure."

Maolankar says that the LCA Navy programme was disadvantaged by the need to limit changes when converting the fighter designed for the Air Force to one for carrier operations.

"Because it was defined as a piggyback program, there was a need to minimise the extent of changes. So typically even when you take a land based aircraft and make it carrier based, you typically end up with bigger wings because you're trying to cut down the approach speed. Now here the wing itself was a very significant investment in design and all the wind tunnel work and

all the data that had been created, et cetera, the carbon fibre layup work, the structural work that is associated with the wing. So you couldn't touch the wing, for example," he says.

"So you can see how we are very rapidly piling on the constraints and still retaining an expectation of lightest in the world, multi-role, carrier-borne fighter. Ambitious, clearly, clearly, very ambitious," he adds.

'First live Derby'

Maolankar was involved in the integration of the Derby missile onto the LCA.

When we did the first live Derby, I was a safety pilot. I was planning the sortie and kind of monitoring and controlling the sortie. The Derby, I was the most familiar with it because I had done Derby on the Sea Harrier. So I was most familiar with the Derby systems, et cetera. So I had spent a lot of effort in the integration of the Derby onto the LCA also. It was actually a low hanging fruit for the LCA program because Derby we were already familiar with because of LUSH," he says.

"Derby had been already specified for LCA Navy by the Navy, because they wanted to have a slightly lighter BVR as compared to, say, Astra. LCA Navy bring-back loads on the carrier, et cetera. So they said, why not Derby? So Derby had been specified for LCA Navy. So ADA was already committed to doing a Derby integration on an LCA, which kind of makes ultimate sense. Why not for the Air Force also. And you'll get a quick, really quick and easy within the same original plan cost, you got a BVR capability for the Air Force aircraft also. So that's how the Derby of the thing came about," Maolankar adds.

'A fighting chance'

When asked if the Tejas will give a reasonably trained pilot a fair fighting chance in combat, Maolankar said the platform is better than many currently in service, including in front line service.

"You are in with a fighting chance. You're definitely better than many of the several of the current platforms which are in service, which we are putting in, which are still fielding in front line service. There is no doubt that it is a big step up from there. Does it give you sufficient capability to make tactics and training the deciding factors? Definitely, Maolankar said.

"That there should be absolutely no doubt about the best part of the whole thing is if you identify a weakness in it, you have all the tools and resources at hand to be able to overcome that, maybe even within days, if need be, during a conflict itself. You have the potential to be able to overcome a deficiency if you feel the need, which is not true with," he added.

Ganapathy's two-part conversation with Maolankar, which runs into hours, is available on the Blue Skies Podcast website and their YouTube channel.

https://swarajyamag.com/defence/test-pilot-who-made-first-lca-navy-landing-on-aircraft-carrier-talks-about-the-fighter-programme

Sat, 19 Feb 2022

General MM Naravane, Chief of Army Staff, Indian Army to inaugurate Ahmedabad Design Week by Karnavati University on Feb 26

Ahmedabad: The third edition of Ahmedabad Design Week (ADW)– a melting pot of ideas and insights – organised by Karnavati University, based in Uvarsad, Gandhinagar, is all set to kickstart from February 26 at the varsity's sprawling campus. The Ahmedabad Design Week will be held on 26th, 27th and 28th February, 2022. Karnavati University is a state private university dedicated to excellence in teaching and is focused on interdisciplinary learning. This year's theme for ADW 3.0 is Design and Innovation in Defense and Aerospace – a topic of strategic importance.

The event will be inaugurated by the Honourable General MM Naravane, Chief of Army Staff, Indian Army; along with Shri Hari Babu Srivastava, Outstanding Scientist and Director General – Technology Management (TM), Defence Research and Development Organisation (DRDO), on February 26.

Explaining the rationale behind this year's theme, Shri Ritesh Hada, President, Karnavati University, said, "ADW 3.0's themed on Design and Innovation in Defence and Aerospace, is very much in line with Government of India's mission of achieving Atmanirbharta in defence manufacturing in India."

"ADW will create a platform for starting a dialogue on the role of design in defence and aerospace, use of emerging technologies and bring together design practitioners, defence sector veterans and innovators to deliberate upon this. This will also be an opportunity to encourage innovators to explore defence sector," Mr Hada further explained.

ADW is a confluence of design thinkers, thought leaders and practitioners from across the globe and the sole theme of the event is to facilitate discussion, deliberation and identification of scope and the application of design in various domains, fields, and industries.

One of the key highlights of ADW 3.0 will be the final tranche of India's biggest Defence Startup and Innovation Challenge – the DRDO Defence Innovation Challenge which will be hosted by DRDO in association with Karnavati University. The challenge is aimed at supporting Startups, Micro Small and Medium Entreprises (MSMEs) and innovators to come up with unique solutions and breakthrough technology interventions in National Defence and Aerospace sector. The challenge will encourage participants to create prototypes and enable them to commercialise products and solutions they have developed. The winning teams will be rewarded with prize money and angel funding worth upto Rs 50 crore.

Sharing his thoughts about the event, General MM Naravane, Chief of Army Staff, Indian Army, said, "Designing takes the experience of the past, breaks the mould of the present, and looks to create things anew for the future. Wishing ADW 3.0 all the success in taking forward design and development in defence and aerospace sectors."

Some of the other eminent speakers who would be part of the event include Lieutenant General KJS Dhillon, Former Director General, Defence Intelligence Agency; Dr Sudhir Mishra, Former Director General, CEO and MD, BrahMos Aerospace; Dr G Satheesh Reddy, Secretary, Department of Defence R&D and Chairman, DRDO; Major General M Indrabalan, Additional Director General NCC, Bihar and Jharkhand NCC and Prahlad Kakkar, Founder, Genesis Film Production, among others.

https://indiaeducationdiary.in/general-mm-naravane-chief-of-army-staff-indian-army-to-inaugurate-ahmedabad-design-week-by-karnavati-university-on-feb-26/

DRDO on Twitter

Prasar Bharati News Services पी.बी.एन.एस.
@PBNS_India

WATCH | Singapore's Defence Ministry releases a video of Indian Air Force's LCA Tejas roaring in the sky during #SingaporeAirshow

@mindefsg
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@SpokespersonMoD

12:14 PM · Feb 20, 2022 · TweetDeck

DRDO Retweeted

Office of the Lt. Governor, Ladakh @lg_ladakh · Feb 18

@lg_ladakh appreciated the contribution of @DRDO_India in introducing methods and technologies which are apt for weather and topography of Ladakh.

@Ravinder_Dangi1 @DefenceMinIndia

DRDO Retweeted

Office of the Lt. Governor, Ladakh @lg_ladakh · Feb 18

Chairman @DRDO_India, Dr. G.Satheesh Reddy called on Lt Governor @R_K_Mathur in New Delhi.

He briefed the HLG of projects under #DIHAR aimed at boosting the agri & horticultural produce of local farmers in #Ladakh.

AIR News Ladakh and 9 others

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Sat, 19 Feb 2022 7:32PM

Hon'ble President to review Naval Fleet at Visakhapatnam

The President's Fleet Review, an awe-inspiring and much-awaited event, will be conducted at Visakhapatnam on Monday, 21 February 22. Shri Ram Nath Kovind, Hon'ble President of India, who is also the Supreme Commander of the Armed Forces, will be reviewing the Naval Fleet comprising over 60 ships and submarines, and 55 aircraft. This will be the twelfth Fleet Review and has a special significance that it is being conducted on the occasion of the 75th anniversary of India's Independence being celebrated as *'Azadi Ka Amrit Mahotsav'* across the Nation.

The President's Yacht is an indigenously built Naval Offshore Patrol Vessel, INS Sumitra, which will lead the Presidential Column. The yacht will be distinguished by the Ashoka Emblem on her side and will fly the President's Standard on the Mast. After a Ceremonial Guard of Honour and a 21 Gun Salute, the President embarked on the Presidential Yacht INS Sumitra would sail through 44 ships lined up at anchorage off Visakhapatnam. The review will have a combination of ships from the Indian Navy as well the Coast Guard. Ships from SCI & the Ministry of Earth Sciences will also be participating. In this most formal of naval ceremonials, each ship dressed in full regalia will salute the President as he passes. The President will also be reviewing the Indian Naval Air Arm in a display of spectacular fly-past by several helicopters and fixed-wing aircraft. In the final stage of the review, a mobile column of warships and submarines will steam past the Presidential Yacht. This display will also showcase the latest acquisitions of the Indian Navy. Further, several enthralling waterfront activities, including Parade of Sails, Search and Rescue Demonstration at Sea, Aerobatics by Hawk aircraft and Water Para Jumps by the elite Marine Commandos (MARCOS) will be conducted.

The Review will be followed by the release of a special First Day Cover and a commemorative stamp by the Hon'ble President in the presence of Raksha Mantri Shri Rajnath Singh and Minister of State for Communication Shri Devusinh J Chauhan.

