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# समाचार पत्रों से चयित अंश Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

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Mon, 28 Feb 2022

## **DRDO and Safran to develop engine for indigenous stealth fighter**

*With deal likely to be inked soon, India and France will collaborate to build a 125KN engine for Advanced Medium Combat Aircraft*

*By Dinakar Peri*

New Delhi: India and France are close to concluding a deal, likely in the next couple of months, for the joint development of a 125KN engine for the indigenous fifth generation Advanced Medium Combat Aircraft (AMCA) under development, according to defence officials. The collaboration is between the Defence Research and Development Organisation (DRDO) and French engine maker Safran.

“External Affairs Minister S. Jaishankar discussed this issue with French Defence Minister Florence Parly during his visit to Paris [last week]. We expect to have an agreement in a month or two,” a defence official said.

In December 2021, speaking at an event after Ms. Parly’s visit to India, Defence Minister Rajnath Singh had said a major French company will come to India and “make the engine in strategic partnership with an Indian company”.

Last year, the government had informed Parliament that it is proposed to develop indigenous engines for powering aircraft such as the Light Combat Aircraft (LCA) variants and AMCA in association with an international engine house.

### **Stealth aircraft**

The Aeronautical Development Agency (ADA) is currently working on the LCA-Mk2 along with Hindustan Aeronautics Limited (HAL), as well as the AMCA and the Twin Engine Deck Based Fighter (TEDBF), for the Navy.

The initial design of the AMCA started way back in 2009 and is envisaged as a twin engine stealth aircraft with internal weapons bay and Diverterless Supersonic Intake, which has been developed for the first time and for which the design is complete, as reported by *The Hindu* earlier. It will be a 25 tonne aircraft with internal carriage of 1,500 kg of payload and 5,500 kg external payload with 6,500 kg of internal fuel.

Speaking at an event last week, Girish S. Deodhare, Director General, ADA, said the configuration has been frozen, Preliminary Service Quality Requirements (PSQR) are finalised and the preliminary design review is complete. The Critical Design Review (CDR) is expected later this year with the roll out planned in 2024 and first flight planned in 2025, Dr. Deodhare stated.

The AMCA will have stealth and non-stealth configurations, and would be developed in two phases — an AMCA MK1 with existing GE414 engine, and an AMCA Mk2 with an advanced, more powerful engine planned to be jointly developed, Dr. Deodhare added.



External Affairs Minister S. Jaishankar with France Defence Minister Florence Parly, during a meeting in Paris on Feb 21, 2022. | Photo Credit: PTI

Once the agreement is concluded with France, development of the aircraft as well as the engine will progress parallelly to meet the timelines, officials acknowledged. The manufacturing and production of the aircraft is planned through a Special Purpose Vehicle, which will also involve private industry.

Simultaneously, the project for the development of a twin engine deck-based fighter jet meant to fly from the Navy's aircraft carriers is also making progress. On the various programmes underway, Dr. Deodhare said there is commonality of systems and technologies.

India has in the past unsuccessfully attempted to indigenously design and develop a jet engine for the LCA under the Kaveri programme sanctioned in 1989. The project, which ran for 30 years with an expenditure of Rs.2,035.56 crore, before being shelved, saw the development of nine full prototype engines and four core engines.

The Shakti engine, which powers the indigenous Advanced Light Helicopter and its later variants, is a joint development between Safran and HAL.

<https://www.thehindu.com/news/national/drdo-and-safran-to-develop-engine-for-indigenous-stealth-fighter/article65090271.ece>



Mon, 28 Feb 2022

## Rs 1,200 crore earmarked to aid academic research in defence, says DRDO Chairman

*During his address, Reddy, who is also the secretary, Department of Defence R&D, Government of India emphasised on the need to be self-reliant in the defence sector.*

Ahmedabad: Defence Research and Development Organisation (DRDO) chairman Dr G Satheesh Reddy said on Sunday that there is a vast scope for the youth to work on research and innovation in the defence sector as more than 300 higher education institutes are working with DRDO and it has earmarked a fund close to Rs 1,200 crore for academic research in defence.



Dr G Satheesh Reddy (File)

“There is a vast scope for youngsters to work on innovative products in defence sector. Universities are fundamental for the development of technology. DRDO has been working with about 300 academic institutions for academic research programmes and 1,200 scholars are associated with defence research across these institutions. Nearly Rs 1,200 crore has been allocated to support these institutions, Gujarat University being one of them,” Reddy stated in his virtual address Sunday at the DRDO Townhall.

The event was held on the second day of the Ahmedabad Design Week (ADW) 3.0, organised by Karnavati University at Uvarsad in Gandhinagar.

The ‘DRDO GU Sardar Vallabhbhai Patel Centre for Cyber security Research (SVP-CCR)’ funded by DRDO with Rs 100 crore is planned to be set up as a centre of excellence at Gujarat University to conduct multidisciplinary scientific and applied research in critical and futuristic technologies related to defence and security.

During his address, Reddy, who is also the secretary, Department of Defence R&D, Government of India emphasised on the need to be self-reliant in the defence sector.

Other sessions by senior officials from the defence and design sector marked the second day of ADW 3.0 including DRDO officials, defence personnel and industry icons .

Lieutenant General BS Jaswal (retired) discussed the paradigm shift in defence production and provided insight on futuristic threat analysis and global defence expenditure. “To improve our

capacity and capabilities, we need Atmanirbhar Bharat. We are on our way to achieving Atmanirbhar Bharat,” he said.

Rear Admiral Rahul Kumar Shrawat (retired), chairman and managing director, Naval Group India, said, “There is a great scope for modern technologies like artificial intelligence and cyber security in the Indian Navy. India has become self-reliant on shipbuilding.”

Ad-maker Prahlad Kakar talked about the role of design in ad-making at the event.

“The most important aspect in design is to add value, create value as an independent thinker and add value through design,” he said.

<https://indianexpress.com/article/india/rs-1200-crore-earmarked-to-aid-academic-research-in-defence-says-drdo-chairman-7793767/>

## THE TIMES OF INDIA

Mon, 28 Feb 2022

### Ahmedabad: ‘DRDO has set aside Rs 1,200 crore for research’

Ahmedabad: The Defence Research and Development Organisation (DRDO) has earmarked an outlay of Rs 1,200 crore to support academic research in defence, according to DRDO chairman, Dr G Satheesh Reddy. He virtually delivered the keynote address at the DRDO Townhall organized as part of a design event by a private university near Ahmedabad.

“DRDO is working with at least 300 institutions for its academic research programme and 1,200 scholars are associated with it. An outlay of close to Rs 1,200 crore has been earmarked to support these institutions which also includes Gujarat University,” said Reddy, while virtually addressing Ahmedabad Design Week 3.0 organised by Karnavati University in Uvarsad, Gandhinagar. Gujarat University had recently inked an MoU with DRDO to set up a centre of excellence for defence research.



Dr G Satheesh Reddy

“A total of 500 research students will be working with the centre of excellence wherein defence-related core research will take place. Some 40 students have already registered for the courses and they will get an opportunity to work in the defence laboratory,” said Reddy.

A skill development programme has been started by DRDO which is an AICTE-approved MTech course in defence technology, the DRDO chairman said. “At least 40 academic institutions have started postgraduate courses in the defence sector this year,” he added.

The DRDO Chief also mentioned that there was a lot of scope for youngsters to work on innovative products in the sector. “Youngsters are entering defence technologies in a big way. A lot of students, startups and those connected with industries as well as Micro Small and Medium Enterprises (MSMEs), are associated with the department of defence R&D, who are given viability gap funding for conducting feasibility tests for the ideas,” he said. According to him, India must focus on becoming self-reliant in the defence sector. “We must not just make products in India but also make them for the world. To be able to achieve this, we must make good quality and technologically advanced products,” Reddy further added.

<https://timesofindia.indiatimes.com/city/ahmedabad/drdo-has-set-aside-1200cr-for-research/articleshow/89880021.cms>



## संबोधन: डीआरडीओ चीफ बोले- रक्षा में शोध के लिए केंद्र ने दिए 1200 करोड़ रुपये, युवाओं के लिए अवसर बढ़ेंगे

सार

जी सतीश रेड्डी ने कहा कि विश्वविद्यालयों में टेक्नॉलॉजी के विकास को लेकर बेहतर काम हो रहा है। डीआरडीओ लगभग 300 एकेडमिक संस्थाओं और 1200 शोधार्थियों के साथ रक्षा क्षेत्र में अनुसंधान को लेकर काम कर रहा है।

विस्तार

अहमदाबाद: केंद्र सरकार ने रक्षा क्षेत्र में अकादमिक शोध कार्य के लिए 1200 करोड़ रुपये निर्धारित किए हैं। डीआरडीओ के चेयरमैन जी सतीश रेड्डी ने रविवार को कर्णावती विश्वविद्यालय में चल रहे अहमदाबाद डिजाइन वीक की तीसरे संस्करण समारोह में अपने वर्चुअली संबोधन के दौरान इसकी जानकारी दी। रेड्डी ने कहा कि इससे रक्षा के क्षेत्र में युवाओं को नवीन उत्पादों पर काम करने का खूब मौका मिलेगा।



डीआरडीओ के अध्यक्ष जी सतीश रेड्डी - फोटो : ANI

अपने संबोधन के दौरान रेड्डी ने कहा कि विश्वविद्यालयों में टेक्नॉलॉजी के विकास को लेकर बेहतर काम हो रहा है। डीआरडीओ लगभग 300 एकेडमिक संस्थाओं और 1200 शोधार्थियों के साथ रक्षा क्षेत्र में अनुसंधान को लेकर काम कर रहा है। इन संस्थानों के लिए 1200 करोड़ रुपये आवंटित किए गए हैं। उन्होंने बताया कि गुजरात विश्वविद्यालय इनमें से एक है।

गौरतलब है कि गुजरात विश्वविद्यालय ने हाल ही में रक्षा अनुसंधान के लिए उत्कृष्टता केंद्र स्थापित करने के लिए डीआरडीओ के साथ एक समझौता ज्ञापन पर हस्ताक्षर किए हैं। रेड्डी ने बताया कि कुल 500 शोध छात्र उत्कृष्टता केंद्र के साथ काम करेंगे, जिसमें रक्षा से संबंधित मुख्य शोध होंगे। लगभग 40 छात्रों ने पहले ही पाठ्यक्रमों के लिए पंजीकरण कर लिया है और उन्हें रक्षा प्रयोगशाला में काम करने का अवसर मिलेगा।

अपने संबोधन के दौरान उन्होंने कहा कि न केवल भारत बल्कि दुनिया के लिए उत्पादों के बनाने की जरूरत है। गौरतलब है कि जी सतीश रेड्डी रक्षा अनुसंधान एवं विकास विभाग के सेक्रेटरी भी हैं। उन्होंने कहा कि इसके लिए अच्छी क्षमता वाले प्रोडक्ट बनाने के लिए तकनीक की जरूरत है।

इस मौके पर बोलते हुए नेवल ग्रुप इंडिया के सीएमडी राहुल कुमार श्रावत ने कहा कि भारतीय नौसेना में साइबर सिक््योरिटी और आर्टिफिशियल इंटेलिजेंस में माडर्न टेक्नॉलॉजी के लिए खूब मौके हैं। उन्होंने आगे कहा कि जहाज बनाने के क्षेत्र में भारत आत्मनिर्भर हो गया है। इस समय भारतीय शिपयार्ड में 40 से ज्यादा जहाज ऑर्डर पर बनाए जा रहे हैं।

<https://www.amarujala.com/india-news/drdo-chief-g-satheesh-reddy-says-center-has-earmarked-1200-crore-rupees-to-aid-academic-research-in-defense>

## Students should help make nation a global leader: DRDO Chief

*Satheesh Reddy calls for wider use of biodegradable bags made by DRDO*

*By P. Sujatha Varma*

Secretary, Department of Defence R&D and Chairman, Defence Research and Development Organisation (DRDO) G. Satheesh Reddy has urged the media to propagate use of 100% biodegradable bags made from vegetable starch and produced by the DRDO.

At a press meet in Vijayawada on Saturday, Mr. Reddy, who was here to take part in the ongoing Science Week Festival organised as part of 'Azadi Ka Amrit Mahotsav' at the School of Planning and Architecture (SPAV), said the bags were showcased in the ongoing science exhibition.

Earlier, addressing the fifth day session at the exhibition, he spoke at length about the scientific developments achieved by the Indian scientists towards a self-reliant future. He said India could produce its indigenous COVID-19 vaccines, manufacture six to 10 lakhs of PPE kits in a day and set up enormous oxygen plants.

Referring to the Indian research developments in satellite technologies of ISRO, defence systems like Indian missiles, tanks, artilleries and quantum technology among other things, he said students should take the lead in taking the nation to the next level, making it a global leader.

Later, Mr. Reddy was felicitated by Prof. Mohammed, K.V. Rao and Shyam Kumar of SPAV.

A ballet, Ekalavya Nrutya Natakam, by members of the Nellore Jana Vignana Vedika on evolution and advancement of human civilization and science enthralled the visitors. A skit on the importance to promote waste management and cleanliness by students of Siddhartha Mahila Kalasala and songs on science were other highlights.

