

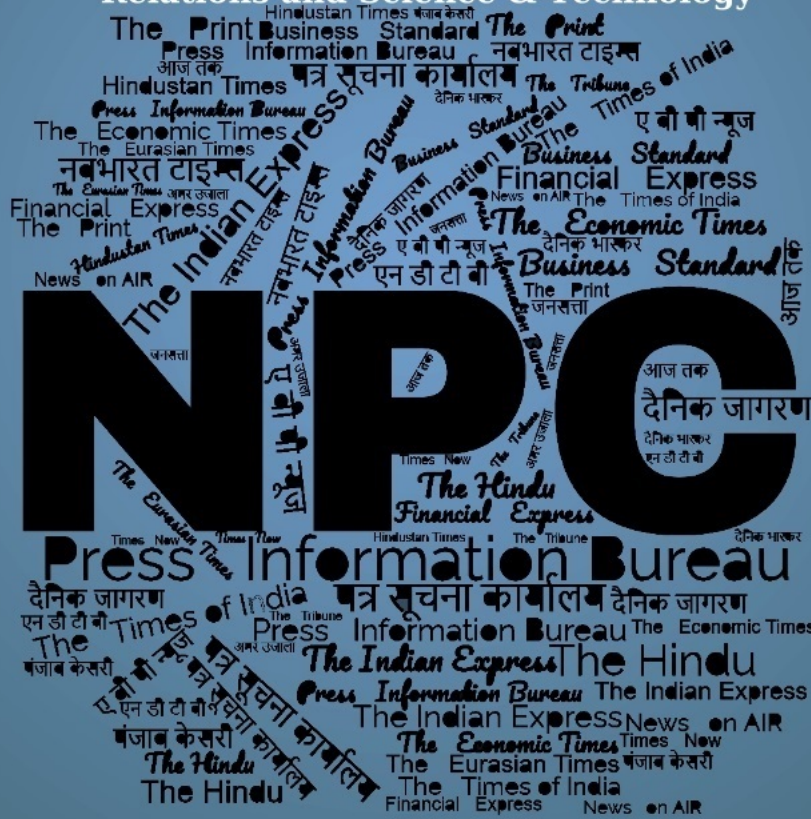
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# समाचार पत्रों से चयित अंश Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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**Press Information Bureau**  
**Government of India**

**Ministry of Defence**

*Mon, 03 Jun 2024*

### **Keel Laying Of The Second Cadet Training Ship (Yard-18004) At M/S L&T Shipyard, Kattupalli**

Keel laying ceremony of the second Cadet Training Ship (Yard – 18004) was held at M/s L&T Shipyard, Kattupalli on 03 Jun 24. The ceremony was presided over by RAdm Sandeep Mehta, Assistant Controller of Warship Production and Acquisition (ACWP&A). RAdm G K Harish (Retd), Head Shipbuilding Business, L&T and other senior officials from Indian Navy and M/s L&T were present for the occasion.

The contract for indigenous design and construction of three Cadet Training Ships was concluded between MoD and M/s L&T on 07 Mar 23. These Cadet Training Ships will be utilised for training officer cadets at sea after their basic training ashore. These ships will also extend training facility to cadets from Friendly Foreign Countries.

This is yet another significant milestone in Indian Navy's pursuit towards indigenous shipbuilding and is in consonance with Government of India's vision of 'Aatmanirbhar Bharat' and 'Make in India' initiatives.

The Long Term Integrated Perspective Plan (LTIPP) 2012 – 27 envisages a force level of three Cadet Training Ships for Indian Navy.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2022624>



*Tue, 04 Jun 2024*

### **Entire Dhruv fleet set to get key safety upgrade by end of month**

A critical safety upgrade on the military's advanced light helicopter Dhruv fleet, initiated by state-run plane maker Hindustan Aeronautics Limited (HAL) after a string of accidents last year, is nearing completion and the upgraded control system installed on the locally made choppers will

improve their airworthiness, officials aware of the matter said on Monday. The Dhruv fleet, plagued by a nagging design issue, was grounded several times last year after the accidents called into question its flight safety record.