The ships at anchorage will be ceremonially dressed overall with various naval flags in full regalia during the day. They would be illuminated from sunset to midnight on 19 and 20 February 22, which can be witnessed by the citizens of Visakhapatnam from the Beach front.

https://pib.gov.in/PressReleasePage.aspx?PRID=1799655

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Sat, 19 Feb 2022 7:32PM

राष्ट्रपति विशाखापत्तनम में नौसेना बेड़े की समीक्षा करेंगे

राष्ट्रपति की बहुप्रतीक्षित नौसेना बेड़े की समीक्षा का कार्यक्रम सोमवार, 21 फरवरी 2022 को विशाखापत्तनम में आयोजित किया जाएगा। राष्ट्रपति श्री राम नाथ कोविंद जो सशस्त्र बलों के सर्वोच्च कमांडर भी हैं,नौसेना बेड़े की समीक्षा करेंगे जिसमें 60 से अधिक जहाज और पनडुब्बियां और 55 विमान शामिल हैं। यह बारहवीं बेड़ा समीक्षा (फ्लीट रिव्यू) होगी और इसका विशेष महत्व है कि इसे भारत की आजादी की 75वीं वर्षगांठ के अवसर पर पूरे देश में 'आजादी का अमृत महोत्सव' के रूप में मनाया जा रहा है।

राष्ट्रपति की नौका स्वदेश निर्मित समुद्री अपतटीय गश्ती पोतआईएनएस सुमित्रा है,जो राष्ट्रपति के बेड़े का नेतृत्व करेगी। इस नौका पर अशोक चिन्ह लगा होगा जिससे इसे पहचाना जाएगा और इसके मस्तूल पर राष्ट्रपति का मानक फहराएगा। सेरेमोनियल गार्ड ऑफ ऑनर और 21 तोपों की सलामी के बाद,राष्ट्रपति श्री रामनाथ कोविंद आईएनएस सुमित्रा जहाज पर सवार होंगे जो विशाखापत्तनम के पास लंगर में खड़े 44 जहाजों के सामने से गुजरेगी। समीक्षा में भारतीय नौसेना के साथ-साथ तटरक्षक बल के जहाजों का संयोजन होगा। एससीआई और पृथ्वी विज्ञान मंत्रालय के जहाज भी इसमें भाग लेंगे। इस सबसे औपचारिक नौसैनिक समारोह में, राजसी सजावट के साथ तैयार प्रत्येक जहाज वहां से गुजरने पर राष्ट्रपति को सलामी देगा। राष्ट्रपति कई हेलीकॉप्टरों और फिक्स्ड विंग विमानों द्वारा शानदार फ्लाई-पास्ट के प्रदर्शन में भारतीय नौसेना के वायु शाखा की समीक्षा भी करेंगे। समीक्षा के अंतिम चरण में, युद्धपोतों और पनडुब्बियों का एक मोबाइल कॉलम राष्ट्रपति की नौका से आगे निकल जाएगा। इस प्रदर्शन में भारतीय नौसेना के नवीनतम अधिग्रहणों को भी दिखलाया जाएगा। इसके अलावा,समुद्र में परेड,समुद्र में खोज और बचाव प्रदर्शन, हॉक एयरक्राफ्ट द्वारा एरोबेटिक्स और एलीट मरीन कमांडो (एमएआरसीओएस) द्वारा वाटर पैरा जंप सहित कई मनोरंजक वाटरफ्रंट गतिविधियां आयोजित की जाएंगी।

समीक्षा के बाद रक्षा मंत्री श्री राजनाथ सिंह और संचार राज्य मंत्री श्री देवुसिंह जे. चौहान की उपस्थिति में माननीय राष्ट्रपति द्वारा एक विशेष प्रथम दिवस कवर और एक स्मारक डाक टिकट जारी किया जाएगा।

लंगर में जहाजों को दिन में पूरे राजसी अंदाज में विभिन्न नौसैनिक झंडों के साथ औपचारिक रूप से तैयार किया जाएगा। इन्हें 19 और 20 फरवरी 2022 को सूर्यास्त से मध्यरात्रि तक रोशन रखा जाएगा, जिसे विशाखापत्तनम के नागरिक समुद्र तट से देख सकते हैं।

https://pib.gov.in/PressReleasePage.aspx?PRID=1799732

Press Information Bureau
Government of India

Ministry of Defence

Fri, 18 Feb 2022 5:16PM

Indian Naval Sailing Vessels (INSVs) in President's Fleet Review 2022

As part of President's Fleet Review 2022 (PFR 2022) Sail Parade activities, six Ocean going Indian Naval Sailing Vessels (INSVs) viz Mhadei, Tarini, Bulbul, Hariyal, Kadalpura and Neelkanth have arrived at Visakhapatnam from Goa. All six boats form part of Ocean Sailing Node at INS Mandovi at Goa under Southern Naval Command and are being manned by six each naval officers drawn from three Commands of Navy, ANC and IHQ MoD (Navy). The crew also includes six women officers.

The expedition commenced from Goa on 12 Jan 22. The 1600 NM (Almost 3000 KM) passage of the INSVs from Goa to Visakhapatnam was carried under aegis of Indian Naval Sailing Association (INSA) based at IHQ MoD (N), New Delhi.

These yachts are utilised for ocean Sailing by Indian Navy. The crew for the sea sorties are selected from volunteers with adequate sea sailing experience. Ocean sailing is an extremely tough adventure sport. Indian Navy utilises the ocean Sailing yachts for inculcating spirit of adventure, enhancing risk taking abilities whilst honing essential seamanship skills including navigation, communication, technical operation of engines and onboard machinery, operation of Inmarsat equipment, logistics planning etc. It also enhances Indian Navy's ability to project its benign presence across the globe by participating in sailing expeditions like Sagar Parikrama and Cape Town to Rio de Janeiro races, IONS sailing expedition etc.

In the past, Mhadei has done solo circumnavigation 'Sagar Parikrama' with Capt Dilip Donde in 2010 and Cdr Abhilash Tomy in 2013. She has also done Cape Town to Rio de Janeiro races in 2011, 2014 & 2017.

Tarini has done circumnavigation of the globe 'Navika Sagar Parikrama' in 2017 with all women officers crew.

The INSVs are planned to return to Goa by end March.

https://pib.gov.in/PressReleasePage.aspx?PRID=1799306

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 18 Feb 2022 5:16PM

राष्ट्रपति के फ्लीट रिव्यू 2022 में भारतीय नौसेना के नौकायन पोत (आईएनएसवी)

राष्ट्रपति के फ्लीट रिव्यू 2022 (पीएफआर 2022) के तहत समुद्री यात्रा परेड गतिविधियों के हिस्से के रूप में छह महासागरीय भारतीय नौसेना नौकायन पोत (आईएनएसवी) महादेई, तारिणी, बुलबुल, हरियाल, कदलपुरा और नीलकंठ गोवा से विशाखापत्तनम पहुंचे हैं। ये सभी छह जहाज दक्षिणी नौसेना कमान के तहत गोवा के आईएनएस मंडोवी में महासागरीय नौकायन नोड का हिस्सा हैं और इन्हें नौसेना, अंडमान निकोबार कमान तथा रक्षा मंत्रालय के आईएचक्यू (नौसेना) में तीन कमानों से लिए गए नौसेना अधिकारियों द्वारा संचालित किया जा रहा है। चालक दल में छह महिला अधिकारियों को भी शामिल किया गया है।

यह अभियान 12 जनवरी, 2022 को गोवा से शुरू हुआ था। नई दिल्ली में रक्षा मंत्रालय के आईएचक्यू (एन), स्थित *भारतीय नौसेना नौकायन संघ* (*आईएनएसए*) *के तत्वावधान में गोवा से विशाखापत्तनम तक आईएनएसवी द्वारा* 1600 *नॉटिकल मील* (*लगभग* 3000 *किलोमीटर*) का मार्ग तय किया गया है।

इन पोतों का उपयोग भारतीय नौसेना द्वारा समुद्री नौकायन के लिए किया जाता है। समुद्री यात्राओं के लिए चालक दल का चयन पर्याप्त समुद्री नौकायन अनुभव वाले स्वयंसेवकों में से होता है। समुद्री नौकायन एक अत्यंत कठिन साहसिक कार्य है। भारतीय नौसेना नौवहन, संचार, इंजन और जहाज पर मशीनरी के तकनीकी कौशल, इनमारसैट उपकरण के संचालन, रसद योजना आदि सहित सभी आवश्यक नाविक कौशल का सम्मान करते हुए साहस की भावना पैदा करने तथा जोखिम लेने की क्षमता बढ़ाने में समुद्री नौकायन नौकाओं का उपयोग करती है। यह भारतीय नौसेना की क्षमता को भी बढ़ाता है। *सागरीय परिक्रमा और केप टाउन से रियो दी जनेरियो दौड़*, *आईओएनएस नौकायन अभियान आदि जैसे नौकायन कार्यक्रमों में भाग लेकर भारतीय नौसेना दुनिया भर में अपनी सौम्य उपस्थिति को प्रदर्शित करती है।*

इससे पहले, *महादेई ने वर्ष* 2010 *में कैप्टन दिलीप डोंडे और* 2013 *में कमांडर अभिलाष टॉमी के साथ एकल परिनौचालन 'सागर परिक्रमा' की है। उन्होंने साल* 2011, 2014 *और* 2017 *में केप टाउन से रियो दी जनेरियो रेस में भी हिस्सेदारी की है।*

***तारिणी ने साल* 2017 *में सभी महिला अधिकारियों के दल के साथ वैश्विक 'नाविक सागर परिक्रमा' का परिनौचालन किया है।* आईएनएसवी के मार्च के अंत तक गोवा लौटने की योजना है।**

https://pib.gov.in/PressReleasePage.aspx?PRID=1799395

Press Information Bureau
Government of India

Ministry of Defence

Sun, 20 Feb 2022 5:56PM

Chief of Naval Staff reviews preparations of President's Fleet Review

Admiral R Hari Kumar, PVSM, AVSM, VSM, ADC, the Chief of the Naval Staff (CNS) arrived in Visakhapatnam on Saturday, 19 Feb 22. The CNS reviewed the overall preparations for the President's Fleet Review (PFR) on 20 Feb 22. The 12th edition of the PFR is being conducted at Visakhapatnam on 21 Feb 22 as part of the 75th anniversary of India's Independence, being celebrated as 'Azadi Ka Amrit Mahotsav'. Shri Ram Nath Kovind, Hon'ble President of India, who is also the Supreme Commander of the Armed Forces, embarked on the Presidential Yacht INS Sumitra will review the Indian Naval Fleet comprising over 60 ships and submarines, and 55 aircraft.