<https://www.thehindu.com/news/national/andhra-pradesh/students-should-help-make-nation-a-global-leader-drdo-chief/article65088190.ece>



DRDO Chairman G. Satheesh Reddy looking at an exhibit at the School of Planning and Architecture during the Science Week Festival in Vijayawada on Saturday. | Photo Credit: V. RAJU

## India developed Covid vaccines in short span: DRDO Chief

*The DRDO chairman was in the city on Saturday to participate in the Science Week Festival being held at the School of Planning and Architecture (SPAV)*

Vijayawada: Defence Research and Development Organisation (DRDO) chairman G Satheesh Reddy said that India is one of the very few countries to develop two types of vaccines for Covid in a short span and administer it to a huge population, resulting in minimal effect on the virus.

The DRDO chairman was in the city on Saturday to participate in the Science Week Festival being held at the School of Planning and Architecture (SPAV). Addressing the gathering, Satheesh Reddy said that the country has produced varieties of masks and PPEs. Around 6 to 10 lakh PPEs were produced every day.



“Within three and a half months, we have designed, developed and produced around 50,000 high-end ventilators during the pandemic. In the previous year, the country produced PSA oxygen plants and every district has at least 1,000, 500 and 250 litres per minute capacity under Prime Minister Care Funds. In fact, the DRDO has also developed an on-board oxygen generation system, which is used by the pilots in high altitude regions,” he said.



A student takes an autograph of Dr Satheesh Reddy in Vijayawada. (Photo | EPS)

Reddy also congratulated SPAV for organising such an event of national importance. To inspire the young minds present in the audience he discussed the scientific developments carried out by the Indian scientists towards a self-reliant future. He highlighted Indian research developments in satellite technologies by ISRO, defence systems like missiles, tanks, artillery and quantum technology.

<https://www.newindianexpress.com/states/andhra-pradesh/2022/feb/27/india-developed-covid-vaccines-in-short-span-drdo-chief-2424278.html>



**The Sentinel**  
*of this land, for its people*

Sat, 26 Feb 2022

## Defence Research Laboratory Tezpur organizes scientific activities

*Defence Research Laboratory (DRL-DRDO), Tezpur is organizing various scientific activities among the students*

Tezpur: Defence Research Laboratory (DRL-DRDO), Tezpur is organizing various scientific activities among the students as part of programmes related to the celebration of 75 years of Indian Independence (Azadi ka Amrit Mahotsav) and National Science Day-2022.

Various activities like quiz, drawing and art competitions have been planned in schools/colleges of Assam. A quiz competition was organized at DRL among the students. The event got an overwhelming response.

A team of scientists and research scholars successfully conducted an art and craft programme at Udmari Primary School, Dekargaon, Tezpur on February 23. In continuation, different scientific interactive sessions were held on Thursday at Rangapara Higher Secondary School and Tezpur Chariali Girls' High School of Assam. DRL is going to celebrate National Science Day-2022 on February 28 in which the Superintendent of Police, Sonitpur will be the chief guest.



<https://www.sentinelassam.com/north-east-india-news/assam-news/defence-research-laboratory-tezpur-organizes-scientific-activities-580080>

## आगरा में DRDO के वैज्ञानिकों ने लगाई सैन्य उपकरणों की अत्याधुनिक प्रदर्शनी

भारत सरकार द्वारा आजादी के अमृत महोत्सव कार्यक्रम के अंतर्गत आगरा विश्वविद्यालय में विज्ञान सर्वत्र पूज्यते नामक कार्यक्रम चलाया जा रहा है। जिसके तहत डीआरडीओ ने प्रदर्शनी लगाकर छात्रों को विज्ञान और प्रौद्योगिकी को लेकर जागरूक करने के लिए सैन्य उपकरणों की अत्याधुनिक विज्ञान प्रदर्शनी लगाई है।

By हरीकान्त शर्मा

भारत सरकार द्वारा आजादी के अमृत महोत्सव कार्यक्रम के अंतर्गत आगरा विश्वविद्यालय में विज्ञान सर्वत्र पूज्यते नामक कार्यक्रम चलाया जा रहा है। जिसके तहत डीआरडीओ ने प्रदर्शनी लगाकर छात्रों को विज्ञान और प्रौद्योगिकी को लेकर जागरूक करने के लिए सैन्य उपकरणों की अत्याधुनिक विज्ञान प्रदर्शनी लगाई है। यह प्रदर्शनी 22 फरवरी से 28 फरवरी तक लगाई जाएगी। रक्षा अनुसंधान और विकास संगठन यानी डीआरडीओ द्वारा सैन्य उपकरणों में विज्ञान एवं प्रौद्योगिकी को बढ़ावा देने के लिए छात्रों के समक्ष एक प्रदर्शनी लगाई है। इस प्रदर्शनी में डीआरडीओ द्वारा बनाए गए रक्षा उपकरणों को दर्शाया गया है। जिसमें बुलेट प्रूफ जैकेट, हेलमेट, जूते, केमिकल व न्यूक्लियर हमले से बचने के लिए सूट आदि रखे गए हैं।



प्रदर्शनी में रखे सैन्य उपकरणों के साथ वैज्ञानिक

डीआरडीओ की आगरा ग्वालियर व कानपुर ब्रांच ने लगाई उपकरणों की प्रदर्शनी

एडीआरडीई के निदेशक डॉ एके सक्सेना ने बताया कि पूरे भारतवर्ष में आजादी के अमृत महोत्सव के अंतर्गत डीआरडीओ की 8 स्थानों पर प्रदर्शनी लगाई गई है। उत्तर प्रदेश में एकमात्र प्रदर्शनी आगरा में लगाई जा रही है। इस प्रदर्शनी में आगरा, ग्वालियर और कानपुर की डीआरडीओ ब्रांच में बनाए गए सैन्य सामान व उपकरण रखे गए हैं। जो कि पूरी तरह से मेक इन इंडिया की तर्ज पर लगाई गई है। इससे पहले यह उपकरण हमें विदेशों से खरीदने पड़ते थे। लेकिन अब हम खुद मजबूत हो रहे हैं और अपने ही देश में सैन्य सामान बना रहे हैं। जो कि बेहद किफायती, टिकाऊ और खर्च में बेहद कम है। इस प्रदर्शनी का उद्देश्य छात्रों में विज्ञान प्रौद्योगिकी और शोध को क्षेत्र में उत्कृष्ट कार्यों के लिए जागरूकता फैलाना भी है।

<https://hindi.news18.com/news/uttar-pradesh/agra-drdo-scientists-put-up-a-state-of-the-art-exhibition-of-military-equipment-in-agra-4028728.html>

## Science, technology and innovation for self reliance

Kohima: A day four event of the ongoing Vigyan Sarvatra Pujyate- (Festival of Science & Technology) here at Science and Technology complex, was marked by a talk on the theme 'science, technology and innovation for self reliance/atmannirbhar bharat' by Dr Daya Lama, Scientist E, DRI, DRDO, Tezpur.

Dr Lama spoke about the centres of excellence created in various institutions and DRDO's evolution, which brings out the idea of self-reliance and further look into new arenas of research in science and technology. He highlighted the latest development on defense aircraft, vehicles and equipment.



The achievements of DRDO have also been highlighted through screening of short film. Apart from other activities, day four event also witnessed sharing of experience about the festival from the students. A total of 114 students from G Rio Higher Secondary School, Mezbur Higher Secondary School, Fernwood Higher Secondary School and Christ King Higher Secondary School, Kohima participated in the programme.

Meanwhile, day five (February 26) event will witness science literature activity in the form of painting competition, slide show, model contest and poetry writing competition.

<https://morungexpress.com/index.php/science-technology-and-innovation-for-self-reliance>

## अमर उजाला

Mon, 28 Feb 2022

### रक्षा के क्षेत्र में देश निरंतर हो रहा मजबूत: सिंह

गुरुकुल कांगड़ी विश्वविद्यालय में भारत सरकार के साप्ताहिक विज्ञान महोत्सव विज्ञान सर्वत्र पूज्यते के सातवें दिन मुख्य वक्ता डीआरडीओ (डील) देहरादून के प्रसिद्ध वैज्ञानिक डॉ. राजेंद्र सिंह ने देश की रक्षा तकनीकों पर पावर प्वाइंट प्रजेंटेशन के माध्यम से व्याख्यान दिया। डॉ. सिंह ने कहा कि आज रक्षा के क्षेत्र में हम निरंतर मजबूत हो रहे हैं। इस दौरान अर्जुन टैंक, टी-72 टैंक, ब्रिजलेइंग टैंक और अन्य शास्त्रों के दृश्यों को दिखाया गया।

डॉ. सिंह ने डीआरडीओ की ओर से संचालित विभिन्न योजनाओं और पाठ्यक्रमों के विषय में भी चर्चा की। विद्यार्थियों से अपील की कि वे रक्षा तंत्र की तकनीकों में अपनी रुचि विकसित करें। अंतरराष्ट्रीय पक्षी वैज्ञानिक प्रो. दिनेश भट्ट ने कहा कि विज्ञान के आविष्कार जब मानव हित और विकास पर केंद्रित होता है तो उनका स्वरूप पूजनीय हो जाता है। उन्होंने कहा कि विज्ञान के आविष्कार अपनी मूल प्रवृत्ति में उदासीन होते हैं। अब यह मानव प्रवृत्ति पर निर्भर करता है कि वह उनका प्रयोग विकास व उत्थान के लिए करता है या विनाश के लिए।

पत्रकार अनुपम त्रिवेदी ने विज्ञान के प्रसार में पत्रकारिता के योगदान विषय पर अपना व्याख्यान दिया। उन्होंने बताया कि विज्ञान कोई डरावना विषय नहीं है और आज यह आवश्यक हो गया है कि हम विज्ञान की बारीकियों को समझने का प्रयास करें।

कार्यक्रम में शैल रचना सोसायटी की अध्यक्ष कृति रावत ने कहा कि हमारी क्षेत्रीय कला और संस्कृति का वैज्ञानिक संरक्षण किया जाना नितांत आवश्यक है। इसके लिए आमजन को अपनी भागीदारी सुनिश्चित

करनी चाहिए। इस मौके पर ओहो रेडियो के सुप्रसिद्ध वक्ता आरजे काव्य, प्रो. एलपी पुरोहित, प्रो. सचिन माहेश्वरी, डॉ. अश्विनी रानाडे, डॉ. हेमवती नंदन, डॉ. विनय सेठी, डॉ. हिमांशु पंडित आदि मौजूद रहे।

<https://www.amarujala.com/uttarakhand/haridwar/the-country-is-getting-stronger-in-the-field-of-defence-singh-haridwar-news-drn4051787195>



Sat, 26 Feb 2022

## Kota's VMOU varsity holds 14th convocation virtually, Raj CM Gehlot as chief guest

By Aabshar H Quazi

Kota: 14th Convocation of the Vardhman Mahaveer Open University (VMOU) was held virtually in which the Governor and Chancellor of VMOU, Kalraj Mishra said that students should pursue value-based and welfare-oriented education.

The Chief Minister of Rajasthan, Ashok Gehlot, was the chief guest during the online convocation ceremony, while the Convocation address was given by DRDO Chairman, Dr. G Satish Reddy. Professor RL Godara, the Vice-Chancellor of VMOU, was also present at the convocation.

“Universities should focus on skill development courses also for ensuring employment to the students”, he said.

The VMOU, according to Chief Minister Ashok Gehlot, played an important role in educating students during the Covid-19 pandemic through its distant learning mode. He stated that VMOU is a model institution among the State's 28 universities. He stated that the State government's top priority is the establishment of a university for physically handicapped students.

G Satish Reddy said that there is a need for the inclusion of artificial intelligence in education. “Many Universities are running courses on defence techniques and soon such courses will deliver good results”, he said.

A total of 37308 degrees were awarded to the students at the convocation. While 11 students received Ph.D. degrees at the convocation, 68 toppers were felicitated with Gold medals at the convocation ceremony.

<https://www.freepressjournal.in/education/kotas-vmou-varsity-holds-14th-convocation-virtually-raj-cm-gehlot-as-chief-guest>



VMOU University of Kota holds 14th Convocation virtually |

### DRDO on Twitter



DRDO @DRDO\_India · Feb 25

Mid Wave Thermal Image (MWTI) based sights designed & developed by DRDO & BEL for T-90 tanks have been ordered by Indian Army. The sight enhances the capability of day night operation and accurate distance measurement of the tank.

@DefenceMinIndia @adgpi

[pib.gov.in/PressReleaseDet...](http://pib.gov.in/PressReleaseDet...)





DRDO @DRDO\_India · 12h

MoS, Ministry of Science and Tech., @DrJitendraSingh, visited DRDO stall at Vigyan Sarvatra Pujyate mega expo at JLN stadium, New Delhi. Light weight structural fire fighting suit and high efficiency fire suppressing gel, among other products developed by DRDO were shown to him.



K. VijayRaghavan and 5 others

27 February 2022

DRDO Retweeted



A. Bharat Bhushan Babu @SpokespersonMoD · Feb 27

Make in India, Make for World!

The 12th edition of @defexpo2022 coming up- March 10-14, 2022 Gandhinagar, Gujarat.

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*Fri, 25 Feb 2022 3:25PM*

## Ministry of Defence organises post budget webinar 'Aatmanirbharta in Defence - Call to Action'

*Prime Minister Shri Narendra Modi delivers inaugural address; Says, recent years' emphasis on Aatmanirbharta in defence sector is clearly visible in the Budget*

*This year's budget has a blueprint for developing a vibrant ecosystem from research, design & development to manufacturing within the country: PM*

*In his valedictory address, Raksha Mantri Shri Rajnath Singh announces sanction of at least five projects under Make-1 during financial year 2022-23 to promote Industry-led R&D efforts*

*iDEX-Prime announced to support projects beyond Rs 1.5 crore up to Rs 10 crore to help startups*

*Raksha Mantri calls upon the industry, start-ups & academia to join hands with the Government to achieve 'Aatmanirbharta' in defence manufacturing and R&D*

Ministry of Defence organised a post budget webinar titled 'Aatmanirbharta in Defence - Call to Action' on the announcements made in Union budget 2022-23, on February 25, 2022. The Union Budget 2022-23 related to Ministry of Defence has given further impetus to Aatmanirbharta in Defence and the objective of the webinar was to involve all the stakeholders in taking forward the various initiatives of the Government in the defence sector.