This led to a comprehensive design review of the helicopter's booster control rods followed by a drive to replace the flaw-ridden existing ones with new rods in each ALH. The development is significant as the armed forces operate around 330 twin-engine ALHs, designed and developed by HAL.

Replacement of the collective control rod has been completed in all the helicopters, said a senior official who asked not to be named. Replacement of the other two rods (lateral and longitudinal) in the ALH fleet is underway and is expected to be completed by June-end, said another official who also asked not to be named.

"This will improve flight safety. The design improvement is tested and proven. Failure in the helicopter's control assembly, which consists of the collective, pitch and roll control rods, was the cause of some mishaps," he added. These rods allow pilots to control the helicopter's motion, and any failure can severely affect power input to the rotor blades and cause accidents. The new rods are made of steel instead of aluminum. The multi-mission helicopter has been involved in at least 12 accidents during the last five years. Hindustan Times highlighted the design issue and steps taken to fix it in a series of stories last year.

A top government regulatory body responsible for the certification of the airworthiness of military aircraft ordered the design review in April 2023, first reported by HT.

The Bengaluru-based Centre for Military Airworthiness and Certification (CEMILAC) ordered the design review of the booster control rods to improve the ALH's airworthiness. CEMILAC, which functions under the Defence Research and Development Organisation, reached the conclusion that the design review was mandatory after an expert committee, formed in the backdrop of a navy ALH ditching (emergency landing in water) into the Arabian Sea on March 8, 2023, explored the possible failures that led to the incident.

ALHs were involved in accidents before and after the navy incident too. HAL began delivering these helicopters to the armed forces in the early 2000s. The ALH has faced some issues related to its control assembly for some time, said Air Marshal Anil Chopra (retd), former director general, Centre for Air Power Studies. "This issue is behind us now. Control rods made of steel will improve flight safety. Earlier, there were concerns about the metallurgy of control rods in the ALH gearboxes," he added.

The expert committee found that the most probable cause of the navy ALH incident was a technical failure --- an error in the assembly of serrated washers in the booster control rods. The regulatory body red-flagged the drastic reduction in the fatigue life of the control rods.

The Indian Air Force's latest light combat helicopters (LCH), which inherit several features of ALH, were also grounded earlier last year. CEMILAC had earlier prescribed measures for the resumption of ALH and LCH operations.

<https://www.hindustantimes.com/india-news/entire-dhruv-fleet-set-to-get-key-safety-upgrade-by-end-of-month-101717440521758.html>

# नवभारत टाइम्स

Mon, 03 Jun 2024

## चीनी J-20 के बाद अब J-10 लड़ाकू विमान ने बढ़ाई भारत की टेंशन, दो तरफ से घेरा, राफेल से मुकाबला

भारत के साथ वास्तविक नियंत्रण रेखा (LAC) पर हाल ही में चीन ने अपने जे-10 लड़ाकू विमानों को तैनात किया है। ये विमान एलएसी पर स्थित भारतीय वायु सेना के उस बेस से मात्र 300 किमी दूर तैनात हैं, जो राफेल लड़ाकू विमानों का ठिकाना है।

कुछ दिनों पहले ऐसी रिपोर्ट आई थी कि चीन ने सिक्किम सीमा से सटे अपने बेस पर जे-20 स्टील्थ लड़ाकू विमान को तैनात किया है। लेकिन, इस शोर के आगे जे-10 विमानों की मौजूदगी की खबर दब गई। जे-10 ही एकमात्र लड़ाकू विमान हैं जो चीन और पाकिस्तान के साथ भारतीय सीमा के दोनों तरफ तैनात हैं।

### पाकिस्तान ने राफेल का मुकाबला करने के लिए खरीदा

पाकिस्तान ने इन जे-10 सिंगल-इंजन मल्टी-रोल लड़ाकू विमानों को विशेष रूप से भारतीय वायु सेना (IAF) के राफेल का मुकाबला करने के लिए शामिल और तैनात किया है। सवाल यह है कि क्या भारत के दो फ्रंटलाइन फाइटर जेट- राफेल और LCA तेजस MK1A चीनी जे-10 की चुनौती का सामना कर सकते हैं।