Ships from all Naval Commands and Andaman and Nicobar Command are anchored in four columns. The Presidential yacht will sail past 44 ships anchored in four lanes, and will be accorded the ceremonial salute, one by one. The participating platforms in the review includes newly inducted combat platforms, the latest stealth destroyer INS Visakhapatnam and INS Vela, a Kalvari class submarine commissioned into the Indian Navy recently. IN Ships Chennai, Delhi, Teg and three Shivalik class frigates and three Kamorta class ASW Corvettes will also form part of the review. Ships from the Coast Guard, Shipping Corporation of India & Ministry of Earth Sciences are also taking part. A Composite Fly Past by Chetaks, ALH, Sea Kings, KAMOVs, Dorniers, IL-38SD, P8I, Hawks and MiG 29K will also form part of the Review. It is pertinent to mention that 47 out the 60 ships and submarines participating have been constructed in Indian shipyards, thus showcasing indigenous capabilities and progress towards Atmanirbharta.

https://pib.gov.in/PressReleasePage.aspx?PRID=1799853

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Sun, 20 Feb 2022 5:56PM

नौसेना प्रमुख ने राष्ट्रपति के बेड़े की समीक्षा तैयारियों का जायजा लिया

नौसेनाध्यक्ष (सीएनएस) एडमिरल आर हरि कुमार, पीवीएसएम, एवीएसएम, वीएसएम, एडीसी शनिवार, 19 फरवरी 22 को विशाखापत्तनम पहुंचे। नौसेनाध्यक्ष ने 20 फरवरी 22 को राष्ट्रपति फ्लीट रिव्यू (पीएफआर) की समग्र तैयारियों का निरीक्षण किया। पीएफआर का 12वां संस्करण 21 फरवरी 22 को भारत की आजादी की 75वीं वर्षगांठ के तहत विशाखापत्तनम में आयोजित किया जा रहा है, जिसे 'आजादी का अमृत महोत्सव' के रूप में मनाया जा रहा है। भारत के माननीय राष्ट्रपति और सशस्त्र बलों के सर्वोच्च

कमांडर श्री राम नाथ कोविंद राष्ट्रपति यॉट (नौका) आईएनएस सुमित्रा पर सवार होकर 60 से अधिक जहाजों और पनडुब्बियों तथा 55 विमानों से युक्त भारतीय नौसेना बेड़े का निरीक्षण करेंगे।

सभी नौसेना कमानों और अंडमान और निकोबार कमान के जहाज चार स्तंभों (कॉलम) में लंगर डाले हुए हैं। राष्ट्रपति का यॉट चार लेन में लंगर डाले हुए 44 जहाजों से गुजरेगी और उन्हें एक-एक कर औपचारिक सलामी दी जाएगी। समीक्षा में भाग लेने वाले प्लेटफार्मों में नए शामिल किए गए लड़ाकू प्लेटफॉर्म नवीनतम रेडार से बच निकलने वाला विध्वंसक आईएनएस विशाखापत्तनम और आईएनएस वेला है, यह कलवरी श्रेणी की पनडुब्बी है जिसे हाल ही में भारतीय नौसेना में शामिल किया गया है। आईएन जहाज चेन्नई, दिल्ली, तेग और तीन शिवालिक श्रेणी के युद्धपोत तथा तीन कमोर्टा श्रेणी के एएसडब्ल्यू कार्वेट भी समीक्षा का हिस्सा होंगे। इसमें तटरक्षक बल, भारतीय नौवहन निगम और पृथ्वी विज्ञान मंत्रालय के जहाज भी भाग ले रहे हैं। चेतक, एएलएच, सी किंग्स, केएएमओवी, डोर्नियर्स, आईएल-38एसडी, पी81, हॉक्स और मिग 29के का एक समग्र फ्लाईपास्ट भी समीक्षा का हिस्सा होगा। यह उल्लेख करना प्रासंगिक है कि भाग लेने वाले 60 जहाजों और पनडुब्बियों में से 47 का निर्माण भारतीय पोत कारखाना (शिपयार्ड) में किया गया है, इसमें स्वदेशी क्षमताओं और आत्मनिभरता की प्रगति का प्रदर्शन किया गया है।

https://pib.gov.in/PressReleasePage.aspx?PRID=1799901

The Indian EXPRESS

Mon, 21 Feb 2022

Explained: Presidential Fleet Review: what Navy displays, and its significance

In simplest terms, it is the country's President taking stock of the Navy's capability. It showcases all types of ships and capabilities the Navy has. It takes place once under every President, who is the supreme commander of the armed forces.

By Krishn Kaushik

On Monday President, Ram Nath Kovind will take part in the Indian Navy's 12th Presidential Fleet Review.

What is the President's Fleet Review?

In simplest terms, it is the country's President taking stock of the Navy's capability. It showcases all types of ships and capabilities the Navy has. It takes place once under every President, who is the supreme commander of the armed forces.

Vessels at sea during the President's Fleet Review of 2016. Credit: Indian Navy

The President is taken on one of the Naval ships, which is called the President's Yacht, to look at all the ships docked on one of the Naval ports. According to a statement by the Navy, the President's Yacht this year "is an indigenously built Naval Offshore Patrol Vessel, INS Sumitra, which will lead the Presidential Column. The yacht will be distinguished by the Ashoka Emblem on her side and will fly the President's Standard on the Mast".

The President will be given a 21-gun salute before embarking on the yacht.

Do all naval ships participate?

No. The idea is to showcase not all the Navy's ships, but every type of ship — and the kind of capabilities it has at that time. In Monday's fleet review, which will take place in Vishakhapatnam, Kovind will review over 60 ships and submarines, and 55 aircraft, from the Navy and the Coast Guard.

His yacht will sail past 44 ships lined up at anchorage off Visakhapatnam, and there will be a combination of ships from the Indian Navy as well the Coast Guard, along with some vessels from the Shipping Corporation of India and the Ministry of Earth Sciences.

The review also includes merchant ships.

What else happens in the fleet review?

"In this most formal of naval ceremonials, each ship dressed in full regalia will salute the President as he passes. The President will also be reviewing the Indian Naval Air Arm in a display of spectacular fly-past by several helicopters and fixed-wing aircraft. In the final stage of the review, a mobile column of warships and submarines will steam past the Presidential Yacht." The Navy said.

The vessels will include the Navy's latest acquisitions, and the events will include waterfront activities such as Parade of Sails, Search and Rescue Demonstration at Sea, Aerobatics by Hawk aircraft, and Water Para Jumps by the elite Marine Commandos.

All ships at anchorage will be dressed ceremoniously with various naval flags in full regalia. They have been illuminated from sunset to midnight on February 19 and 20.

As part of the Sail Parade activities, six ocean-going Indian Naval Sailing Vessels arrived at Visakhapatnam from Goa. These are part of Ocean Sailing Node at INS Mandovi at Goa.

How many of these reviews have been held?

There have been 11 President's Fleet Reviews since Independence. The first was conducted in 1953, under Dr Rajendra Prasad. The next one was done not by the President but by the then Defence Minister, Y B Chavan, in 1964. Since then, it has been the President reviewing the fleet.

The longest gap between reviews was of 12 years — between 1989 (President R Venkatraman) and when 2001 (President K R Narayanan). The last one was done in 2016, under President Pranab Mukherjee.

The reviews in 2001 and 2016 were International Fleet Reviews, in which some vessels from other countries also participated. The Indian Navy too has participated in international fleet reviews in other countries, including Australia, America, Malaysia, Indonesia, South Korea, and the UK.

In 1953, 25 warships, seven yard craft and one merchant ship had participated. In 1964, the number rose to 31 warships, nine merchant ships and 12 yard craft. Two years later, under President S Radhakrishnan, India's first aircraft carrier INS Vikrant was part of the review.

What is its significance?

It is one of the most important events for the Navy, which is essentially showing its allegiance and commitment to defending the country. It is a long-standing tradition followed by navies across the world, and according to Navy officials it is a strong bond that links seafarers of the world.

"Historically, a Fleet Review is an assembly of ships at a pre-designated place for the purpose of displaying loyalty and allegiance to the Sovereign and the state. In turn, the Sovereign, by reviewing the ships, reaffirms his faith in the fleet and its ability to defend the nation's maritime interest," a senior Navy official said.

The official said the review "was perhaps conceived as a show of naval might. Though it still has the same connotation, assembling of warships without any belligerent intentions is now the norm in modern times".

https://indianexpress.com/article/explained/presidential-fleet-review-what-navy-displays-significance-7782867/

FINANCIAL EXPRESS
Read to Lead

Sat, 19 Feb 2022

DefExpo 2022 extended by a day; New mobile app launched today

According to an official statement issued by the Ministry of Defence, this app is user -friendly interface for all matters related to the DefExpo-2022 which is again going to be in hybrid mode.

By Huma Siddiqui

Ahead of the DefExpo-2022, on Friday defence Minister Rajnath Singh launched an interactive mobile app, which will help and support the exhibitors, attendees and the media.

According to an official statement issued by the Ministry of Defence, this app is user -friendly interface for all matters related to the DefExpo-2022 which is again going to be in hybrid mode. The event is taking place in Gandhinagar, Gujarat, and has been extended by a day by the defence minister as the show has generated a lot of interest. Earlier the show was from March 10-13 and now it will conclude on March 14, 2022.

The theme of the 12th edition of the DefExpo is "India-The Emerging Defence Manufacturing Hub". A number of MoUs are expected to be signed under a "Bandhan ceremony". (Photo source: IE)

The theme of the 12th edition of the DefExpo is "India-The Emerging Defence Manufacturing Hub". A number of MoUs are expected to be signed under a "Bandhan ceremony".

The decision to extend the event which has been christened, 'Path to Pride', was made when Minister Rajnath Singh was reviewing the preparations being made for the show. He was briefed about virtual attendees who could participate in seminars; Business-to-Business (B2B) meetings; product details; interact with the exhibitors & representatives and supporting videos.

What will be there?

The inaugural function will take place at Mahatma Mandir on March 10 and this venue will be hosting several seminars related to Defence Manufacturing etc.

For the first time, the event is expected to showcase, country's resolve to be first among firsts.

The indigenous technological and logistic strength of the defence industry will be at the forefront and this will help the industry, MSMEs, and startups and will be a platform for them to establish partnerships with the Original Equipment Manufacturers (OEMs).

Keeping in mind Prime Minister Narendra Modi's vision of 'Aatmanirbhar Bharat', and focus on indigenous defence manufacturing sector, this year a wider participation.

There will be a India Pavilion and Gujarat Pavilion: and companies from the defence sector like: Ashok Leyland Ltd, Tata Advanced Systems Ltd, Larsen & Toubro Ltd, Mahindra Defence Systems Ltd, Armoured Vehicles Nigam Ltd Avadi, Adani Defence System and Technologies Ltd Kalyani Group, Chennai, Advanced Weapons and Equipment India Ltd, Garden Reach Shipbuilders and Engineers Ltd., Cochin Shipyard, Mazagon Dock Shipbuilders Ltd, will be present and displaying their products there.