Prime Minister Shri Narendra Modi delivered the inaugural address of the webinar. He said, the theme of the webinar 'Aatmanirbharta in Defence - Call to Action' indicates the mood of the nation. The recent years' effort to strengthen Aatmanirbharta in the defence sector is clearly visible in this year's Budget. He recalled that India's defence manufacturing was quite strong even during the period of slavery and in the immediate aftermath of independence. Indian made weapons played a major role during the Second World War. "Though, in the later years, this prowess of ours went into decline, still it shows that there has been no dearth of capabilities, neither then nor now", he said.

The Prime Minister stressed the importance of customisation and uniqueness of the defence systems for having a surprise element over the adversaries. "Uniqueness and surprise elements can only happen when the equipment is developed in your own country", he said. This year's budget, the Prime Minister mentioned, has a blueprint for developing a vibrant ecosystem from research, design and development to manufacturing within the country. About 70 percent of the defence budget has been kept for domestic industry only, he added.



The Defence Ministry has, so far, released Positive Indigenisation Lists of more than 200 defence Platforms and Equipments. After this announcement, the Prime Minister informed, contracts worth rupees 54 thousand crore have been signed for domestic procurement. Apart from this, the Prime Minister continued, procurement process of more than Rs 4.5 lakh crore worth of equipment is at various stages. Third list is expected soon, he said.

The Prime Minister lamented the long-drawn process of weapon procurement which often results in a scenario where weapons can get outdated by the time they are commissioned. “Solution for this is in ‘Aatmanirbhar Bharat’ and ‘Make in India’”, he emphasised. The Prime Minister lauded the Armed Forces for taking decisions while keeping the importance of Aatmanirbharta in mind. The Prime Minister stressed the need to keep the pride and feelings of the jawans in the matters of weapons and equipment. This is possible only when we are Aatmanirbhar in these areas, he said.

The Prime Minister lauded the ordnance factories for being a shining example of progress with determination. He expressed happiness that seven new defence undertakings that were incorporated last years are rapidly expanding their business and reaching new markets. “We have increased defence exports 6 times in the last 5-6 years. Today we are providing Made in India Defence Equipment and Services to more than 75 countries”, the Prime Minister added.

Raksha Mantri Shri Rajnath Singh delivered the valedictory address. He expressed his gratitude to the Prime Minister for his leadership and guidance in realising the goal of ‘Aatmanirbhar Bharat’ and infusing a new zeal in the workforce to achieve a ‘Shreshtha Bharat’. He hoped that the webinar will add momentum to the budget announcements and pave way for their speedy implementation. He thanked the participants for providing valuable inputs for strengthening the Government’s intent to make India a global defence manufacturing hub. He made a series of announcements to encourage the industry and the startups. These are as follows:

1. At least five projects under Make-I during Financial Year 2022-23 to be sanctioned to promote Industry led R&D efforts.
2. A monitoring mechanism under DG-Acquisition to be created, with representatives from all the three Services to monitor the budget earmarked, specifically for private industry and startups, so that it is fully utilised.
3. QA process to be reformed so that it is non-intrusive, prevention based and free from Inspector-Raj.
4. iDEX-Prime to support projects, requiring support beyond Rs 1.5 crore up to Rs 10 crore, to help ever-growing startups in the defence sector.

Identifying R&D and development of technologies as integral to achieving ‘Aatmanirbharta’ in defence, Shri Rajnath Singh called upon the Industry, R&D organisations, start-ups and academia to leverage each other’s capabilities for development of modern defence technologies and make India self-reliant in defence technologies as well. “In the annual budget of 2022-23, it has been announced that Defence R&D will be opened up for industry, startups and academia. 25 per cent of Defence R&D budget has also been earmarked for this purpose. I am happy to see that there has been extensive discussion during the webinar today,” he said.

The Raksha Mantri underscored the importance of adequate facilities and infrastructure for testing, trial & certification of indigenous products for the potential growth of the defence industry and creating a ‘Made in India’ brand as per international standards. For meeting these requirements, he said, the Government has decided to set up an autonomous Governing body to permit, regulate, promote, hand-hold, monitor and supervise Trial, Testing and Certification facilities and services offered by Ministry of Defence and its various organisations. Shri Rajnath Singh expressed satisfaction that the stakeholders openly discussed about the decision, which would guide the Government in finalising the contours of this body. He hoped that it will play a critical role in making the country self-reliant and a global manufacturing hub.

Shri Rajnath Singh also appreciated the fact that detailed deliberations were held on the Special Purpose Vehicle (SPV) model for undertaking indigenous R&D. He exuded confidence that many

projects will soon be undertaken by the private industry for design & development of military platforms and equipment in collaboration with DRDO and other organisations through the SPV model.

The Raksha Mantri added that the Government's commitment to reduce imports and modernise the Armed Forces with indigenous technology has been given further impetus in this budget. "We have been progressively increasing the capital procurement budget for the domestic industry, with 68 per cent of the capital procurement budget earmarked for 2022-23. I am sure that the domestic industry is fully capable to absorb this enhanced budget. I assure them that the Government will continue its pro industry policy initiatives for promoting Make in India with greater zeal," he added. Shri Rajnath Singh urged the private industry, startups and academia to come forward to join hands with DRDO/DPSUs and other organisations of MoD to achieve greater heights in defence manufacturing and R&D.

Raksha Rajya Mantri Shri Ajay Bhatt, Defence Secretary Dr Ajay Kumar, Chief of the Air Staff Air Chief Marshal VR Chaudhari, Vice Chief of the Army Staff Lt Gen Manoj Pande, Vice Chief of the Naval Staff Vice Admiral SN Ghormade, Financial Advisor (Defence Services) Shri Sanjiv Mittal and other senior civil and military officials of Ministry of Defence were present on the occasion.

The webinar had panel discussions with eminent speakers and experts from Ministry of Defence, defence industry, startups, academia, defence corridors etc., and interactive sessions with the stakeholders. The webinar comprised of breakout sessions on the following four themes:

1. Progressive increase in the capital procurement budget for domestic industry – (Opportunities & Challenges)
2. Developing All round Defence R&D ecosystem in the country
3. Special Purpose Vehicles (SPVs) by Industries with DRDO and other organisations
4. To meet wide ranging testing and certification requirements - Setting up an independent nodal umbrella body.

The sessions were planned in a manner to allow for ample interaction with stakeholders, with a view to evolve a participative approach for time-bound implementation of the announcements.



<https://pib.gov.in/PressReleasePage.aspx?PRID=1801074>



पत्र सूचना कार्यालय  
भारत सरकार

रक्षा मंत्रालय

Fri, 25 Feb 2022 3:25PM

## रक्षा मंत्रालय ने 'रक्षा क्षेत्र में आत्मनिर्भरता - कार्रवाई का आहवाहन' विषयवस्तु पर पोस्ट- बजट वेबिनार का आयोजन किया

प्रधानमंत्री श्री नरेन्द्र मोदी अपने उद्घाटन भाषण में कहा - हालिया वर्षों के बजट में स्पष्ट रूप से रक्षा क्षेत्र में आत्मनिर्भरता पर जोर दिखाई दे रहा है

इस साल के बजट में देश के भीतर अनुसंधान, डिजाइन और विकास से लेकर विनिर्माण तक एक जीवंत वातावरण विकसित करने का ढांचा मौजूद है: प्रधानमंत्री

अपने समापन भाषण में रक्षा मंत्री श्री राजनाथ सिंह ने उद्योगनीत अनुसंधान व विकास के प्रयासों को बढ़ावा देने के लिए वित्तीय वर्ष 2022-23 के दौरान मेक-1 के तहत कम से कम पांच परियोजनाओं को मंजूरी देने की घोषणा की

आइडेक्स-प्राइम ने स्टार्टअप्स की सहायता के लिए 1.5 करोड़ रुपये से लेकर 10 करोड़ रुपये तक की परियोजनाओं का समर्थन करने की घोषणा की

रक्षा मंत्री ने उद्योग, स्टार्ट-अप्स व शिक्षाविदों से आहवाहन किया कि वे रक्षा निर्माण और अनुसंधान व विकास में 'आत्मनिर्भर भारत' की सोच को प्राप्त करने के लिए सरकार का सहयोग करें

रक्षा मंत्रालय ने 25 फरवरी, 2022 को केंद्रीय बजट 2022-23 में की गई घोषणाओं पर 'रक्षा में आत्मनिर्भरता - कार्रवाई का आहवाहन' शीर्षक से एक पोस्ट- बजट वेबिनार का आयोजन किया। रक्षा मंत्रालय से संबंधित केंद्रीय बजट 2022-23 ने रक्षा क्षेत्र में आत्मनिर्भर भारत की सोच को और अधिक प्रोत्साहन प्रदान की है। वहीं, इस वेबिनार का उद्देश्य रक्षा क्षेत्र में सरकार की विभिन्न पहलों को आगे बढ़ाने में सभी हितधारकों को शामिल करना था।

प्रधानमंत्री श्री नरेन्द्र मोदी ने वेबिनार के अपने उद्घाटन भाषण में कहा कि इसकी विषयवस्तु 'रक्षा (क्षेत्र) में आत्मनिर्भरता - कार्रवाई का आहवाहन' राष्ट्र के मूड को दर्शाता है। उन्होंने आगे कहा कि इस साल के बजट में रक्षा क्षेत्र में आत्मनिर्भरता को मजबूत करने के लिए हालिया वर्षों के प्रयास स्पष्ट रूप से दिखाई दे रहे हैं। उन्होंने इसका उल्लेख किया कि दासता की अवधि के दौरान और स्वतंत्रता के तत्काल बाद भी भारत का रक्षा निर्माण काफी मजबूत था। दूसरे विश्व युद्ध के दौरान भारत में निर्मित हथियारों ने एक प्रमुख भूमिका निभाई थी। प्रधानमंत्री ने आगे कहा, "हालांकि, बाद के वर्षों में हमारे इस कौशल में गिरावट आई। इसके बावजूद यह दर्शाता है कि क्षमताओं की कोई कमी नहीं रही है, न तो तब और न ही अब।"

प्रधानमंत्री ने प्रतिद्वंदियों को चौंकाने वाले एक हिस्सा रखने के लिए रक्षा प्रणालियों के अनुकूलन और विशिष्टता के महत्व पर जोर दिया। उन्होंने कहा, "अद्वितीयता और चौंकाने वाले तत्व तभी हो सकते हैं,

जब उपकरण आपके अपने देश में विकसित किए गए हों।" प्रधानमंत्री ने आगे इस बात का उल्लेख किया कि इस साल के बजट में देश के भीतर अनुसंधान, डिजाइन और विकास से लेकर विनिर्माण तक एक जीवंत वातावरण विकसित करने का ढांचा मौजूद है। उन्होंने बताया कि रक्षा बजट का लगभग 70 फीसदी हिस्सा केवल घरेलू उद्योग के लिए रखा गया है।

अब तक रक्षा मंत्रालय ने 200 से अधिक रक्षा मंचों और उपकरणों की सकारात्मक स्वदेशीकरण सूची जारी की है। इस घोषणा के बाद प्रधानमंत्री ने बताया कि घरेलू खरीद के लिए 54 हजार करोड़ रुपये के अनुबंध पर हस्ताक्षर किए गए हैं। इसके अलावा प्रधानमंत्री ने यह भी जानकारी दी कि 4.5 लाख करोड़ रुपये से अधिक मूल्य के उपकरणों की खरीद प्रक्रिया विभिन्न चरणों में है। उन्होंने कहा कि तीसरी सूची जल्द आने की उम्मीद है।

प्रधानमंत्री ने हथियारों की खरीद की लंबी प्रक्रिया पर अफसोस व्यक्त किया। इसके परिणामस्वरूप अक्सर ऐसी स्थिति बनती है, जब सेवा में शामिल करने के समय तक हथियार पुराने हो सकते हैं। उन्होंने जोर देकर कहा, "इसका समाधान 'आत्मनिर्भर भारत' और 'मेक इन इंडिया' में है।" प्रधानमंत्री ने आत्मनिर्भरता के महत्व को ध्यान में रखते हुए निर्णय लेने के लिए सशस्त्र बलों की सराहना की। प्रधानमंत्री ने हथियारों और उपकरणों के मामले में सैनिकों के गौरव और भावनाओं को बनाए रखने की जरूरत पर जोर दिया। उन्होंने कहा कि यह तभी संभव है जब हम इन क्षेत्रों में आत्मनिर्भर हों।

प्रधानमंत्री ने दृढ़ संकल्प के साथ प्रगति का एक चमकता हुआ उदाहरण बनने के लिए आयुध कारखानों की सराहना की। उन्होंने इस बात पर प्रसन्नता व्यक्त की कि पिछले वर्षों में शामिल किए गए सात नए रक्षा उपक्रम तेजी से अपने व्यापार का विस्तार कर रहे हैं और नए बाजारों तक उनकी पहुंच हो रही है। प्रधानमंत्री ने कहा, "हमने पिछले 5-6 वर्षों में रक्षा निर्यात में 6 गुना बढ़ोतरी की है। आज हम 75 से अधिक देशों को मेड इन इंडिया रक्षा उपकरण और सेवाएं प्रदान कर रहे हैं।"

रक्षा मंत्री श्री राजनाथ सिंह ने इस वेबिनार का समापन भाषण दिया। उन्होंने 'आत्मनिर्भर भारत' के लक्ष्य को साकार करने व एक 'श्रेष्ठ भारत' की सोच को प्राप्त करने के लिए कार्यबल में एक नया उत्साह पैदा करने को लेकर प्रधानमंत्री के नेतृत्व और मार्गदर्शन के लिए उनका आभार व्यक्त किया। उन्होंने आगे उम्मीद व्यक्त की कि वेबिनार बजट घोषणाओं को गति प्रदान करेगा और उनके शीघ्र कार्यान्वयन के लिए रास्ता दिखाएगा। उन्होंने भारत को वैश्विक रक्षा विनिर्माण केंद्र बनाने के सरकार की इच्छा को मजबूत करने को लेकर मूल्यवान इनपुट प्रदान करने के लिए प्रतिभागियों को धन्यवाद दिया। इसके अलावा उन्होंने उद्योग और स्टार्टअप को प्रोत्साहित करने के लिए कई घोषणाएं भी कीं। ये निम्नलिखित हैं:

1. उद्योग आधारित अनुसंधान व विकास के प्रयासों को बढ़ावा देने के लिए वित्तीय वर्ष 2022-23 के दौरान मेक-1 के तहत कम से कम पांच परियोजनाओं को मंजूरी दी जाएगी।
2. विशेष रूप से निजी उद्योग और स्टार्टअप्स के लिए निर्धारित बजट की निगरानी को लेकर डीजी के अधीन सभी तीनों सेवाओं के प्रतिनिधियों के साथ एक निगरानी तंत्र बनाया जाएगा, जिससे आवंटित बजट का पूरी तरह से उपयोग किया जा सके।
3. क्यूए प्रक्रिया में सुधार किया जाना है, जिससे यह गैर-घुसपैठ, रोकथाम आधारित और इंस्पेक्टर-राज से मुक्त हो सके।
4. आइडेक्स- प्राइम ने रक्षा क्षेत्र में लगातार बढ़ते स्टार्टअप्स की सहायता के लिए 1.5 करोड़ रुपये से लेकर 10 करोड़ रुपये तक की परियोजनाओं का समर्थन करने की घोषणा की।

रक्षा क्षेत्र में 'आत्मनिर्भर भारत' की सोच को प्राप्त करने के अभिन्न अंग के रूप में अनुसंधान व विकास और तकनीकों के विकास को चिह्नित करते हुए श्री राजनाथ सिंह ने उद्योग, अनुसंधान व विकास

संगठनों, स्टार्टअप्स और शिक्षाविदों से आधुनिक रक्षा प्रौद्योगिकियों के विकास के लिए एक-दूसरे की क्षमताओं का लाभ उठाने और भारत को रक्षा तकनीकों में भी आत्मनिर्भर बनाने का आहवाहन किया। उन्होंने कहा, “2022-23 के वार्षिक बजट में यह घोषणा की गई है कि रक्षा अनुसंधान व विकास को उद्योग, स्टार्टअप्स और शिक्षा के लिए खोल दिया जाएगा। रक्षा अनुसंधान व विकास बजट का 25 फीसदी हिस्सा इस उद्देश्य के लिए निर्धारित किया गया है। मुझे यह देखकर प्रसन्नता हो रही है कि आज वेबिनार के दौरान व्यापक चर्चा हुई है।”

रक्षा मंत्री ने रक्षा उद्योग के संभावित विकास और अंतरराष्ट्रीय मानकों के अनुरूप 'मेड इन इंडिया' को ब्रांड बनाने के लिए स्वदेशी उत्पादों के परीक्षण, जांच और प्रमाणन के लिए पर्याप्त सुविधाओं और बुनियादी ढांचे के महत्व को रेखांकित किया। उन्होंने कहा कि इन जरूरतों को पूरा करने के लिए सरकार ने रक्षा मंत्रालय व उसके विभिन्न संगठनों द्वारा अनुमति देने, विनियमित करने, प्रोत्साहन देने, सहयोग करने, निगरानी पर्यवेक्षण जांच, परीक्षण व प्रमाणन सुविधा और सेवाओं के लिए एक स्वायत्तशासी निकाय स्थापित करने का निर्णय लिया है। श्री राजनाथ सिंह ने अपनी संतुष्टि व्यक्त की कि हितधारकों ने इस निर्णय के बारे में खुलकर चर्चा की, जो इस निकाय की रूपरेखा को अंतिम रूप देने में सरकार का मार्गदर्शन करेगा। उन्होंने यह उम्मीद भी व्यक्त की कि यह देश को आत्मनिर्भर और वैश्विक विनिर्माण केंद्र बनाने में एक महत्वपूर्ण भूमिका निभाएगा।

इसके अलावा श्री राजनाथ सिंह ने इस बात की भी सराहना की कि स्वदेशी अनुसंधान व विकास के लिए विशेष प्रयोजन वाहन (एसपीवी) मॉडल पर विस्तृत विचार-विमर्श किया गया। उन्होंने विश्वास व्यक्त किया कि एसपीवी मॉडल के जरिए डीआरडीओ व अन्य संगठनों के सहयोग से सैन्य मंचों और उपकरणों के डिजाइन तथा विकास के लिए निजी उद्योग द्वारा जल्द ही कई परियोजनाएं शुरू की जाएंगी।

रक्षा मंत्री ने कहा कि इस बजट में आयात को कम करने और सशस्त्र बलों को स्वदेशी तकनीक के साथ आधुनिक बनाने की सरकार की प्रतिबद्धता को और अधिक प्रोत्साहन दिया गया है। उन्होंने आगे कहा, “2022-23 के बजट में पूंजीगत खरीद के लिए 68 फीसदी हिस्सा निर्धारित करने के साथ हम घरेलू उद्योग के लिए पूंजीगत खरीद बजट में निरंतर बढ़ोतरी कर रहे हैं। मुझे विश्वास है कि घरेलू उद्योग इस बढ़े हुए बजट का उपयोग करने में पूरी तरह सक्षम है। मैं उन्हें भरोसा दिलाता हूँ कि सरकार, मेक इन इंडिया को और अधिक उत्साह के साथ बढ़ावा देने के लिए उद्योग समर्थक नीतिगत पहल जारी रखेगी।” श्री राजनाथ सिंह ने निजी उद्योग, स्टार्टअप्स और शिक्षाविदों से डीआरडीओ/डीपीएसयू व रक्षा मंत्रालय के अन्य संगठनों के साथ सहयोग करने के लिए आगे आने का अनुरोध किया, जिससे रक्षा निर्माण और अनुसंधान व विकास में शिखर को प्राप्त किया जा सके।

इस अवसर पर रक्षा राज्य मंत्री श्री अजय भट्ट, रक्षा सचिव डॉ. अजय कुमार, वायु सेना प्रमुख एयर चीफ मार्शल वीआर चौधरी, थल सेना के उप प्रमुख लेफ्टिनेंट जनरल मनोज पांडे, वित्तीय सलाहकार (रक्षा सेवाएं) श्री संजीव मित्तल और रक्षा मंत्रालय के अन्य वरिष्ठ नागरिक व सैन्य अधिकारी उपस्थित थे।

इस वेबिनार में रक्षा मंत्रालय, रक्षा उद्योग, स्टार्टअप्स, अकादमिक और रक्षा क्षेत्र के प्रख्यात वक्ताओं व विशेषज्ञों के साथ पैनल चर्चा हुई। इसके अलावा हितधारकों के साथ संवादात्मक सत्र भी आयोजित किया गया।

इस वेबिनार में निम्नलिखित चार विषयों पर ब्रेकआउट सत्र शामिल थे:

1. घरेलू उद्योग के लिए पूंजीगत खरीद बजट में प्रगतिशील बढ़ोतरी - (अवसर और चुनौतियां)
2. देश में सर्वांगीण रक्षा अनुसंधान व विकास से संबंधित वातावरण विकसित करना
3. डीआरडीओ और अन्य संगठनों के साथ उद्योगों द्वारा विशेष प्रयोजन वाहन (एसपीवी)

4. व्यापक परीक्षण और प्रमाणन आवश्यकताओं को पूरा करने के लिए- एक स्वतंत्र नोडल व्यापक निकाय की स्थापना

बजट की घोषणाओं के समयबद्ध कार्यान्वयन के संबंध में एक सहभागी दृष्टिकोण विकसित करने के उद्देश्य से सत्र की योजना इस तरह बनाई गई थी, जिससे हितधारकों के साथ बातचीत के लिए पर्याप्त अवसर उपलब्ध हो सके।



<https://pib.gov.in/PressReleasePage.aspx?PRID=1801224>

**HT Hindustan Times**

Sat, 26 Feb 2022

## Military top brass charts out maritime command

*Close to 50 senior officers from various commands of the three services, Headquarters Integrated Defence Staff and the department of military affairs also attended the two-day meeting*

*By Rahul Singh*

New Delhi: Top three-star officers from the army, navy and air force carried out deliberations in Mumbai over two days on setting up the integrated maritime theatre command as part of India's theaterisation drive to best utilise the military's resources for future wars and operations, a navy spokesperson said on Friday.

Integration of the armed forces to enhance their effectiveness and reshape the conduct of future operations is a top priority for the government.

The nine officers who attended the meeting on February 24-25 were of the rank of commander-in-chief. The meeting was chaired by Western Naval Command chief Vice Admiral Ajendra Bahadur Singh, who is the lead commander-in-chief for the study on setting up the maritime theatre command.



**Integration of the armed forces to enhance their effectiveness and reshape the conduct of future operations is a top priority for the government (FILE)**

"Tri-services discussions on the modalities and structural framework for the creation of integrated theatre commands for the Indian armed forces were held under the aegis of Western Naval Command at Mumbai. This is yet another milestone towards building jointness and enhancing organisational synergy among the three services," said Captain Mehul Karnik, the navy's spokesperson in Mumbai.

Apart from the commanders-in-chief, close to 50 senior officers from various commands of the three services, Headquarters Integrated Defence Staff and the department of military affairs also attended the two-day meeting and provided their inputs on taking theaterisation forward.



Maritime affairs expert Rear Admiral Sudarshan Shrikhande (retd) said it was critical to have a joint theatre responsible for keeping a watch, for deterrence, and when necessary, for war-fighting in a predominantly maritime environment. "What now becomes necessary is to create the joint framework that can, among other things, counter China's growing multi-dimensional sea power," Shrikhande added.

On Thursday, Indian Air Force chief Air Chief Marshal Vivek Ram Chaudhari said that no single service can win wars on its own, and integration should focus on tapping into the strength of each service to maximise the country's combat capability.

While Chaudhari backed tri-service integration, he stressed "the primacy of who will do what cannot be determined by a pro rata system of who has a larger mass of forces or equipment."

"The thought process must change and it would be important to appreciate the capabilities of each service to make two plus two equal five," Chaudhari said. The IAF chief was driving home the point that the synergised effort should not be the sum of the whole but much more.

India's first chief of defence staff (CDS) General Bipin Rawat, who was killed in a helicopter crash last December, was spearheading the theaterisation drive. The government is yet to appoint his successor. The CDS's demise was seen as a setback to the ongoing military reforms, including theaterisation.

The current theaterisation model to enhance tri-service synergy seeks to set up four integrated commands --- two land-centric theatres, an air defence command and a maritime theatre command.

In November 2021, Rawat asked the three services to expedite their ongoing studies on the creation of theatre commands and submit comprehensive reports within six months. The deadline for submitting the reports was advanced from September 2022 to April 2022.

All eyes are now on who will be appointed as Rawat's successor at a time when the theaterisation plan is at a critical juncture and needs a man with a vision to carry it forward.

The armed forces currently have 17 single-service commands spread across the country. The army and air force have seven commands each, while the Indian navy has three.

The government expected Rawat, who took charge as India's first CDS on January 1, 2020, to bring about jointness among the three services in a three-year time frame (by January 2023). Previous timelines may now have to be revised, officials said.

<https://www.hindustantimes.com/india-news/military-top-brass-charts-out-maritime-command-101645811467915.html>

## THE ECONOMIC TIMES

Sun, 27 Feb 2022

### **Future of design and innovation in defence is 'electric' and 'miniaturisation': Army Chief**

#### *Synopsis*

*Army Chief said that in order to reduce the dependence on fossil fuels there is a need to use "electric-based things", and added that ships and aircraft have to be small out of necessity, in which more features need to be packed.*

Chief of Army Staff General M M Naravane on Saturday said as far as design and innovation in the fields of defence and aerospace is concerned, the future is "electric" and "miniaturisation." He said that in order to reduce the dependence on fossil fuels there is a need to use "electric-based things", and added that ships and aircraft have to be small out of necessity, in which more features need to be packed.

He was delivering the inaugural address at the three-day Ahmedabad Design Week organised at city's Karnavati University.

"What is the future as far as design and innovation is concerned in the fields of defence and aerospace? In this, I think there are two things we have to concentrate upon. One is, the future is electric," he said.

He said apart from electric vehicles (EV), for which the Centre has made a clear roadmap, there is a need to use "electric-based things" that are not dependent on fossil fuel.