Defence Research and Development Organisation (DRDO), BrahMos Aerospace, Indian Navy and Indian Air Force will also be present there.

Three venue format

There will be exhibition at the Helipad Exhibition Center (HEC);

Events and Seminars at the Mahatma Mandir Convention

Exhibition Center (MCEC) and live demonstration for the general public at Sabarmati Riverfront.

Strict COVID protocols will be in place including: masking up, non-contact interactions, respiratory hygiene and more.

More about the mobile app

This app will be available on the Android/iOS platforms.

This can help get all information related to the exhibitors, venue maps, speakers, driving directions, notifications for visitors and exhibitors. Also available on this app will be various publications.

There is an added feature which will help in sharing feedback, including delegate hospitality management and cleanliness issues.

The minister reviewed the preparations virtually for the 12th edition of the Expo which is considered to be Asia's largest exhibition on land, naval and homeland security systems.

Who is attending?

According to the MoD official statement, till date 930 exhibitors have registered and the numbers are expected to go up to 1000 by the time the show starts. Participants from 70 countries are expected to be present.

Also, Foreign Defence Ministers of various countries have confirmed their presence and more are awaited.

According to reports, the US companies like Boeing, Lockheed Martin, Northrop Grumman, and they have already marked their space at the helipad grounds. Russian companies, Rafael Advanced Defence Systems, Israel Aerospace Industries Ltd, Airbus too have spots at the same location.

Hybrid Exhibition

There will be hybrid exhibitions — stands in both physical and virtual format and this would enable greater engagement as all the exhibitors will be in a position to cater to virtual and physical attendees.

India-Africa Conclave

As reported by Financial Express Online in 2021, this year again India-Africa Defence Ministers Conclave will take place. This will be the second edition of the conclave. The first one was held in Lucknow during the 11th edition of DefExpo.

This year, the broad theme is going to be 'India – Africa: Adopting Strategy for Synergizing and Strengthening Defence and Security Cooperation'.

The focus of the conclave will be on strengthening defence cooperation between India and the African continent as well as defence exports. Both sides will also discuss at bilateral and multilateral level the possibility of joint ventures, security solutions, spare parts, maintenance, and maritime security.

Who all were present during the preview?

Minister of State Ajay Bhatt, Defence Secretary Dr Ajay Kumar, Vice Chief of the Army Staff Lt Gen Manoj Pande, Chief of the Air Staff Air Chief Marshal VR Chaudhari, Chief of the Naval Staff Admiral R Hari Kumar. Also present were Financial Advisor (Defence Services) Sanjiv Mittal and other senior military and civil officers of the ministry.

https://www.financialexpress.com/defence/defexpo-2022-extended-by-a-day-new-mobile-app-launched-today/2438019/

THE HINDU

Sun, 20 Feb 2022

First batch of 3 MH-60R Multi-Role Helicopters to arrive in mid-July

This will the first major induction of helicopters by Navy in decades for deployment on ships

By Dinakar Peri

New Delhi: The first batch of three MH-60R Multi-Role Helicopters contracted by the Navy from the United States are scheduled to arrive in India by mid-July, according to defence officials.

And a case for procurement of six Kamov Ka-31 early warning helicopters is under progress.

The three helicopters were handed over to the Indian Navy last July in the U.S. and are being used for training Indian pilots at Pensacola, Florida and San Diego.

This will the first major induction of helicopters by the Navy in decades for deployment on ships.

File photo of MH-60R helicopter | Photo Credit: AFP

The helicopters were scheduled to arrive in India between mid-June and mid-July and likely to be based in Kochi, a defence official said.

Separately, a case for procurement of six Kamov Ka-31 airborne and early warning helicopters from Russia is now being reviewed by the Defence Acquisition Council (DAC). A Contract Negotiation Committee was constituted in November 2020 and the commercial bids opened in September 2021. There were some deviations from the Request For Proposal (RFP) and they are currently being addressed. These helicopters are expected to be deployed on indigenous aircraft carrier V *ikrant.*

Deal signed during Trump visit

India had signed a $2.2 bn deal for MH-60R helicopters built by Lockheed Martin during the visit of then U.S. President Donald Trump in February 2020. Deliveries are expected to be completed by 2025. The helicopters would also be modified with several India unique equipment and weapons, the Navy had stated.

The Navy is facing an acute shortage of helicopters on its frontline warships but procurement of new ones has been repeatedly delayed. A tender for 111 Naval Utility Helicopters (NUH), being processed through the Strategic Partnership route of procurement procedure, is under the scanner as a part of the review by the DAC of all 'Buy Global' deals. It is likely to be scrapped and instead take the indigenous route, which is currently being reviewed, officials said.

Another major requirement for 123 multi-role helicopters is also pending. To address the shortfall in the interim, last April the Navy issued a Request for Information (RFI) for lease of 24 light helicopters.

The MH-60Rs are a replacement of the Sea King 42/42A helicopters already decommissioned in the 1990s, and are envisaged to operate from frontline ships and aircraft carriers providing them the critical attributes of flexibility of operation, enhanced surveillance and attacking capability.

https://www.thehindu.com/news/national/first-batch-of-3-mh-60r-multi-role-helicopters-to-arrive-in-mid-july/article65065395.ece

THE HINDU

Sun, 20 Feb 2022

IIIT-H algorithm to improve Air Force tracking system

AI-assisted tracker model demonstrates 5% improvement in the original tracking mechanism, providing an accuracy of upto 91%

Hyderabad: All flying objects in the Indian airspace — commercial aircraft, missiles, drones, fighter planes and others — are detected and tracked by ground-based radars produced by public sector unit Bharat Electronics Limited (BEL).

The current system used by the Indian Air Force relies on a Multi-Sensor Tracking (MST) mechanism via radars located in different parts of the country with information such as location and velocity coordinates captured by each radar collated to provide the Air Situation Picture (ASP).

ASP is a detailed listing of all aircraft in the airspace along with their corresponding flight numbers and flight plans. But, overlapping radars and delay in communication between sensors lead to a 'merging' error – a situation where multiple aircraft in close proximity to each other in the airspace are incorrectly identified as one.

Another is 'splitting' — where a single aircraft is sensed as multiple and erroneously flagged as a threat. From a security point of view, threat detection and evaluation need to be spot-on but due to these errors, the ASP generated is not 100% accurate.

A team from BEL-Ghaziabad comprising Roshan Kumar, Rohit Singh, Aravind Kumar and Manoj Tyagi approached the International Institute of Information Technology (IIIT)-Hyderabad, for the development of an automated solution to address these issues.

The institute's research team led by Praveen Paruchuri of the Machine Learning Lab, with Masters student Anoop Dasika after due research, came out with a AI-assisted tracker model demonstrating a 5% improvement in the original tracking mechanism, providing an accuracy of upto 91%.

The software has been transitioned to BEL and is currently being tested out in their simulation environment. The algorithm accurately identifies the flights – that it is a single flight in case of split flights and that there are more than one in case of merged flights, said an IIIT-H online post on Friday.

In both cases, the corresponding global tracking number of the flights is obtained. "Instead of the MST system directly transmitting information to the operators' screens, now data from MST goes into our AI system where it is preprocessed and the original global track number(s) is identified before relaying it back to the original server. MST now transmits it to the operators' screens to decide the most suitable course of action," explained Mr. Anoop.

Unlike other AI models developed based on a one-time training of data, the reseachers advocate periodical training every fortnight. "Periodic training is useful to catch any new or emerging patterns due to old radars getting decommissioned, newer ones installed and so on," said Mr Paruchuri.

"Our model also helps in a detailed radar analysis to prioritise replacement or repair of the radars," he added. Research findings were published in a paper titled, "CB+NN Ensemble To Improve Tracking Accuracy In Air Surveillance" and it is slated be presented at the 34th annual conference on Innovative Applications of Artificial Intelligence (IAAI-22) to be held virtually between February 24-26.

https://www.thehindu.com/news/national/telangana/iiit-h-algorithm-to-improve-air-force-tracking-system/article65062121.ece

Sat, 19 Feb 2022

BrahMos missile sale – A rubicon crossed

By Pinak Ranjan Chakravarty

The undercurrents buffeting the international order are gathering momentum. The so-called liberal international order ended two decades ago. The post-Cold War era has also ended, with the current geopolitical trend defined by the economic rise of China and her aggressive expansionist policies. Whether the new international order will be based on a multipolar architecture or a plurilateral architecture that provides stability, is still work in progress. The most potent driver of this restructuring of the international order is China's attempt to create an alternative one, in which China is the global hegemon or at the least a rival one to USA, with vassal states in her orbit.

China has so far succeeded in creating considerable security concern in East Asia by her belligerent actions in the South China Sea [SCS], in pursuit of her hegemonic ambition. This has led to a critical mass of countries who all have decided that future threats to their countries emanate from China. This situation has set in motion countervailing trends. It is instructive to analyse these geopolitical trends by following strategic high technology weapons transfers from one country to another.

The China-Pakistan strategic nexus started soon after the 1962 India-China war and has today solidified to an extent that these two countries call each other "iron brothers".

China's transfers of high-tech weapons to Pakistan are well documented. The China-Pakistan strategic nexus started soon after the 1962 India-China war and has today solidified to an extent that these two countries call each other "iron brothers". The reality though, is that Pakistan is now a vassal state. The underlying geopolitical reason for this nexus is clearly to target India and an expression of the Kautilyan policy of "my enemy's enemy is my friend". It is now widely accepted that China also handed over the nuclear bomb design and nuclear capable missiles to Pakistan and helped North Korea transfer missiles which Pakistan copied to produce her missiles.

The USA had earlier armed Pakistan with high-technology weaponry. The backdrop then was the geopolitical contestation of the Cold War and to a lesser extent, balancing India, an objective partly shared by USA and China then. The Cold War spurred the China-USA partnership, paving the way for China's rise as an economic power. The wheel of history turns inexorably and USA today is poised against China, as her global rival. USA's policies against Russia have now led to the China-Russia axis, thereby strengthening China's hands, in challenging USA in the geopolitical contest currently underway.