"We have thousands of generators in forward areas, because there is no electricity supply there. These generators require fuel, and to transport the fuel you require vehicles, that has its cost. To generate one unit of electricity in forward areas, you spend 15 times the cost. Can we have some alternative which can generate electricity in forward areas that are not dependent on fossil fuels?" he asked.

"Future is also in miniaturisation...Size of our ships, aircraft have to be small out of necessity, and in that small space we have to pack more and more features. And therefore, miniaturisation is one area in which we have to proceed," he said.

He further called for the need to have a far-sighted development, and cited the example of tanks which have remained essentially the same all these years.

"When we now talk of design and innovation, we have to leapfrog, jump two-three steps ahead. From a caterpillar, we have to become a butterfly...that is the kind of innovation and design that we are looking at," he said.

General Naravane said the Indian Army has set up an Army Design Bureau to act as a facilitator between the designer and Army. "We need your help to make ourselves into a strong Army," he said, and added the scheme is meant to provide support to start-ups and MSMEs.

The Army has sought ideas under the programme called 'Future Ready Combat Vehicle'. "The challenge is how we can make a tank, which is radically different from what we have been used to," he said.

He said the Army requires design for the future-ready combat vehicles that remain effective 50 years from now.

<https://economictimes.indiatimes.com/news/defence/future-of-design-and-innovation-in-defence-is-electric-and-miniaturisation-army-chief/articleshow/89848692.cms>



Chief of army staff, Indian Army, General MM Naravane.

## अमर उजाला

Sun, 27 Feb 2022

### सेना प्रमुख: जहां तक सेना का सवाल, हम जो कुछ भी खरीदते हैं, उसका 85% हिस्सा भारतीय कंपनियों से

सार

जनरल एमएम नरवणे ने कहा कि, किसी भी समस्या के समय हमें चार तरह के डी को ध्यान में रखना चाहिए। ये हैं- डिस्कवर, डिफाइन, डेवेलप और डिलीवर।

विस्तार

नई दिल्ली: थल सेना प्रमुख जनरल एमएम नरवणे ने शनिवार को अहमदाबाद डिजाइन वीक 3.0 में भाग लिया। इस दौरान उन्होंने कहा कि, चेन्नई और लखनऊ डिफेंस कॉरिडोर ने पूरे पारिस्थितिकी तंत्र को बदलकर रख दिया है। जहां तक सेना का सवाल है, तो अब हम जो कुछ भी खरीदते हैं उसका 85 प्रतिशत हिस्सा भारतीय कंपनियों से है।

सेना प्रमुख ने कहा कि, किसी समस्या के बारे में बात करते समय 4 'डी' को ध्यान में रखने की जरूरत है। ये चार डी हैं- डिस्कवर, डिफाइन, डेवेलप और डिलीवर। गांधी नगर में हो रहा यह तीन दिवसीय कार्यक्रम "डिजाइन एंड इनोवेशन इन डिफेंस एंड एयरोस्पेस" विषय पर आधारित है। इसमें कई रक्षा विशेषज्ञों के शामिल होने की संभावना है।

थल सेना प्रमुख ने कहा कि रक्षा और वायु क्षेत्र का भविष्य इलेक्ट्रिक और लघुकरण है। उन्होंने कहा कि जीवाश्म ईंधन पर निर्भरता कम करने के लिए विद्युत आधारित उपकरणों के इस्तेमाल की जरूरत है। कर्णावती यूनिवर्सिटी (अहमदाबाद) में आयोजित तीन दिवसीय डिजाइन सप्ताह के उद्घाटन समारोह में जनरल नरवणे ने इलेक्ट्रॉनिक वस्तुओं के महत्व पर जोर देते हुए कहा, हमें जीवाश्म ईंधन पर निर्भरता कम करनी होगी साथ ही जहाजों और विमानों के आकार को छोटा करने की जरूरत है। छोटी जगहों में ज्यादा सुविधाएं देकर हम इनका भरपूर इस्तेमाल कर सकते हैं।



एमएम नरवणे - फोटो : एएनआई

थल सेना प्रमुख ने कहा कि इलेक्ट्रिक वाहनों (ईवी) के अलावा, जिसके लिए केंद्र ने एक स्पष्ट रोडमैप बनाया है। उसमें 'इलेक्ट्रिक-आधारित चीजों' को इस्तेमाल करने पर जोर दिया गया है ताकि हम जीवाश्म ईंधन पर अपनी निर्भरता को एक बड़े स्तर तक कम कर सकें।

सीमाई इलाकों में एक यूनिट बिजली की लागत 15 फीसदी तक अधिक

जनरल ने कहा, सीमाई इलाकों में बिजली की सुविधा नहीं होने के कारण हजारों की तादाद में जनरेटर रखे गए हैं, जो ईंधन जैसे डीजल या पेट्रोल से चलते हैं। ईंधन को उन इलाकों तक पहुंचाने के लिए परिवहन की जरूरत पड़ती है। जिसमें अलग से और अधिक खर्च आते हैं। सीमावर्ती इलाकों में एक यूनिट बिजली पैदा करने की लागत, सामान्य से 15 फीसदी तक अधिक है। उन्होंने सवाल करते हुए कहा कि हमें उन सभी इलाके के लिए विकल्प तलाशने की जरूरत है, जहां बिजली उत्पादन की समस्या है ताकि हम जीवाश्म ईंधन पर अपनी निर्भरता को कम कर सकें।

आर्मी डिजाइन ब्यूरो सुविधा प्रदाता की भूमिका निभाएगा

सेना प्रमुख ने कहा कि भारतीय सेना ने एक आर्मी डिजाइन ब्यूरो स्थापित किया है जो डिजाइनर और सेना के बीच सुविधा प्रदाता की भूमिका निभाएगा। उन्होंने कहा कि सेना को ऐसे डिजाइन की जरूरत है जिससे अगले पचास तक उसके उपकरण प्रभावी बने रहें।

<https://www.amarujala.com/india-news/ahmedabad-design-week-3-0-indian-army-chief-general-manoj-mukund-naravane-says-defence-corridors-in-chennai-lucknow-helped-in-changing-the-entire-ecosystem-of-defence-industry>

## Indian Navy seeking to be preferred security partner, says its Chief

### Synopsis

*And also be the first responder whenever there is a natural calamity, because of its proximity and ability to respond," Hari Kumar observed. Talking to reporters on the sidelines of MILAN-2022, the Admiral noted that Indian Navy has now reached a higher level of trust with the friendly neighbours.*

The Indian Navy is seeking to be the "preferred security partner" for all the smaller countries in the region, its chief Admiral R Hari Kumar said here on Sunday. "Over a period of time, Navy has been making efforts to be the preferred security partner for all the smaller countries in the region.

And also be the first responder whenever there is a natural calamity, because of its proximity and ability to respond," Hari Kumar observed. Talking to reporters on the sidelines of MILAN-2022, the Admiral noted that Indian Navy has now reached a higher level of trust with the friendly neighbours.

MILAN was a reflection of how India as a nation has grown and how the Navy has also evolved over a period of time. It was also a reflection of trust and capability of our Navy, the Chief remarked.

He said three main benefits accrued from the MILAN, first being the interoperability with other navies. While learning the good practices from each other was another benefit, development of trust (among navies) was the most important takeaway, the CNS pointed out.

Admiral Hari Kumar said operating at sea, working together and making friendships led to development of trust between navies. "This is very important for us because we all operate in the maritime domain that is very challenging. This also makes sure we all prosper from the benefits the sea offers in terms of resources," he added.



MILAN was a reflection of how India as a nation has grown and how the Navy has also evolved over a period of time. It was also a reflection of trust and capability of our Navy, the Chief remarked.

<https://economictimes.indiatimes.com/news/defence/indian-navy-seeking-to-be-preferred-security-partner-says-its-chief/articleshow/89874014.cms>



Press Information Bureau

Government of India

Ministry of Defence

Fri, 25 Feb 2022 3:37PM

## Western Air Command Commanders' Conclave

Western Air Command Commanders' Conclave was held on 24 Feb 22 at Subroto Park, New Delhi. The conclave was attended by Commanders of all bases under Western Air Command (WAC). Air Chief Marshal VR Chaudhari, Chief of the Air Staff was received by Air Marshal Amit Dev, Air Officer Commanding-in-Chief WAC and was accorded a ceremonial Guard of Honour on his arrival at the Command Headquarters.

In his address, Chief of the Air Staff emphasised the necessity to enhance operational preparedness and directed the Commanders to ensure operational readiness of all platforms,



weapon systems and assets. He stressed on the need for root cause analysis of all accidents and incidents, improve maintenance practices to boost mission effectiveness besides maintaining impregnable physical and cyber security at all times. He praised WAC for the quantum of flying carried out and urged all Commanders to continue their efforts towards providing a safe operational flying environment.



<https://pib.gov.in/PressReleasePage.aspx?PRID=1801075>



पत्र सूचना कार्यालय  
भारत सरकार

रक्षा मंत्रालय

*Fri, 25 Feb 2022 3:37PM*

## पश्चिम वायु कमान मुख्यालय में कमांडरों का सम्मेलन

पश्चिम वायु कमान के कमांडरों का सम्मेलन 24 फरवरी 22 को सुब्रोतो पार्क, नई दिल्ली में आयोजित किया गया। इस सम्मेलन में पश्चिम वायु कमान के अंतर्गत आने वाले कमांडरों ने भाग लिया। मुख्य अतिथि एअर चीफ मार्शल विवेक राम चौधरी वायु सेना अध्यक्ष की अगुवाई पश्चिम वायु कमान के वायु अफसर

कमांडिंग-इन-चीफ एअर मार्शल अमित देव द्वारा की गई। वायु सेना अध्यक्ष को कमान मुख्यालय आगमन पर सम्मान गारद प्रस्तुत किया गया।

वायु सेना अध्यक्ष ने अपने संबोधन में संक्रियात्मक तैयारियों को उन्नत बनाने की आवश्यकता पर बल दिया और उपस्थित सैन्य कमांडरों को सभी प्लेटफॉर्म, शस्त्र प्रणाली और परिसंपत्तियों की संक्रियात्मक तैयारियों को सुनिश्चित करने के निर्देश दिए। उन्होंने सभी घटनाओं और दुर्घटनाओं के मूल कारणों के विश्लेषण और अभियानों की प्रभाविकता को सुनिश्चित करने के लिए रखरखाव के तरीकों में सुधार के अतिरिक्त प्रत्येक क्षण, अभेद्य वास्तविक एवं साइबर सुरक्षा की आवश्यकता पर बल दिया। उन्होंने पश्चिम वायु कमान द्वारा की गई उडान प्रयासों की प्रशंसा की और सभी कमांडरों से सुरक्षित संक्रियात्मक उडान वातावरण के लिए उनके प्रयासों को निरंतर बनाए रखने का आग्रह किया।



<https://pib.gov.in/PressReleasePage.aspx?PRID=1801076>

# Milan-2022: increased cooperation will play a key role in protecting sovereignty of nations, say chiefs of different navies

*The Indian Ocean Region opens up multiple opportunities and challenges: Admiral Hari Kumar*  
*By Sumit Bhattacharjee*

Visakhapatnam: Increased cooperation, shared vision and collaboration between like-minded navies will play a key role for maritime security and protecting the interests and sovereignty of the nations. This was the opinion of the panel members that included chiefs of different navies at the seminar with the theme ‘Changing character and conflict at sea’ organised as part of MILAN-2022, at Eastern Naval Command in Visakhapatnam on Sunday.

Delivering the keynote address the Chief of Naval Staff, Indian Navy, Admiral R. Hari Kumar, pointed out that the need of the hour was constructive engagement, collective maritime cooperation and collaboration between navies to ward off threats at sea and minimise conflicts.

“The Indian Ocean Region is an important maritime region. The vast expanse of water opens up multiple opportunities and challenges. We need synergy of capabilities of friendly navies to mitigate all challenges,” he said.

“Indian navy is working towards harnessing competencies for an inclusive ecosystem, developing interoperability and trust and addressing persistent problems together. This is our vision and we share it with all navies that are participating in MILAN-22,” he said.

Speaking about MILAN, he said that this was for the first time being hosted by the ENC and for the first time about 13 foreign naval warships and 39 countries are participating. The future of global common hinges on cooperation and collaboration, and MILAN only furthers it, said Admiral Hari Kumar.

He said that apart from deliberations by naval experts on complex subjects and the City Parade, the sea phase of MILAN will focus on simple to complex naval exercises at sea that includes anti-submarine warfare.

India as a nation has grown and its naval fleet with just about 33 second hand ships at the time of Independence have grown to become one of the largest navies in the world with capabilities to build ships and submarines, he said.

Speaking at the seminar, Admiral Samuel J. Paparo, commander of the US Pacific Fleet, said that the responsibility of navy is to uphold international law, freedom at sea and protect the sovereignty of land.

## **Global dynamics**

Vice Admiral Michael Noonan, Chief of Royal Australian Navy, in his address said that the global dynamics have changed after the World War II, the cold war and the break-up of the USSR. It is now changing with the emergence of China as big power and with this the complexities over Indo-Pacific region is changing very fast, he said.

“It is time to rethink the character of warfare, especially at sea, with the growing tension on territorial waters and the militarisation of South China Sea. Adversaries will not discard opportunities and nor will they step away from exploiting weaknesses,” said Vice Admiral Noonan.

The Chief of Staff JMSDF (Japan Maritime Self-Defense Force), Admiral Hiroshi Yamamura, said that challenges have to be overcome together and it is time to deepen defence multilateral cooperation.



Admiral Yamamura pointed out that Quad (Quadrilateral Security Dialogue) should be made the hub of maritime activity in the region.

Commodore Shaheen Rahman, Commander Flotilla West, Bangladesh Navy, said that maritime interests focusses on many things that includes fisheries, offshore exploration and extracting minerals. And the role of navy has expanded from resolving border disputes to curbing illegal exploration of minerals to drug and arms trafficking and to addressing the issue of refugees.

Navy now has to look into addressing state as well as non-state actors and at the same also address environment issues and this is possible only through mutual trust and cooperation.

The session was moderated by Vice Admiral G. Ashok Kumar, former Vice Chief of the Naval Staff, Indian Navy.

<https://www.thehindu.com/news/cities/Visakhapatnam/milan-2022-increased-cooperation-will-play-a-key-role-in-protecting-sovereignty-of-nations-say-chiefs-of-different-navies/article65089901.ece>



Mon, 28 Feb 2022

## Naval upgrade: Russia is a tricky trader

*Russia aspires to create dependency to use as an instrument of exerting its influence on future Indian foreign and security policies*

*By Nishtha Kaushiki*

Given the joint Sino-Pak threat, especially from the sea, the Indian government has the strategic foresight to expand the military capabilities horizontally, i.e., diversification and increasing the lethality of the military assets apart from focussing on significant indigenous inductions such as IAC-1 and INS Vagir. The overall aim is to decrease dependency on defence supplies.

Project -75 was initiated to develop the Air Independent Propulsion (AIP) technology for the Indian submarines. The technology allows the submarines to stay longer underwater and hence are not easily detected by the enemy's surface assets. The AIP system that the Naval Materials Research Laboratory (NMRL) of DRDO has developed under Project- 75 would be retrofitted from 2024-25 onwards into six Scorpene submarines.

On the other hand, a ten-year lease signed with Russia in 2019 for a new submarine will be delivered in 2025. Hence, the period from 2022-2025 is crucial from a naval security point of view.



Given the security challenges from the adversaries apart from China's naval deployments in Djibouti and acquisitions of naval bases in South Asia, Project 75-I was initiated with an urgency to build six new conventional submarines for the Indian navy. The objective was to enhance naval capabilities. The Project worth Rs 45,000 crore was opened for original equipment manufacturers, and it was France, Germany, Russia, South Korea and Spain that were expected to bid. A mandatory condition of AIP technology in the submarines makes the Project highly tactical in nature.

After Germany and South Korea's refusal, Russia has recently refused to bid for the Project. Moscow instead has offered to upgrade the previously purchased Kilo-class submarines. The Russian decision has again brought the growing divergences between the "special and privileged partnership". An important reason for this has been that the component of arms sales in Russia is a "strategic sector" of its economy. By offering India an upgradation, it aims to market its submarines. The financial lucrativeness of selling spare parts and services to the existing and the new weaponry platforms should not be missed either. Thus, Russia aspires to ensure that a path dependency is created that can be used as an instrument of exerting its influence on the future

Indian foreign and security policy. This factor becomes essential in the light of the fact that from 2016-20, the Russian arms imports saw a 53 per cent drop.

On the other hand, Moscow is developing state-of-art non-nuclear submarines with China. It has steadily shifted from a transactional relationship of a buyer-seller into a partnership that encompasses joint research, development and production of significant naval assets. Given the current geopolitical scenario, the development upon its materialisation would be inimical to India's security.

Russia has supplied China with the upgraded Kilo-Class diesel-electric attack submarine. Beijing has successfully convinced Russia to incorporate some of the features of Kilo-class submarines into its own domestically produced Yuan class submarines, which is its first AIP powered submarine. Nevertheless, given the Chinese expertise of reverse engineering and indigenisation to supply military technologies to its recipient countries such as Pakistan, an upgraded version of Kilo-class submarines that Russia has offered to India will most likely not suit India's naval requirements.

It is so because China has shared the technology with Pakistan and rechristened the Yuan as Type-039B 'Hangor Class' submarines for its client state. The deal sees the construction split between China Shipbuilding Industry Corporation (CSIC) and Karachi Shipyard and Engineering Works (KSEW). Further, the submarines constructed by China would be delivered to Pakistan between 2022-2028. With these facts, the upgradation offer of Moscow, if accepted by the Indian government, would tactically mean that all three countries - China, Pakistan, and India- would have Russian submarines or their improvised versions. The consequences of such a scenario can only be visualised by the Defence Ministry and the military experts.

From an Indo-centric perspective, if India successfully gets new submarines with the state-of-art technology, it can bridge the security gap for the next four to five years, thereby ensuring security by the time DRDO's AIP is retrofitted. Further, this period can also be used for experimentation of different technologies that probably can make the Indian submarines more lethal than that of the arch-rivals of China and Pakistan.

The Russian refusal to bid for Project 75-I was expected and should not be considered a 'sudden development'. From a geopolitical perspective, Russia's refusal is significant in the light of an increasing shift from a Sino-Russo strategic 'partnership' to an 'alliance' and an emerging Russo-Pak bonhomie. The three parallel developments transform the security architecture of South Asia into a new era. Russia has joined China in looking at AUKUS from a Chinese prism. Their joint statement spoke of a "no-limits" friendship and denied any "forbidden" areas of cooperation. The statement without naming Quad criticised the grouping and called it "detriment of the security of others".

Additionally, it named AUKUS and the nuclear submarine cooperation as "contrary to the objectives of security and sustainable development of the Asia-Pacific region". At present, the region has been gradually witnessing the culmination of an 'anti-Quad' block that comprises Russia, China, and Pakistan, which perhaps would be joined in by Iran. The process marks the beginning of power shifts in Asia for the next two decades.

Sino-Russian convergence on an anti-American stand has been well-spoken. However, within the aforesaid platform, rapid convergences between Russia and Pakistan should be a cause of worry for the defence experts. It probably all began with the Russian sales of Mi-35M Hind-E assault helicopters (2015 and 2017) that soon culminated into a 'Security Training Agreement' (2018). The recent advances of Pakistan towards Russia in the shadow of China aim to offset the 'special' relationship between New Delhi and Moscow.

India has been accorded Strategic Trade Authorization (STA) Tier- 1 status owing to the West's strategy of Indo-Pacific, thus, making it eligible to get the much-required technology, or perhaps even a better one. Russia should understand that the greater the depth of its strategic relations with China and Pakistan, the more the chances of losing India. It could be further 'pushed' into the U.S. alliance system in the emerging scenario. The carefully crafted balance that New Delhi maintained

until now can perhaps be lost. As the need of the hour is to have state of the art technology for the naval assets, a probable French, British or American willingness to share the technology should be taken by Russia in the right spirit.

For Russia, the flip side of this emerging bonhomie is that Pakistan is a minimal market for defence supplies and is financially unstable because of its foreign policy tool of spreading terror in the region. In such a case, Russia should not fall into the trap of China to share the financial burden of keeping a terrorist country like Pakistan functional. Instead, the Russian leadership should well acknowledge the Indian security concerns. Moscow's vision of South Asian geopolitics should not be primarily confined to an anti-American stand, and other issues such as Islamic fundamentalism, demographic changes, refugee problems, etc., should be genuinely considered. It should understand Pakistan's manipulative and 'victim' policy. An issue and a theatre-based approach, if adopted by Moscow, could perhaps save the Indo-Russian ties from diverging further.

*(The writer is an Assistant Professor at Central University of Punjab, Bathinda. The views expressed are personal.)*

<https://www.dailypioneer.com/2022/columnists/naval-upgrade--russia-is-a-tricky-trader.html>

## THE TIMES OF INDIA

Sun, 27 Feb 2022

### Air Marshal Choudhary visits Air Force Station in Devlali

Nashik: Air Marshal Shashiker Choudhary, Param Vishisht Seva Medal, Ati Vishisht Seva Medal, Vishisht Seva Medal, Aide-de-Camp Air Officer Commanding-in-Chief (AOC-in-C) Maintenance Command of the Indian Air Force, and Anita Choudhary, the president AFWWA (regional), arrived at the Air Force Station Devlali on Friday on a two-day official visit. They were received by Air Commodore P K Nair, AOC Air Force Station Devlali, and Sujatha Nair, the president of AFWWA (local).



The AOC-in-C was introduced to the key personnel and was given a brief on the functioning of the depot. The Air Marshal visited various sites, warehouses and the Material Management Institute in the functional wing of the depot.

He expressed satisfaction with the high degree of professionalism, good working environment and high morale of the personnel. In his address, he urged them to be professionally sound and vigilant to safeguard assets. He also said there would be focus on cyber security and personal health.

Anita Choudhary interacted with the staff and 'sanginis' and appreciated their efforts in the maintenance of ventures.

<https://timesofindia.indiatimes.com/city/nashik/air-marshal-choudhary-visits-air-force-station-in-devlali/articleshow/89859920.cms>

## **Explained: P-8I, the Indian Navy's frontline multi-mission aircraft**

*The P-8 is a multi-mission maritime patrol aircraft, excelling at anti-submarine warfare; anti-surface warfare; intelligence, surveillance and reconnaissance and search and rescue.*

*By Krishn Kaushik*

New Delhi: Aviation and defence colossus Boeing delivered India's 12th maritime surveillance and anti-submarine warfare P-8I aircraft on Thursday (February 24). The first of these aircraft was inducted in 2013, and it made India the first country outside the United States to get one. The Navy has been receiving them regularly since.

The aircraft is designed for "long-range anti-submarine warfare (ASW), anti-surface warfare (ASuW), and intelligence, surveillance and reconnaissance (ISR) missions", according to its maker, and is a "multi-mission aircraft" with "state of the art sensors, proven weapons systems, and a globally recognised platform".

### **First in US and India**

The first aircraft produced by Boeing flew in 2009, and has been in service with the US Navy since 2013, the same year as the Indian Navy. Apart from India and the US, it has been chosen by six other militaries in the world.

The aircraft has two variants — the P-8I, which is manufactured for the Indian Navy, and the P-8A Poseidon, which is flown by the US Navy, the United Kingdom's Royal Air Force, the Royal Australian Air Force, and the Royal Norwegian Air Force. It has also been selected by the Royal New Zealand Air Force, the Republic of Korea Navy, and the German Navy.

### **Naval operations**

According to Boeing, the P-8 is a "multi-mission maritime patrol aircraft, excelling at anti-submarine warfare; anti-surface warfare; intelligence, surveillance and reconnaissance and search and rescue".

While the Indian Navy uses it for maritime operations, the aircraft was also used in eastern Ladakh in 2020 and 2021, when the standoff with China was at its peak, to keep an eye on Chinese troops and their manoeuvres.

The aircraft for the Indian Navy are called P-8I, and have replaced the ageing Soviet/Russian Tupolev Tu-142s. The P-8Is are capable of anti-submarine; intelligence, surveillance and reconnaissance (ISR); patrolling, coastline defence, and other operations.

### **12 aircraft**

In 2009, India had placed an order for eight planes, which were called P-8A Poseidon multimission maritime aircraft (MMA), by the US Navy. The order had a clause allowing the purchase of four more aircraft later. India exercised that option, and placed the order for four more aircraft in 2016.

The first eight of these aircraft are stationed at INS Rajali in Arakkonam, Tamil Nadu, on the eastern coast. The batch of the additional four are part of another squadron at INS Hansa in Goa, named Indian Naval Air Squadron 316.

The P-8I started operations at INS Hansa in January, after the first of them reached there on December 30, 2021. "The aircraft were inducted after fitment of indigenous equipment and Flight Acceptance Trials. On arrival, the aircraft were welcomed by a MiG 29K formation," the Navy had said in January.



While the Indian Navy uses the P8I for maritime operations, the aircraft was also used in eastern Ladakh in 2020 and 2021. (Photo: [Twitter/@Boeing\\_In](https://twitter.com/Boeing_In))

## Tech specs

The P-8I can fly as high as 41,000 feet, and has a short transit time, which reduces the size of the “Area of Probability when searching for submarines, surface vessels or search and rescue survivors”. It is also used for low altitude, and humanitarian, and search and rescue missions.

The aircraft has two engines, and is about 40 metres long, with a wingspan of 37.64 metres. Each aircraft weighs about 85,000 kg, and has a top speed of 490 knots, or 789 km/hour. It requires a crew of nine, and has a range of 1,200+ nautical miles, with 4 hours on station, which means about 2,222 km.

According to Boeing, more than 140 P-8 aircraft have “executed more than 400,000 mishap free flight-hours around the globe”.

## Weapons systems

The aircraft comes with one of the most advanced weapon systems in the world, and has a life of around 25 years, or 25,000 hours in the “harshesht maritime flight regimes, including extended operations in icing environments”.

It is one of Boeing’s “most advanced aircraft”, and the P-8A “uses a first-in-industry in-line production system”. It plays a “crucial role in being the eyes of the Indian Navy and carrying out critical maritime operations”, and provides it a “significant edge in the strategically important Indian Ocean region,” Boeing says.

The Navy’s fleet has surpassed 29,000 flight-hours since their induction in 2013, and is responsible for coastal patrolling, search-and-rescue, anti-piracy, and supporting operations of other arms of the military, it says.