The latest transfer of around 40 JF-17 Thunder Block III by China to Pakistan can also be seen in the geopolitical context, arising out China's aggression against India in Ladakh, and India's acquisition of the 36 French Dassault Rafale aircraft and the Russian S-400 anti-aircraft system. China is also transferring the multirole J-10C aircraft to Pakistan. The crisis in Ukraine has led to transfer of weaponry by the USA and UK to counter Russia's massing of troops along the eastern border with Ukraine and also on the western border with Belarus.

The Philippines wants to upgrade her coastal defence to protect her claim to disputed islands that China has grabbed and seeks to grab more such disputed islands, in violation of international law.

India's EAM Dr S Jaishankar's visited the Philippines, soon after India finalized the sale of BrahMos missile systems to the Philippines, under a contract worth USD 375 million, the biggest arms deal that India has signed. India is not a major arms exporter and is listed as the 24th largest arms exporter but is known as the one of the top five importer of arms. India has extended a USD

100 million Line of Credit to the Philippines for import of defence equipment. The deal includes training and maintenance services to the Philippine Marines who will deploy the system along the coast. The Philippines wants to upgrade her coastal defence to protect her claim to disputed islands that China has grabbed and seeks to grab more such disputed islands, in violation of international law.

The Philippines and China have been entangled in a territorial dispute since China's occupation of Mischief Reef in 1992 and the clash over Scarborough Reef in 2012, followed by frequent skirmishes between the China-Philippines naval and coast guard units. Chinese maritime forces have aggressively encroached into EEZs of all ASEAN countries, ignoring the 2016 verdict of the Permanent Court of Arbitration [PCA] which rejected China's inflated claims of sovereignty, based on the 9-dash line. Hyper-nationalist China, under the leadership of President Xi Jinping, has unilaterally used military force to occupy and militarize contested islands, thereby raising tensions in the Indo-Pacific region.

The Philippines, like all other ASEAN countries around the South China Sea, are being threatened by China's expansionist and aggressive moves to grab contested islands in the EEZs of these countries. This has sparked off considerable concern among the ASEAN nations who have, hitherto, avoided acquisition of offensive weapon systems which might annoy China. India too had avoided transferring missile systems to ASEAN countries for similar reasons. China's provocations have now ensured that self-imposed restraints have been discarded and minimal deterrence capabilities are put in place. Deployment of the BrahMos system along the western coastline of the Philippines will overlook the South China sea, where there are several islands and fishing areas that are being encroached by China.

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The BrahMos sale signifies the end of India's strategic hesitation in transferring high-tech weapons to a country in a contested arena. The geopolitical Rubicon has now been crossed. Other major arms transfer in the Indo-Pacific will be the Indonesian decision to acquire the Rafale aircraft. The Philippines sale may encourage Vietnam, Thailand and Indonesia to acquire the BrahMos. The flow of sophisticated weaponry underlines the strategic turbulence that is defining the new normal in the Indo-Pacific. The BrahMos missile system is an India-Russia joint venture and sends a signal to China that despite her growing strategic congruence with Russia, transfer of advanced weapons systems is not part of any strategic understanding. Russia, it would appear, is ready to sell advanced weapons systems to buyers like China and India, both of whom have deployed the S-400 anti-aircraft systems.

The BrahMos deal is a breakthrough and is likely to encourage ASEAN nations who are in discussion with India, to acquire this missile system and other defence equipment from India. The sale will help in upgrading defence ties with ASEAN countries, many of whom are already acquiring defence equipment form India. This also fits in with the ASEAN-India Delhi Declaration, wherein both sides committed to "maintaining and promoting peace, stability, maritime safety and security, freedom of navigation and overflight in the region, and other lawful uses of the seas."

The BrahMos sale will not give the Philippines any overwhelming capability against China but will certainly raise the cost for China in any conflict, apart from being a morale booster for the Philippines and an important aspect for India's "Act East Policy".

The views expressed above belong to the author(s).

https://www.orfonline.org/research/brahmos-missile-sale-a-rubicon-crossed/

THE NATIONAL INTEREST

Sat, 19 Feb 2022

India turns to South Korea for development of new light tank

India and South Korea could now be moving forward on developing light tanks.

By Peter Suciu

Since establishing formal diplomatic ties in 1973, India and the Republic of Korea (South Korea) have become close trading partners. In 2010, the two nations also signed a number of memorandums of understanding (MoUs) that included defense cooperation and research and development (R&D). India and South Korea could now be moving forward on developing light tanks.

According to a report from Janes, India's Larsen & Toubro (L&T) is prepared to produce light tanks with South Korea's Hanwha Defense for the Indian Army. An L&T spokesperson told Janes last week that the Indian multinational conglomerate had plans to partner with Hanwha Defense to manufacture the light tanks. The two companies had previously partnered to produce the K9 Vajra-T self-propelled howitzer (SPH), a variant of the K9 Thunder SPH, for the Indian Army

Rolling Forward?

It may not be a fully "done deal" just yet, as a spokesperson added that the Indian Ministry of Defence (MoD) has only released the request for information (RFI) for the light tanks and has not actually placed any orders.

As such, the joint production of light tanks remains uncertain at this stage since the tender's categorization will decide what direction the program might take, the spokesperson added.

"Given this situation, I believe it is far too early for any global player to offer their product to India," explained the L&T spokesperson.

This comes after a spokesperson from Hanwha Defense told Janes last month that the South Korean company was willing to jointly produce the K21-105 light tank with L&T for use with the Indian Army. It would be similar to the program to build the K9 Vajra-T SPH.

"Hanwha Defense will discuss with its Indian partner the level of technology as required under the Make in India policy," the Hanwha Defense spokesperson told Janes.

Mountain Bound?

New Delhi has been making great strides to equip the Indian military with the latest in military hardware, and last year the government of India issued a request for information for 350 light tanks. That was reportedly spurred on by Indian troops who had spotted the new Chinese light tank, the Type 15 or ZTQ 15, deployed in Eastern Ladakh, where the Indian Army and the Chinese People's Liberation Army (PLA) have been locked in a border dispute for almost twenty-two months.

The India Army has deployed its fleet of T-90 main battle tanks (MBTs) to the region, but each weighs around 46 tonnes and as such could likely be too heavy for rugged terrain. In addition, a number of Soviet-made T-72 tanks—weighing roughly 45 tonnes—from India's vast tank arsenal had been previously deployed. Those tanks had been modified and adapted to run on a special fuel mix designed specifically for the high altitudes and low temperatures of the region.

However, the Ladakh Valley isn't considered ideal tank country, especially for lumbering MBTs, which is why the Chinese have deployed the Type 15 to the region.

Weighing in at around 35 tons, the tank is about half the size of the American M1 Abrams and armed with a smaller 105mm main gun. However, the Type 15, which has a crew of three, features

a robust armor package as well as the chemical, biological, radiological, and nuclear (CRBN) protection typically found in larger tanks. It is able to produce its own oxygen, which is critical in the high-altitudes, and also features advanced weapons and fire control systems, a ballistic computer, laser rangefinder, and thermal sights for the gunner. It would seem that India is seeking to counter the Type 15 with its own light tank—and it could be turning to South Korea to help produce it.

(Peter Suciu is a Michigan-based writer who has contributed to more than four dozen magazines, newspapers and websites. He regularly writes about military small arms, and is the author of several books on military headgear including A Gallery of Military Headdress, which is available on Amazon.com.)

https://nationalinterest.org/blog/buzz/india-turns-south-korea-development-new-light-tank-200708

Sat, 19 Feb 2022

Weak investment in Defence R&D: Key factor behind India' poor defence indigenization

India lags far behind China in terms of the budget allocated to defence R&D

By Kartik Bommakanti

In the Budget of 2022 presented by Union Finance Minister (FM) Nirmala Sitharaman in early February 2022 allocated a total of 70,23 billion USD to the defence budget for the year 2022-23, which is roughly 13.3 percent of the national budget. The share allocated for Research and Development (R&D) in the latest budget stands at pitifully small sum of 1.24 billion USD, which is 1.7 percent of the total defence budget. An allocation of 25 percent of the R&D budget at a sum of 310 million to private sector industries, start-ups and academic institutions is not just worryingly, but laughably small. This figure and the entire R&D budget are being treated as a significant allocation. Consider Defence Minister (DM) Rajnath Singh' statement on social media following FM Sitharaman's budget speech: "Substantial amounts have been allocated towards Research and Development in several sectors including Defence. The proposal to reserve 25 percent of the R&D Budget for Startups and Private entities is an excellent move." Reassuringly, the Indian government has also sought to allay fears of private industry that it will extend guaranteed orders and source equipment. The private industrial enterprises that are likely to gain from the government's acquisitions will include Tata group, Mahindra Defence, Kalyani group, Larsen and Toubro, Adani Aerospace & Defence, VEM Technologies, Tara Systems and Technologies, SEC Industries, Cyient, Alpha Design, Astra Microwave Products, Sigma Electro Systems, Economic Explosives, MKU, SSS Defence and Indo-MIM.

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To be sure, the figure of 1.24 billion potentially excludes expenditure in strategic sectors such as nuclear and missile related R&D. Nevertheless, the R&D budget is too small by any standard compared to major military spenders across the world explaining why India lags behind in building a credible and capable domestic defence industry. The foremost test for India will have to be how its expenditure on R&D compares with China. A glance at Peoples Republic of China (PRC)' spending on defence R&D in Table 1 will give the reader a glimpse of why India will struggle to compete effectively with one of the world's major military powers and a neighbour against whom India faces serious military competition. Between the years 2017 and 2019, the Chinese spent roughly 9 to 10 percent of their defence budget on defence R&D as shown in Table 1. The data given below is for the three years between 2017-2019 drawn from the Stockholm International

Peace Research Institute' 2020-21 report. All data in Table 1 has been converted specifically by the author to round figures with only slight variation drawn from data in SIPRI's "A New Estimate of China's Military Expenditure" authored by Nan Tian and Fei Su. For the years 2020 to 2021, the author was unable to access data. Despite this limitation, readers should note that the differential in the amount spent on R&D by the PRC is unlikely to be great for years 2020 and 2021 from the data shown in Table 1.

Year	2017	2018	2019
Defence Expenditure (DE) in USD Billions	228	254	260
Research and Development, Testing and Evaluation in USD Billions.	20	23	25
R&DT&E expenditure in percent.	9.00	9.10	9.60

Even if the SIPRI data from Table 1 is considered a very conservative estimate, India still stacks up poorly against the Chinese in relation to defence spending on R&D and if one were to go by Indian data, India fares even worse than what SIPRI estimates about China's budgetary allocation for defence R&D. Indeed, data obtained by the Lok Sabha Standing Committee on Defence 2019-2020 put the PRC's R&D at 20 percent of the Chinese defence budget. That figure is twice as high as the SIRPI estimate as shown in Table 1. The MoD in its submission in the 2019-20 report stated that the DRDO – India's leading defence R&D organization was consistently allocated 5-6 percent (very likely excluding what the MoD calls "strategic schemes" or strategic sectors) of the defence budget. This figure would still be roughly two times less than the SIPRI's estimate and four times less than the Lok Sabha Standing Committee' estimate on China's allocation for defence R&D. However, in the current defence budget of 2022-23, R&D allocation is less than 2 percent of the total defence budget revealing an even greater differential. In the absence of greater budgetary support for defence R&D, the government and the MoD have sought other avenues. In the Lok Sabha Standing Committee report 2020-21, the MoD again noted in a quest to gain more technology, the Modi government which announced a 74 percent hike in Foreign Direct Investment (FDI) in 2020 through the automatic route, will offset or compensate for limits on budgetary support for defence R&D by attracting "…cutting edge defence technologies". Although evidence for such gains is unclear and the decision to hike FDI to 74 percent from 49 percent will take more time to bear fruit or if it is as attractive to foreign vendors to dole out high-end technology as the MoD claims.

In the current defence budget of 2022-23, R&D allocation is less than 2 percent of total defence budget. In the absence of greater budgetary support for defence R&D, the government and the MoD have sought other avenues.

If the Indian government does not spend as much on defence R&D through its government run defence research institutions, are Indian private sector companies making up for lack of governmental investment? Here the data is even more scant or at least obscure. It is hard to find concrete evidence on how much investment Indian private sector companies plough into in-house defence R&D. For instance, India's largest private engineering company and a leading player in defence hardware development and manufacturing Larsen and Toubro (L&T) does have in-house R&D investments based on the revenue it earns, yet the precise amount is unknown. Further, the incentive for in-house R&D, especially in defence, as one senior L&T executive averred, must be subject to tax deduction and treated on par with government funded defence R&D programmes, if defence indigenization is to be consolidated in the long term and private enterprise is to pick up slack for low government funded defence R&D. It is entirely possible, L&T and other Indian private enterprises involved in the development and production defence equipment do not want to divulge their internal R&D investment in the interests of corporate confidentiality and secrecy. Thus, unless more information is available in the public domain establishing the scope, nature and pattern of in-house private sector investments in defence R&D will remain speculative and indeterminate.

The views expressed above belong to the author(s).

https://www.orfonline.org/expert-speak/weak-investment-in-defence-rd/

FINANCIAL EXPRESS
Read to Lead

Sat, 19 Feb 2022

How does ISRO place satellites into space and what launch vehicles does it use?

The rockets use powerful propulsion systems generating huge amounts of energy that overcome the Earth's gravitational pull to lift heavy objects into space.

On February 14, the Indian Space Research Organisation (ISRO) launched the year's first space mission — an earth observation satellite, EOS-04, along with two other smaller satellites. The space research agency used a PSLV (Polar Satellite Launch Vehicle) rocket to launch the satellites. This was the PSLV rocket's 54th flight.

Satellites and rockets are both spacecraft — a generic term used for any object sent into space. (ISRO)

Satellites and Launch Vehicles

Satellites don't reach space on their own, but have to be carried by launch vehicles, or rockets, such as the PSLV. The rockets use powerful propulsion systems generating huge amounts of energy that overcome the Earth's gravitational pull to lift heavy objects such as satellites into space.

The payloads, or satellites, sit inside the rocket before being ejected once they reach near the intended orbit. Most satellites have small propulsion systems to carry small amounts of fuel as they encounter little drag, or force, in outer space.

Satellites and rockets are both spacecraft — a generic term used for any object sent into space.

Satellites carry instruments for scientific work in space. Their operational life can extend up to decades. The rockets, or launch vehicles, on the other hand, become useless after launch. Their sole job is to take the satellites to their intended orbit.

Rockets have several energy-providing but detachable parts. These parts burn different kinds of fuels and power the rocket. Once the fuel is exhausted, the parts detach from the rocket. Only a small part of the original rocket goes to the satellite's intended destination. Once the satellite is ejected, this last part either becomes part of space debris or burns off after falling into the atmosphere.

Launch Vehicle types

PSLVs are not the only launch vehicle ISRO uses. The difference between the various kinds of launch vehicles is mainly in the power generated, the weight carrying capacity, and the distance they can travel into space. Everything boils down to the energy generated, which is a function of engine and fuel efficiency.

Several satellites need to be deposited in the lower-Earth orbits, beginning from around 180 km from the surface and extending up to 2,000 km. Most communication satellites, Earth-observation satellites, and even the International Space Station — a full-fledged space that hosts astronauts — function in this space.

Smaller, less powerful rockets that expend smaller amount of energy take the satellites to low-Earth orbits.

However, some satellites are required to go deeper into space. For example, geostationary satellites have to be deposited in orbits about 36,000 km from the Earth's surface. Planetary exploration missions also need rockets to leave them deeper in space. For such missions, more powerful rockets are used.

In general, the trade-off is between the satellite's weight and the distance that needs to be covered. The same rocket can deposit a smaller satellite deeper into space compared to a heavier satellite.

ISRO Launch Vehicles

ISRO uses two launch vehicles at present – the PSLV and the GLSV (Geosynchronous Satellite Launch Vehicle). But these also have several variants. The PSLV is ISRO's most reliable rocket, with 52 successful launches out of 54 attempts. The GSLVs are much more powerful rocket and meant to carry heavier satellites deeper into space. Till date, ISRO has used 18 GSLV rockets for missions — four of these ended in failure.

ISRO's first rocket was simply called SLV, or satellite launch vehicle. It followed it up with Augmented Satellite Launch Vehicle or ASLV. These two rockets could carry small satellites that weighed up to 150 kg to lower-Earth orbits. ISRO used the ASLV till the early 1990s before the PSLV, which was first launched in 1994 and has since become the space research agency's main rocket. Today's PSLV is vastly improved and more powerful than the ones used in the 1990s.

ISRO used the GSLV for the Chandrayaan-2 mission, and plans to use it for the Gaganyaan manned space mission. Its Mk-III version can carry satellites that weigh up to 4,000 kg to the geosynchronous transfer orbit, nearly 36,000 km from the Earth's surface. It can also take 10,000-kg satellites to lower-Earth orbit. The Mk-III version has made ISRO self-sufficient for satellite launches. Prior to this, it had to depend on the European Arianne launch vehicle to transport heavier satellites into space.

The Indian space research agency has also developed a launch vehicle particularly for small and micro-satellites — Small Satellite Launch Vehicle, or SSLV — aimed at rising global demand for such satellite launches. Through the SSLVs, ISRO aims to offer cost-effective launch services for satellites weighing up to 500 kg. ISRO's first SSLV launch is scheduled for March, carrying the indigenous Earth observation satellite EOS-03 into space.

Reusable Rockets

Rockets in the future are meant to become reusable. A small part of the rocket will be destroyed during the mission, with the bulk of it re-entering the atmosphere and landing like an airplane. These can then be used for future missions. Reusable rockets will reduce cost and energy. It will also cut down space debris, which is becoming a problem due to the large number of launches.

While fully-reusable rockets are yet to be developed, partially-reusable launch vehicles are in use already. ISRO has developed a reusable rocket, RLV-TD (Reusable Launch Vehicle Technology Demonstrator), which was successfully tested in 2016.

https://www.financialexpress.com/lifestyle/science/what-are-isros-launch-vehicles-pslv-gslv/2438200/

PHYS.ORG

Sat, 19 Feb 2022

Summit study spins up new insights into correlated electron systems

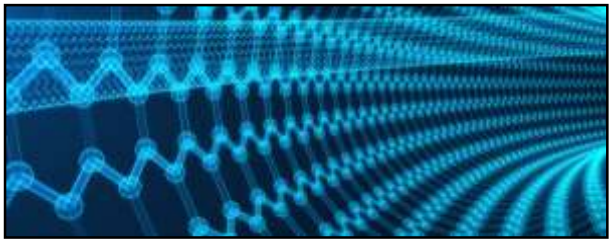
A study led by researchers at the U.S. Department of Energy's Oak Ridge National Laboratory used the nation's fastest supercomputer to close in on the answer to a central question of modern physics that could help conduct development of the next generation of energy technologies.

"This is mostly about solving what's now a decades-old problem," said Thomas Maier, an ORNL physicist who led the study with researchers from the University of Tennessee and the Institute for Theoretical Physics ETH Zurich. "If we can answer the question of what's the mechanism for superconductivity in certain correlated electron systems and understand the reasons for that behavior, then we can design materials to make the most of that behavior."

Findings appeared in the *Proceedings of the National Academy of Sciences*.

The study used Summit, the Oak Ridge Leadership Computing Facility's 200-petaflop IBM AC922 supercomputing system, to simulate interactions among a system of electrons within a solid. The simulations applied the Hubbard model, the most straightforward model of a system of interacting electrons in various dimensions, to explore how a class of copper alloys known as cuprates act as superconductors that transmit electricity with no loss of energy.

Cuprates can be used in power transmission and generation, high-speed magnetic levitation, or maglev, trains and medical applications, but generally display their full superconducting properties under extreme cold—typically hundreds of degrees below freezing. Explaining this superconductivity could crack the code to deliver superconductivity at room temperature and provide cheap, speedy and sustainable energy.



An international team of researchers used Summit to model spin, charge and pair-density waves in cuprates, a type of copper alloy, to explore the materials' superconducting properties. The results revealed new insights into the relationships between these dynamics as superconductivity develops. Credit: Jason Smith/ORNL

The Hubbard model, developed nearly 60 years ago and named for British physicist John Hubbard, posits a system of electrons within a 2D lattice. Each electron has a spin—either up or down, similar to the positive and negative poles of a magnet—and no two electrons of the same spin can occupy the same site. The first term of the model describes kinetic energy. In this term, the electrons move or "hop" back and forth between adjacent sites in the lattice and diagonally between their next nearest neighbors. The second term describes interaction energy and the energy increase if two electrons of opposite spin try to occupy a single site.