<https://indianexpress.com/article/explained/explained-p-8i-indian-navy-boeing-aircraft-7790672/>



Sat, 26 Feb 2022

# IAF arsenal gets key boosts in 3 years after Balakot airstrikes

*India’s unprecedented, peacetime cross-border airstrikes came on the back of the February 14, 2019, Pulwama terror attack in which 40 Central Reserve Police force (CRPF) men were killed.*

*By Rahul Singh*

New Delhi: The Indian Air Force has strengthened its combat potential significantly since the bombing of Jaish-e-Mohammed (JeM) targets in Pakistan’s Balakot exactly three years ago, with the induction of Rafale jets armed with potent beyond visual range (BVR) missiles, S-400 Triumf air defence missile systems, a medium range surface-to-air-missile (MRSAM) system and smart air-to-ground weapons, people familiar with the matter said on Friday.

“The Rafale along with its Meteor BVR air-to-air missile and the S-400 systems represent a significant capability enhancement. If we had Rafales then, the Pakistan Air Force wouldn’t have dared to launch its fighter jets a day after the Balakot air strikes,” said a senior official, who asked not to be named.

India’s unprecedented, peacetime cross-border airstrikes came on the back of the February 14, 2019, Pulwama terror attack in which 40 Central Reserve Police force (CRPF) men were killed.

On February 26, 2019, IAF’s Mirage 2000s hit three targets in Balakot with five Israeli-origin Spice 2000 bombs with penetrator warheads that allowed them to pierce through the rooftops before exploding inside to cause maximum damage.

There has been no major Pakistan-sponsored terror attack on Indian soil during the last three years, said a second official, who also asked not to be named. “The Balakot strikes served their purpose. Pakistan has realised that India has the will and capability to hit back hard,” he added.



Pakistan Air Force fighters made a failed attempt to bomb Indian military installations on February 27, 2019, leading to an aerial engagement along the Line of Control during which Wing Commander Abhinandan Varthaman scripted military aviation history by downing an F-16, seconds before his own MiG-21 Bison was hit by a missile forcing him to eject. He was captured after he bailed out of his aircraft, but Pakistan returned him to India on March 1 after holding him captive for almost 60 hours. He was later awarded the Vir Chakra, India's third-highest wartime gallantry award.

“With the induction of Meteor-armed Rafales, the BVR advantage has been restored. The other weapon systems that have been inducted over the last three years have led to a quantum jump in capability,” said Air Marshal Anil Chopra (retd), director general, Centre for Air Power Studies.

“The Balakot targeting was fantastic and it couldn't have been better. What happened a day after Balakot could have been prevented if we had Rafales then. But as we have only 36 Rafales, we can't make sure they are everywhere. We need more numbers,” said a retired three-star IAF officer, asking not to be named.

IAF has armed the Rafale fighter jets with an all-weather smart weapon of French origin called Hammer (Highly Agile Modular Mmunition Extended Range). It can engage ground targets from a standoff range of up to 60 km.

The platforms inducted after the Balakot raid include AH-64E Apache attack helicopters and CH-47F (I) Chinook multi-mission helicopters. To be sure, these acquisitions were planned years before the Balakot airstrikes.

Last September, IAF inducted an MRSAM system capable of knocking out aerial threats such as enemy fighter jets, missiles, helicopters and unmanned aerial vehicles at a range of 70 km. India and Israel have jointly developed MRSAM or the Barak 8 air defence system.

IAF has also begun the induction of S-400 missile systems that are capable of destroying jets and missiles at a range of 400 km.

Last year, then IAF chief Air Chief Marshal RKS Bhadauria flew in a multi-aircraft formation to mark the second anniversary of the Balakot operations. The five-aircraft formation consisted of Mirage 2000s and Sukhoi-30 fighters. While the actual bombing was carried out by the Mirages, Su-30s were part of the IAF's strike package that day.

Each bomb that hit the JeM targets carried around 80 kg of explosives in a 900-kg steel casing, with the explosion caused by time-delay fuses sending a lethal quantity of shrapnel that instantly killed the occupants. The bombs hit their targets in a vertical attack angle, leaving holes measuring 80 to 90 cm in diameter on the rooftops of the structures, as previously reported by Hindustan Times.

<https://www.hindustantimes.com/india-news/iaf-arsenal-gets-key-boosts-in-3-years-after-balakot-airstrikes-101645811469567.html>



Sun, 27 Feb 2022

## **India-US deal for 30 Armed Predator Drones at advanced stages: Report**

*India and the United States have intensified the discussions and increased the number of such drones to be sold to India from 10 to 30 - 10 each for navy, air force and army. These state-of-the-art Predator drones, which have no match currently, are to be manufactured by General Atomics*

Washington: The discussions on the sale of 30 Predator armed drones by the US to India, the first to a non-NATO ally, at an estimated cost of USD 3 billion are at an advanced stage, multiple sources have confirmed.



The major defence deal was announced under the previous Trump administration during the visit of Prime Minister Narendra Modi to the White House in 2017. Thereafter, the two countries have intensified the discussions and increased the number of such drones to be sold to India from 10 to 30 - 10 each for navy, air force and army.

Governmental sources told news agency PTI that the Predator/MQ9B acquisition program of 30 aircraft is at an advanced stage of discussion between the Indian and US governments.

"It is a capability that operationalises the Major Defence Partner status that has been worked on for several years through the various foundational agreements and India's insertion into the MTCR. India will be the first non-NATO partner to receive this capability," the sources told news agency PTI.

These state-of-the-art drones, which currently have no match in the defence industry, are to be manufactured by General Atomics.

The sources told Press Trust of India, who spoke on condition of anonymity, denied having any knowledge of the deal being put on the back-burner by India.

While the process has been slow, mainly due to the bureaucracy in the two countries, the Indian armed forces have leased two surveillance Predators from General Atomics. These drones have emerged as a valuable surveillance asset for conducting reconnaissance of India's maritime and land borders with China and Pakistan, the sources said.

They said they have been receiving very good feedback from India in this regard.

According to governmental sources, six years of negotiations between the two governments at the highest levels have taken place. As an exception, the US government had cleared the offering of this armed capability to the first non-NATO ally. The defence procurement board of India's Ministry of Defence had met on this and cleared it late last year.

The next step is receiving a letter of request, another governmental source told PTI.

These drones have the ability to carry out long-range precision air strikes. They will add to India's growing inventory of US-made military equipment that includes attack helicopters, submarine-hunting aircraft and assault rifles.

<https://www.ndtv.com/india-news/india-us-deal-for-30-armed-predator-drones-at-advanced-stages-report-2792153>



Predator drone acquisition for 30 aircraft is at an advanced stage of discussion between India and US

## Business Standard

Sat, 26 Feb 2022

# MBDA to display world-beating missiles at Defexpo 2022

*The IAF has repeatedly returned to MBDA for both its air-to-air and air-to-ground missile requirements*

*By Ajai Shukla*

The Indian Air Force (IAF) has gone to numerous combat aircraft designers for the fighters in its fleet. The Rafale is the seventh fighter aircraft type the IAF operates. However, when it comes to missiles – which constitute a combat aircraft's real firepower – the IAF has repeatedly returned to MBDA for both its air-to-air and air-to-ground missile requirements.

The latest example is in arming the Rafale, the IAF's newest fighter. It carries what MBDA calls a "truly game changing set of weapons from MBDA – the revolutionary Meteor beyond-visual-range (BVR) air-to-air missile, the MICA air combat missile and SCALP deep strike missile."

Three successive IAF chiefs have publicly stated that had the IAF flown the Rafale with its MBDA missiles the day the Pakistan Air Force (PAF) retaliated to the Balakote strikes, the IAF would have imposed a heavy cost on the PAF fleet.

Given MBDA's long relationship with the IAF, few would dispute its statement on Saturday that, "Over [the last 50 years]... many tens of thousands of MBDA-designed missiles have been built in India and we continue to deepen and deliver on new programmes."



Almost every major European fighter aircraft type carries one or more MBDA missile. The Rafale – both the land and marine versions – is armed with the Meteor, which is the world's longest-range air-to-air missile. That would allow the Rafale to fire a Meteor at an enemy aircraft well before the enemy fighter can engage the Rafale.

According to MBDA: "Key to Meteor's performance is its throttle-able ramjet engine, active radar seeker and datalink." The ability to fly faster, for longer and manoeuvre more sharply than other air-to-air missiles give the Meteor a "no-escape zone" (the arc in which the target aircraft cannot evade the missile) many times greater than any of its competitors.

MBDA plans to display a full-scale Meteor missile at Defexpo 2022, scheduled to be held between March 10-13 at Gandhinagar.

The IAF's Rafales also carry the shorter-range MICA air-to-air missile. This is also being fitted onto the IAF's Mirage 2000 fighter aircraft fleet in its on-going upgrade programme.

MBDA claims the MICA is the world's only air-to-air missile that features two interoperable seekers – active radar and imaging infrared. That allows the MICA to be used in close-in, fighter-to-fighter dogfights as well as in the BVR role.

When fired in the BVR mode, the MICA flies much of the distance to the enemy aircraft in passive mode – i.e. without radiating radar waves, which alert the adversary. The seeker starts radiating only in the final stages of its approach, when the enemy aircraft has no time to take evasive manoeuvres or to deploy effective countermeasures.

A third MBDA missile is the Advanced Short Range Air-to-Air Missile (ASRAAM), which MBDA says "is being delivered to the IAF as its New Generation Close Combat Missile programme," that will arm the IAF's upgraded Jaguar fleet, and potentially the Hawk advanced jet trainer. It is also a part of the Gripen E weapons suite.

"With its large rocket motor, and clean aerodynamic design, ASRAAM has unrivalled speed and resultant aerodynamic manoeuvrability and range... that delivers superior end-game performance for within visual range (WVR) air combat," states MBDA.

For striking ground targets, IAF Rafales carry the French SCALP deep-strike cruise missile. This stealthy weapon can strike hardened and protected targets deep inside enemy territory from stand-off ranges, i.e. without the need for the Rafale to enter hostile airspace, which could be heavily defended with air defence missiles. The SCALP has the capability to create havoc at the target end, due to its powerful tandem warhead and multiple detonation modes.

Also on display in Defexpo 2022 will be the Mistral man portable air defence system (MANPADS), which MBDA says has "performed exceptionally well in firing evaluation trials for India."

Mistral has already been selected and integrated into India's indigenous armed helicopters, including the Rudra and the Light Combat Helicopters (LCH). Three versions of the Mistral will be displayed in Gandhinagar: the helicopter launched version, the very short range air defence manpack version and a third version for naval warships.

Finally, MBDA has sold India the Exocet SM39 anti-ship missile, which arms the Scorpene submarines. Another version, the Exocet AM39, can be launched from maritime patrol aircraft, strike fighters such as the Rafale and medium to heavyweight helicopters.

[https://www.business-standard.com/article/companies/mbda-to-display-world-beating-missiles-at-defexpo-2022-122022600967\\_1.html](https://www.business-standard.com/article/companies/mbda-to-display-world-beating-missiles-at-defexpo-2022-122022600967_1.html)

## How will sanctions on Russia impact India's defence deals with Moscow?

*The sanctions by West will affect Russia's domestic defence industry as it will be impacted due to restrictions on import of technologies and export of finished products.*

The Russia-Ukraine military conflict will adversely affect India at several levels, including defence equipment supplies. India is hugely dependent on Moscow for supply of arms, especially the delivery of Russian developed S-400 air defence missile system. The S-400 is Russia's most advanced long-range surface-to-air missile defence system.

India had signed a \$5 billion deal with Russia in October 2018 to buy five units of the S-400 systems despite a warning from the then Trump administration that the contract may invite US sanctions going ahead. However, India had asserted that its decisions are based on its national interests and for the country's security.



Russian S-400 missile air defence systems are seen during a training exercise at a military base in Kaliningrad region, Russia on August 11, 2020. (Photo: REUTERS)

### **Impact of sanctions on Russian defence industry**

The sanctions by West will affect Russia's domestic defence industry as it will be impacted due to restrictions on import of technologies as well as critical components and export of finished products and system, says Brigadier Rahul Bhonsle (retired), Director of New Delhi-based Security Risks consultancy group.

India will be impacted in two ways by the sanctions on Russian defence industry, he opines.

First implication, he says, is in terms of restrictions on Russia for imports and exports of military technology as well as equipment. "This will constrain the ability to fulfill existing contracts to India such as the S-400 and stealth frigates, amongst others," notes Brigadier Bhonsle.

The second challenge, he says, will be in payments with dollar transactions being controlled after US Department of Treasury has blocked the same with Russia's two largest banks and almost 90 financial institution subsidiaries.

### **Impact on India's defence procurement**

Due to the West's sanctions, India's military faces a grim prospect of interrupted and delayed Russian defence kit supply, which is critical for military's operational readiness, especially in the wake of a collective threat from China and Pakistan.

Brigadier Bhonsle states that although military's operational readiness will not be impacted in the immediate term, there are huge concerns in the short-term and beyond.

As far as the two-front collusive threat from China and Pakistan is concerned, that will have to be addressed through non-military strategies, he says.

### **Impact on India's overall military capability**

Brigadier Bhonsle says that the overall military capability of India won't be affected in the immediate term as present levels will be based on existing weapons as well as equipment and spares as well as ancillaries to support the same.

"However, there will be some areas where gaps could emerge such as critical spares and ancillaries which need to be watched out for. In short to long-term, defence capability will be impacted unless measures to offset the same are not taken from the very outset," he outlines.

### **Why is India dependent on Russian military material?**

But why does India prefer Russian military equipment? This, he explains, is owing to the legacy of Russia being India's strategic partner since the 1970s.

"This legacy has led to Indian armed forces' acquisition of first Soviet and now Russian weapons and technology," states Brigadier Bhonsle, adding that this has several advantages for India "from ruggedness, cost of operation and maintenance and speedier acquisition through a government-to-government process". The technology is also reasonably contemporary, he says.

#### **Alternate choices for India**

In view of the current sanctions on Russia, the alternate choice for India is to become self-dependent, he opines.

"In the short and even in the long-term, there are limited alternate choices for replacement of Russian equipment. Hopefully, the 'Atmanirbhar Bharat' in defence programme sees substantial traction in the years ahead," Brigadier Bhonsle says.

#### **India-Russia defence deals**

Around 23 per cent of Russian arms exports from 2016-2010 went to India, according to a report by the Stockholm International Peace Research Institute. The main battle tank of the Indian Army are primarily Russian T-72M1 and T-90s.

The sole operational aircraft carrier of the country's Navy is a refurbished Soviet-era ship and its whole complement of ground and fighter attack aircraft are made in Russia or manufactured in India through licence.

Furthermore, four of the Navy's 10 guided-missile destroyers are Russian Kashin class, six of its 17 frigates are Russian Talwar class. The Navy's only nuclear-powered submarine is taken on lease from Russia.

Majority of the Indian Air Force's (IAF) 29-30 fighter squadrons operate Russian aircraft comprising around 272 multi-role Su-30MKIs fighters, awaiting an upgrade to 'Super Sukhoi' standard. Over 100 MiG 21 'Bis' are operated by the IAF.

Coming to the ongoing and future deals with Russia, India is procuring the S-400 air defence systems from Russia. Some of them are stationed in Punjab to foil a probable attack from China and Pakistan. India also inked an agreement for AK-203 rifles recently, and the production is slated to start in India soon. Any further delay may leave the Indian troops at borders with China and Pakistan in the lurch.

The country is also in the process of procuring warships from Russia. The most difficult and worrisome thing is the procurement of BrahMos missiles. The sanctions could seriously undermine India's \$375-million BrahMos cruise missile export order to the Philippines as BrahMos Aerospace is a joint venture between India's Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyeniya.

The defence equipment from Russia pending delivery to India comprise five Almaz-Antey S-400 Triumf self-propelled surface-to-air (SAM) missile systems, the provision of 20,000 Kalashnikov AK-203 7.62x39mm assault rifles, four Admiral Grigorovich Project 1135.6M frigates, and the leasing of one more Project 971 'Akula' (Schuka-B)-class nuclear-powered submarine (SSN).

Furthermore, India had signed agreements with Russia for supplies of a range of missiles and ammunition for use by the Indian Army. It is also in advanced talks with Russia to procure 12 Sukhoi Su-30MKI for the IAF, to be built by Hindustan Aeronautics Ltd., and 464 Russian T-90MS main battle tanks for the Indian Army, amongst others.

<https://www.businesstoday.in/latest/world/story/how-will-sanctions-on-russia-impact-indias-defence-deals-with-moscow-324113-2022-02-27>

## HAL's AMCA and IMRH programmes to be implemented under SPV model: Chairman

*The provision for formation of the SPV for design development and production of major defence equipment is aimed at enabling concurrent engineering and production in faster timelines.*

*By Aksheev Thakur*

Bengaluru: Chairman of Hindustan Aeronautics Limited (HAL) R Madhavan said the defence PSU is trying to implement the next generation Advanced Multi-Role Combat Aircraft (AMCA) and Indian Multi Role Helicopter (IMRH) under the special purpose vehicle (SPV) model involving private players.

Speaking at the webinar 'Aatmanirbharta in Defence: Call to Action' organised by the Ministry of Defence on February 26, Madhavan said, "We are trying to implement the projects through the SPV route where we want the private players to have a majority stake so that it does not become a full government entity. The procurement process will also be easy. The advantage is that it will cut procedural delays. On AMCA, we are working with DRDO."

Adding further he said, "SPVs cannot raise debts based on the sponsor's assets. So, it has to create assets or they have to ensure that the financing institute has a say in the cash flows of the future. We have worked out on that. There are a couple of things which are required from the government as guarantees for the SPV to function."

Explaining further, he said, "One is that there will be a fixed order quantity and it should be known to the SPV from the beginning. Suppose there are 400 helicopters; this has to be told to the SPV upfront by the government. Secondly, once the design development is over, there will be no delay in placing orders because any delay means the SPV will face a problem in paying back the debt as well as the investment that they have made. Private industries should also have confidence in Indian development, especially the defence public sector units. There is not much of a risk involved in the subsequent development of a new platform through the SPV route even if it is AMCA or IMRH."

IMRH will replace the Russian Mi-17 helicopters. Union Finance Minister Nirmala Sitharaman announced that the private sector will be encouraged to take up design and development of equipment in collaboration with the Defence Research Development Organisation (DRDO) and other organisations under the special purpose vehicle (SPV) model.

The provision for formation of the SPV for design development and production of major defence equipment is aimed at enabling concurrent engineering and production in faster timelines.

The announcement of 25 per cent of the defence research and development budget earmarked for engagement of industry, start-ups and academia was hailed by the experts.

<https://indianexpress.com/article/cities/bangalore/hals-amca-and-imrh-programmes-to-be-implemented-under-spv-model-chairman-7791919/>



## Trichy MSMEs eye manufacturing components for Arjun battle tanks

By Deepak Karthik

Trichy: Troubled with the fall in fresh manufacturing orders in the engineering sector, small scale industries in the district have identified parts of Arjun battle tank that can be manufactured locally. Recently, a group of MSMEs guided by the Tamil Nadu Industrial Investment Corporation (TIIC) that visited the Combat Vehicles Research and Development Estate (CVRDE) in Avadi near Chennai confirmed that manufacturing defence components is viable and that technical support of BHEL Trichy was sought for establishing suitable infrastructure to assemble the battle tanks in Trichy.



A group of MSMEs guided by the TN Industrial Investment Corporation visited the Combat Vehicles Research and Development Estate in Avadi near Chennai

As fresh orders from BHEL has dwindled over the years, most of the 450 odd MSMEs affiliated to BHEL small scale industries (Bhelsia) here are on the verge of closure due to debts. The MSMEs are surveying potential sectors in defence to avail manufacturing orders and produce components locally as part of Trichy engineering cluster. Having specialised in manufacturing boiler components, the engineering sector here has identified manufacturing components for battle tanks (Arjun) and missiles as a viable diversification area.

Through the support of TIIC and Defence Chamber of Industries and Commerce (DCIC), a group of entrepreneurs from Trichy visited the workshop of Defence Research and Development Organisation (DRDO) in Avadi recently. "Internal brackets and body parts of battle tank Arjun Mark I can be produced in Trichy with our expertise. In a year, Trichy MSMEs will manufacture components and overhaul battle tanks provided we get adequate financial and technical support," Rajappa Rajkumar, president, Bhelsia said.

Through the infrastructure such as heavy press and modern CNC machines available at BHEL Trichy, similar to Ponmalai railway workshop that overhauls bogies and rail engines, entrepreneurs said that BHEL Trichy can support in setting up an assembly line to overhaul battle tanks. Around 2,000 defence components in battle tanks and other weapons were identified to be manufactured in Trichy.

The MSMEs in this regard are planning to sign an MoU with CVRDE and TIIC to capitalise on the opportunity. "The ministry of defence will support MSMEs willing to manufacture defence components under the Make in India programme. The required support including skill development and training will be offered," a senior DRDO official told TOI.

<https://timesofindia.indiatimes.com/city/trichy/trichy-msmes-eye-manufacturing-components-for-arjun-battle-tanks/articleshow/89841318.cms>

### FORAYING INTO DEFENSE SECTOR

- > MSMEs in Trichy | 400-450
- > Production capacity | 7L (steel) tonnes per year
- > Defence MSMEs in Trichy | Present | 10-12 | Planned | 60-90
- > Defence components identified | 2,000
- > Defence sectors identified | Battle tanks (Arjun) | Shipbuilding | Missile shells

A group of MSMEs guided by the TN Industrial Investment Corporation visited the Combat Vehicles Research and Development Estate in Avadi near Chennai



## China's new-generation rocket launches 22 satellites into space

*These satellites will be mainly used for commercial remote sensing services, marine environment monitoring, forest fire prevention and disaster mitigation.*

Beijing: China's new Long March-8 rocket placed 22 satellites in space on Sunday, setting a domestic record for the most spacecraft launched by a single rocket.

The rocket blasted off at 11:06 am (Beijing Time) at the Wenchang Spacecraft Launch Site in the southern Hainan Province before sending the satellites into pre-set orbits, state-run Xinhua news agency reported.

These satellites will be mainly used for commercial remote sensing services, marine environment monitoring, forest fire prevention and disaster mitigation.

The mission marked the 409th flight of the Long March carrier rockets.

The Long March-8 used for Sunday's launch is a modified version of the medium-lift carrier rocket and is 48 meters long with a take-off weight of 198 tonnes.

It uses non-toxic and pollution-free propellants with a 3-tonne capacity for sun-synchronous orbit, the Xinhua report said.

Compared with the original model, the modified model does not have side boosters but can launch multiple satellites with different orbital requirements.

The Long March-8 is the new generation of China's carrier rocket.

Designed and built by the China Academy of Launch Vehicle Technology, the rocket fills a gap in China's launch capability to the sun-synchronous orbit and meets the needs of more than 80 per cent of launch missions for medium and low-orbit spacecraft.

Xiao Yun, chief commander of the rocket, said an assembly and test plant for the Long March-8 family is being built outside the Wenchang launch site.

Once completed, it is expected to shorten the launch interval of the Long March-8 rocket to seven days, enabling 50 launches a year.

On February 10, China unveiled an ambitious plan for its burgeoning space industry this year which included over 50 space launches and six manned space flights to complete the building of its space station.

The China Aerospace Science and Technology Corporation (CASC) said China will carry out more than 50 space launches in 2022, sending over 140 spacecraft into space, "The year 2022 will see China's projects in space at the top of its game," Ma Tao, the deputy chief of the space department at China Aerospace Science and Technology Corporation (CASC) said.

Among the many tasks planned for 2022, Ma noted that six launches will be dedicated to China's manned space project to build space station, which is expected to be completed this year.

"We will complete the rendezvous and docking of the two lab modules with the core module under manned condition to complete the T-shaped design for the space station," Bai Linhou, the deputy chief designer of space station system at CASC, state-run CGTN reported.

Last month the China Aerospace Science and Technology Corporation, (CASTC) said China will complete the building of the space station this year.

Last year, China has carried out 55 space launch missions according to China's blue book on the space industry.

<https://www.newindianexpress.com/world/2022/feb/27/chinas-new-generation-rocket-launches-22-satellites-into-space-2424408.html>

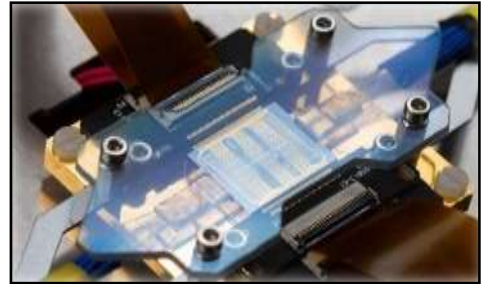


Sat, 26 Feb 2022

## Perfect photons feed new quantum processor

A quantum processor working with photons developed at the University of Twente becomes an ever stronger 'toolbox' for doing experiments. The latest version not only has more inputs and outputs, it can also be fed by a photon source that is able to produce identical photons. Physical experiments, sometimes counterintuitive ones, are now possible. Can a system, for example, show quantummechanic and thermodynamic behavior at the same time?

If you want to perform quantum calculations using light, it all starts with the source. The photons you would like to use have to be as identical as possible. If they aren't identical, then examining typical quantum properties like entanglement and superposition will not be possible. If one photon, for example, is of a slightly different color than the other, the risk exists that quantum properties will not come forward and calculations are not possible. In his thesis, Reinier Van der Meer presents a three photon source based on titanylphosphate (KTP) that can, in its current version, be upgraded to 11 photons that are very identical.



Credit: University of Twente

The next step, the processor Van der Meer did his experiments on, is a system with 12 inputs and 12 outputs. In between, there is a system of light-conducting channels, made of silicon nitride that is known for its extremely low losses. The first processor of this type had 8 inputs and 8 outputs, and in fact it was by coincidence that the photonic circuit could be used for quantum experiments.

The photons move through the channels, with many channel splitters. These 'switches' can be geared from the outside, by local heating. By doing so, a photon can be sent from one mode to another, but also somewhere in between, following the typical quantum phenomenon of superposition. The advantage of this processor is that it works at room temperature, like the photons. The advantage is that the photon 'quantum bits' are more robust and less noisy than superconducting qubits. Measurements at the 12 outputs show what has happened in all channels along the way.

Thanks to the better photon source and larger processor, Van der Meer was able to conduct a few experiments. One of them is about retention of information. Quantum mechanics is a theory that stays the same in terms of information: through time, two systems will not look more similar. Thermodynamics, however, is a theory losing information: two systems will, in time, look more and more similar. Quantum mechanics and thermodynamics can't be true at the same time, you would say. Still, a system that shows quantummechanic behavior as a whole, can have thermodynamic subsystems. So, there must be a way for information to escape within the larger system.

**More information:** Reinier van der Meer (Gouda, 1993) defended his PhD thesis 'Quantum information processing in large-scale photonic networks' on 24 February 2022.

<https://phys.org/news/2022-02-photons-quantum-processor.html>