Hubbard didn't design the model to explain electron behavior in superconductors like cuprates. Researchers have experimented with layers of copper and oxygen in search of a room-temperature superconductor and adjusted or "doped" the Hubbard model over the years to try to understand superconducting properties.

The doped models remove electrons, leaving "holes" that encourage the remaining electrons to form pairs that easily conduct electricity. Under the right conditions, the holes fall in line to form stripes, believed by scientists to compete with superconductivity, and the electrons form a wave pattern, known as a charge and spin density wave.

But those models so far fail to reliably explain or predict superconductivity in enough detail for practical use.

"The approaches we have to solve this problem are not exact, and the model in theory would be infinite in size with many distinct phases, which requires extremely large, complex calculations,"

Maier said. "Energy differences can be tiny—less than a millielectron volt. We can try to approximate all this in a finite-sized lattice, but that approach neglects too many aspects and we end up with a lattice too small to draw the kind of robust conclusions we're looking for. We need a simple model that describes all the physics and consistently produces the same results."

Maier's team received an allocation grant of 900,000 node hours on Summit via the DOE's Innovative and Novel Computational Impact on Theory and Experiment, or INCITE, program

to explore the model in depth. The results revealed new insights into the relationships between electron spin and charge stripes, including when stripes form as superconductivity develops.

"These were some really heavy computations that couldn't be done anywhere but on Summit," Maier said. "We kind of took a chance, but it paid off because we finally had a machine that could support computations for a system large enough to see the stripes. This method allowed us to show that when the stripes show up in charge and spin, the superconducting correlations form a similar wave-like pattern known as a pair-density wave. The results could set a new standard for understanding this model."

The simulations don't spell out the secret to raising the temperature for superconductivity. But the lessons learned point to targets for further study as researchers zero in on how superconducting occurs.

"We know more each year than we did the last," Maier said. "Now we need to explore other methods for solving the model and replicate the results. We're closer now than ever before, and we want to get even closer."

More information: Peizhi Mai et al, Intertwined spin, charge, and pair correlations in the two-dimensional Hubbard model in the thermodynamic limit, *Proceedings of the National Academy of Sciences* (2022). DOI: 10.1073/pnas.2112806119

Journal information: *Proceedings of the National Academy of Sciences*

https://phys.org/news/2022-02-summit-insights-electron.html

Press Information Bureau
Government of India

Ministry of Science & Technology

Sun, 20 Feb 2022 6:37PM

Vigyan Sarvatra Pujyate

The Government of India is holding a year-long programme, Azadi ka Amrit Mahotsav, to pay homage to freedom fightes and showcase the country's achievements in various fields on the 75th anniversary of its Independence.

As part of this activity, the Government's various science and technology organisations, in close partnership with agencies at the level of the states are celebrating S&T achievements over the 75 years.

A week-long commemoration titled Vigyan Sarvatra Pujyate is being held from February 22 to 28 simultaneously in 75 locations across the length and breadth of the country from Leh and Srinagar to Port Blair and Kavaratti Islands in Lakshadweep from north to south and from Ahmedabad and Daman to Itanagar, Kohima, and Aizawl from west to east, apart from the national capital of Delhi. As a feather in the cap, a science & technology mega expo, National Science Book Fair are being held in New Delhi's Jawaharlal Nehru stadium.

The programme has been designed to inspire India's youth and help them navigate into building a progressive nation; bring to the fore stories of people in science who made these achievements possible; reinforce the commitment of the scientific community towards the economic and social development of the country; present the awe inspiring futuristic mega science projects embarked by the nation and highlight the work being done by R&D organizations from across the country, as they lead science and technology efforts on the road to 2047. The event would display the

country's scientific legacy and technology prowess that has helped find solutions to defence, space, health, agriculture, astronomy, and other sectors.

This event is jointly organised by Department of Science and Technology, Department of Biotechnology, Council of Scientific and Industrial Research, Ministry of Earth Sciences, Department of Atomic Energy, Department of Space, Indian Council of Medical Research, All India Council for Technical Education, and Defence Research Development Organisation, under the leadership of the office of the Principal Scientific Officer to the Government of India and the Ministry of Culture. Vigyan Prasar, an autonomous organization of DST with a mandate to promote science communication in the country, is the coordinating agency.

The programmes have been grouped under four themes. The first theme is `from the annals of the history of S&T'. This section traces the contributions of founders of modern science and institutions of national importance to nation-building. It will be done in the form of the screening of 75 films on 75 scientists, and 75 lectures by eminent scientists and technocrats across the 75 locations.

The programmes under the second theme, 'Milestones of Modern S&T', will highlight critical discoveries, innovations, or inventions that made a mark in the global science or India's development story.

The third theme, `Swadeshi Paramparik Inventions and Innovations', will showcase 75 inventions or technologies that made India self-standing and helped in achieving the goal of self-reliance by drawing upon the reservoir of traditional knowledge systems, such as drugs from herbs.

The fourth theme, `transforming India', will look at the road ahead for the next 25 years of Indian S&T. It would include talks by 75 eminent scientists & technocrats from within India and the diaspora on their ideas for Indian S&T as it marches towards the centenary year of India's independence.

The Mahotsav would include a mega expo and a book fair to be held at the grounds of Jawaharlal Nehru Stadium in Delhi. The science literature festival that will bring together science writers, communicators, artists, poets, dramatists, street play artists, hands-on science demonstrators, journalists, students, and teachers. The literature festival aims to communicate science through theatre, poems, various folk forms, and cultural events, including a puppet show, and shadow play. It is being organised simultaneously from all 75 locations.

Besides, several competitions, including quiz programmes, essay, poster, and poetry contests are being held to promote scientific temper, particularly among the youth and different science activities are being organised at all the 75 locations. The open-ended, hands-on activities are aimed at motivating young learners to appreciate the joy of science learning by doing it. Through these participatory opportunities jan bhagidari in the celebrations would be nurtured.

The programme will be held in various Indian languages, including Kashmiri, Dogri, Punjabi, Gujarati, Marathi, Kannada, Malayalam, Tamil, Telegu, Odiya, Bengali, Assamese, Nepali, Maithili, and Manipur and will include the screening of 75 films.

The inaugural programme would be held at Vigyan Bhavan, New Delhi on February 22 at 3 PM and will be telecast live at all the 75 locations across the country, where the festival is being organised. Minister of Tourism, Culture and Development of North Eastern Region of India Shri G. Kishan Reddy and Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh will inaugurate the programme.

The programme will end with a grand valedictory function. It will coincide with the National Science Day, celebrated on February 28 every year since 1987 in remembrance of Nobel Laureate Sir C.V. Raman's path-breaking discovery of the Raman Effect in 1930. National Science Communication Awards to this year's awardees, and prizes to the winners of various contests held as part of the Mahotsav would be presented. The entire event, including the main inaugural and valedictory functions at Delhi, will be live streamed from across all 75 places. All events would be

organised mindful of the relevant and required COVID protocols and adhere to the directives of appropriate agencies.

Information on Vigyan Sarvatra Pujyate is available on www.vigyanpujyate.in

https://pib.gov.in/PressReleasePage.aspx?PRID=1799860

पत्र सूचना कार्यालय
भारत सरकार

विज्ञान एवं प्रौद्योगिकी मंत्रालय

Sun, 20 Feb 2022 6:37PM

विज्ञान सर्वत्र पूज्यते

भारतीय स्वतंत्रता के 75वें वर्ष का उत्सव पूरे देश में 'आजादी का अमृत महोत्सव' के रूप में मनाया जा रहा है। स्वतंत्रता के बाद 75 वर्षों की अवधि के दौरान देश की वैज्ञानिक उपलब्धियों का उत्सव मनाने और भविष्य की रूपरेखा में विज्ञान एवं प्रौद्योगिकी की भूमिका को चिह्नित करने के उद्देश्य से एक देशव्यापी कार्यक्रम 'विज्ञान सर्वत्र पूज्यते' को 'गौरवशाली सप्ताह' के रूप में मनाया जा रहा है। यह पहल देश की वैज्ञानिक विरासत और प्रौद्योगिकी कौशल को प्रदर्शित करने का एक प्रयास है, जिससे रक्षा, अंतरिक्ष, स्वास्थ्य, कृषि, खगोल विज्ञान और अन्य क्षेत्रों में समस्याओं का समाधान खोजने में मदद मिली है।

इस कार्यक्रम का संस्कृत भावार्थ अपने आप में एक संदेश देता है कि 'विज्ञान और प्रौद्योगिकी पूरे विश्व में पूजनीय' है। इसके अंतर्गत देश के 75 शहरों में विज्ञान एवं प्रौद्योगिकी की भूमिका को रेखांकित करने वाली विभिन्न गतिविधियों का आयोजन किया जा रहा है। विज्ञान संचार एवं लोकप्रियकरण के लिए समर्पित स्वायत्त संस्था 'विज्ञान प्रसार' के सहयोग से यह कार्यक्रम भारत सरकार के प्रधान वैज्ञानिक सलाहकार कार्यालय और संस्कृति मंत्रालय द्वारा आयोजित किया जा रहा है। 22 फरवरी से शुरू होकर इस कार्यक्रम का समापन राष्ट्रीय विज्ञान दिवस के अवसर पर 28 फरवरी 2022 को होगा।

कार्यक्रम का उद्घाटन 22 फरवरी को दोपहर 3 बजे विज्ञान भवन, नई दिल्ली में आयोजित किया जाएगा और देशभर के सभी 75 स्थानों पर इसका सीधा प्रसारण किया जाएगा, जहां उत्सव का आयोजन किया जा रहा है। भारत सरकार के पर्यटन, संस्कृति और उत्तरपूर्वी क्षेत्र विकासमंत्री श्री जी किशन रेड्डी और विज्ञान और प्रौद्योगिकी राज्यमंत्री (स्वतंत्र प्रभार); पृथ्वी विज्ञान राज्यमंत्री, राज्यमंत्री प्रधानमंत्री कार्यालय, कार्मिक, लोक शिकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष, डॉ जितेंद्र सिंह कार्यक्रम का उद्घाटन करेंगे।

विज्ञान के इस महोत्सव के हिस्से के रूप में देशभर में कुल 75 विज्ञान प्रदर्शनियाँ आयोजित की जाएंगी। इसी के साथ-साथ 75 विज्ञान आधारित व्याख्यान, 75 विज्ञान फिल्मों की स्क्रीनिंग, 75 रेडियो वार्ता प्रसारण, 75 विज्ञान पुस्तक मेले, 75 पोस्टर प्रस्तुति और 75 विज्ञान साहित्यिक गतिविधियों का आयोजन इस महोत्सव का हिस्सा है। हाइब्रिड मोड में आयोजित होने वाले इन आयोजनों में 75 पुरस्कार भी शामिल हैं। इसके लिए 75 स्थानों और संबंधित भागीदार संगठनों की पहचान की गई है ताकि यह कार्यक्रम स्थानीय भारतीय भाषाओं (अंग्रेजी और हिंदी के अलावा) में संचालित किए जा सकें। सप्ताह भर चलने वाले इस कार्यक्रम का आयोजन राष्ट्रीय राजधानी दिल्ली के अलावा एक साथ 75 स्थानों - उत्तर में लेह एवं श्रीनगर से लेकर दक्षिण में पोर्ट ब्लेयर एवं लक्षद्वीप के कवरत्ती, पश्चिम में दमन एवं अहमदाबाद से लेकर पूरब में ईटानगर, कोहिमा, आइज़ॉल में किया जाएगा।

युवाओं को प्रेरित करने और प्रगतिशील राष्ट्र निर्माण में उनकी भूमिका सुनिश्चित करने में मदद करने के लिए डिज़ाइन किए गए विभिन्न कार्यक्रमों के माध्यम से विज्ञान के क्षेत्र में उन महान विभूतियों के

योगदान से जुड़ी कहानियों को सामने लाने की कोशिश रहेगी, जिन्होंने इन उपलब्धियों को संभव बनाया और देश में विज्ञान एवं प्रौद्योगिकी की मजबूत आधारशिला रखने एवं देश के आर्थिक और सामाजिक विकास में भूमिका निभायी है। इस दौरान देश भर के उन अनुसंधान एवं विकास संगठनों द्वारा किए जा रहे कार्यों को भी सामने लाने का प्रयास रहेगा, जो वर्ष 2047, जब हम अपने देश की स्वतंत्रता का शताब्दी वर्ष मनाएंगे, तक विज्ञान एवं प्रौद्योगिकी प्रयासों का नेतृत्व करने के लिए कटिबद्ध हैं। स्वतंत्र भारत की 75 साल की लंबी वैज्ञानिक यात्रा का उत्सव मनाने के इस प्रयास से भारत सरकार के 'मेक इन इंडिया' और 'आत्मानिर्भर भारत' जैसे प्रमुख कार्यक्रमों को बढ़ावा मिलेगा, साथ ही भविष्य के लिए एक दृष्टिकोण भी प्रदर्शित होगा। इस तरह, यह पहल विज्ञान और प्रौद्योगिकी के माध्यम से देश के विकास के अगले 25 वर्षों का रोडमैप तैयार करने का एक प्रयास है।

भारत सरकार के प्रधान वैज्ञानिक सलाहकार कार्यालय और संस्कृति मंत्रालय के नेतृत्व एवं विज्ञान प्रसार द्वारा आयोजित किए जा रहे इस कार्यक्रम में विज्ञान एवं प्रौद्योगिकी से संबंधित कुल 12 विभाग एवं मंत्रालय भागीदार हैं। विज्ञान एवं प्रौद्योगिकी विभाग (डीएसटी), जैव प्रौद्योगिकी विभाग (डीबीटी), वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद(सीएसआईआर), पृथ्वी विज्ञान मंत्रालय (एमओईएस), परमाणु ऊर्जा विभाग(डीएई), अंतरिक्ष विभाग (डीओएस), भारतीय आयुर्विज्ञान अनुसंधान परिषद (आईसीएमआर), अखिल भारतीय तकनीकी शिक्षा परिषद(एआईसीटीई) और रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) 'विज्ञान सर्वत्र पूज्यते' महोत्सव के भागीदारों में शामिल हैं। कार्यक्रम का समन्वय डीएसटी के स्वायत्त संगठन विज्ञान प्रसार द्वारा किया जा रहा है।

इस पूरे आयोजन को चार खंडों के अंतर्गत समूहीकृत किया गया है। पहले खंड का नाम 'विज्ञान एवं प्रौद्योगिकी इतिहास के 75 केंद्र बिंदु' है, जो राष्ट्र निर्माण में आधुनिक विज्ञान के संस्थापकों और राष्ट्रीय महत्व के संस्थानों के योगदान को रेखांकित करेगा। इसमें 75 वैज्ञानिकों पर 75 फिल्मों की स्क्रीनिंग और 75 स्थानों पर प्रख्यात वैज्ञानिकों और प्रौद्योगिकीविदों के 75 व्याख्यान शामिल होंगे। 'आधुनिक विज्ञान एवं प्रौद्योगिकी के मील के पत्थर' नामक दूसरे खंड के अंतर्गत उन प्रमुख खोजों, नवाचारों या आविष्कारों को उजागर किया जाएगा, जिन्होंने वैश्विक विज्ञान या भारत के विकास की कहानी में एक छाप छोड़ी है। कार्यक्रम का तीसरा खंड - 'स्वदेशी पारंपरिक आविष्कार और नवाचार' है, जिसमें ऐसे 75 आविष्कारों या प्रौद्योगिकियों का प्रदर्शन किया जाएगा, जिसने भारत को अपने पैरों पर खड़ा किया और पारंपरिक ज्ञान प्रणालियों के भंडार पर आधारित आधुनिक नवाचारों सहित आत्मनिर्भरता के लक्ष्य को प्राप्त करने में मदद की। जड़ी बूटियों से दवाओं का निर्माण इस कड़ी का एक उदाहरण कहा जा सकता है। चौथे खंड- 'ट्रांसफॉर्मिंग इंडिया' (बदलता भारत) के अंतर्गत भारतीय विज्ञान और प्रौद्योगिकी के अगले 25 वर्षों के लिए आगे की राह पर ध्यान केंद्रित किया जाएगा। इसमें भारत और प्रवासी भारतीयों के 75 प्रख्यात वैज्ञानिकों और प्रौद्योगिकीविदों द्वारा वार्ता शामिल होगी।

इस असाधारण कार्यक्रम में 22 से 28 फ़रवरी तक दिल्ली के जवाहरलाल नेहरू स्टेडियम में आयोजित होने वाला एक विज्ञान और प्रौद्योगिकी मेगा एक्सपो (प्रदर्शनी), एक राष्ट्रीय विज्ञान पुस्तक मेला और एक विज्ञान साहित्य उत्सव शामिल होगा, जो विज्ञान लेखकों, संचारकों, कलाकारों, कवियों, नाटककारों, नुक्कड़ नाटक कलाकारों, विज्ञान गतिविधियाँ प्रदर्शित करने वाले लोगों, पत्रकारों, छात्रों और शिक्षकों को एक साथ लेकर आएगा। साहित्य उत्सव का उद्देश्य रंगमंच, कविताओं, कठपुतली शो और परछायी के माध्यम से प्रदर्शन सहित सांस्कृतिक कार्यक्रमों के विभिन्न लोक रूपों के माध्यम से विज्ञान का संचार करना है। यह देश के सभी 75 स्थानों पर एक साथ आयोजित किया जा रहा है। इसके अलावा, विशेष रूप से युवाओं में वैज्ञानिक सोच को बढ़ावा देने के लिए प्रश्नोत्तरी कार्यक्रम, निबंध, पोस्टर और कविता प्रतियोगिता सहित अन्य कई प्रतियोगिताएं आयोजित की जा रही हैं और सभी 75 स्थानों पर विभिन्न विज्ञान गतिविधियों का

आयोजन किया जा रहा है। इस कार्यक्रम में शामिल वैज्ञानिक गतिविधियाँ युवा शिक्षार्थियों को विज्ञान के सिद्धांत सिखाने और विज्ञान से जुड़ने के लिए प्रेरित करने में प्रभावी भूमिका निभा सकती हैं।

'विज्ञान सर्वत्र पूज्यते' कार्यक्रम कश्मीरी, डोगरी, पंजाबी, गुजराती, मराठी, कन्नड़, मलयालम, तमिल, तेलुगु, उड़िया, बंगाली, असमिया, नेपाली, मैथिली और मणिपुरी सहित विभिन्न स्थानीय भाषाओं में आयोजित किया जाएगा और इसमें 75 फिल्मों की स्क्रीनिंग शामिल होगी। डीडी नेशनल और संसद टीवी महोत्सव के हर दिन दो घंटे का विशेष कार्यक्रम और आकाशवाणी एक घंटे का कार्यक्रम प्रसारित करेगा। इसके अलावा, दिल्ली में आयोजित होने वाले मुख्य समारोह के साथ-साथ देश के 75 अलग-अलग स्थानों पर आयोजित होने वाले विभिन्न आयोजनों की एक साथ लाइव स्ट्रीमिंग भी की जाएगी।

'विज्ञान सर्वत्र पूज्यते' के तहत MyGov.in के सहयोग से निबंध लेखन, नारा लेखन, कविता लेखन, पोस्टर और लघु फिल्म से जुड़ी प्रतियोगिता के साथ-साथ ऑनलाइन विज्ञान प्रौद्योगिकी प्रश्नोत्तरी जैसी राष्ट्रीय प्रतियोगिताओं का आयोजन किया गया। इन प्रतियोगिताओं में देश भर से बड़ी संख्या में लोगों ने भाग लिया है। 28 फरवरी को राष्ट्रीय विज्ञान दिवस के मौके पर प्रदान किए जाने वाले राष्ट्रीय पुरस्कारों के साथ-साथ इन प्रतियोगिताओं में शामिल प्रतिभागियों को भी पुरस्कृत किया जाएगा। 'विज्ञान सर्वत्र पूज्यते' से संबंधित विस्तृत जानकारी www.vigyanpujyate.in वेबसाइट पर प्राप्त की जा सकती है।

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