इस बीत यूरोशियन टाइम्स ने बताया, चीन ने इन लड़ाकू विमानों को पांचवीं पीढ़ी के छह जे-20 के साथ शिगात्से एयरबेस पर तैनात किया है, जो पश्चिम बंगाल में हासीमारा एयर बेस से 300 किलोमीटर से भी कम दूरी पर स्थित है। हाशिमारा में भारतीय वायु सेना के राफेल विमान तैनात हैं। चीन के विपरीत, भारत के पास अपने शस्त्रागार में पांचवीं पीढ़ी का विमान नहीं है।

### भारत के एक्शन के जवाब में चीन ने की तैनाती

चीन द्वारा लड़ाकू विमानों की तैनाती की उपग्रह इमेजरी ऐसे समय में आई है जब भारत ने पूर्वी लद्दाख में तैनाती के लिए एक नया मिलिट्री डिवीजन बनाने की लंबे समय से लंबित मांग के कार्यान्वयन की घोषणा की है। 2020 में गलवान संघर्ष के बाद से दोनों देशों के बीच संबंध खराब हो रहे हैं और चीन ने 10,000 भारतीय सेना के जवानों की फिर से तैनाती को क्षेत्र में शांति और स्थिरता के लिए अनुकूल नहीं बताया है। उधर, भारत गर्मी के बीच चीनी आक्रामकता का सामना करने के लिए तेजी से कमर कस रहा है।

अमेरिका की अपनी यात्रा के दौरान, भारतीय सेना प्रमुख जनरल मनोज पांडे को तिब्बत और पड़ोसी प्रांतों में चीनी सैन्य गतिविधियों पर विस्तृत और गुणवत्तापूर्ण तकनीकी-संकेत खुफिया जानकारी और उपग्रह फीड प्रदान की गई।

### भारतीय वायु सेना को तत्काल शक्ति बढ़ाने की जरूरत

विशेषज्ञों के अनुसार, भारतीय वायु शक्ति को अपने दो पड़ोसियों की सामूहिक क्षमता से मेल खाने के लिए तत्काल एक शॉट की आवश्यकता है। 36 राफेल को शामिल करना भारतीय वायु सेना के पुराने बेड़े को आधुनिक बनाने और लड़ाकू स्क्वाड्रनों की घटती संख्या को रोकने की दिशा में पहला कदम था। तब से, LCA तेजस Mk1A की डिलीवरी में विलंब हुआ है और 114 मध्यम भूमिका वाले लड़ाकू विमानों या अतिरिक्त राफेल लड़ाकू विमानों के अधिग्रहण पर कोई हलचल नहीं हुई है।

## चीन का जे-10 कितना शक्तिशाली

भारत द्वारा फ्रांसीसी राफेल लड़ाकू विमानों को शामिल करने के जवाब में पाकिस्तान ने अपने लड़ाकू बेड़े में चीनी जे-10 विमान को शामिल किया। यह स्वदेशी AESA (एक्टिव इलेक्ट्रॉनिकली स्कैन्ड एरे) फायर-कंट्रोल रडार से लैस है। विमान सभी मौसम में संचालन करने में सक्षम है। इसकी प्राथमिक भूमिका हवा से हवा में मुकाबला करना है, लेकिन यह स्ट्राइक मिशन भी कर सकता है। J-10 C की तुलना अक्सर अमेरिकी F-16 फाइटिंग फाल्कन के उन्नत वेरिएंट से की जाती है। F-16 की तरह, J-10 में अत्यधिक फुर्तीला, वायुगतिकीय रूप से अस्थिर एयरफ्रेम है, जिसे इसके फ्लाई-बाय-वायर फ्लाइट कंट्रोल सिस्टम में एक कंप्यूटर द्वारा स्थिर किया जाता है। इसकी क्षमताओं में बियॉन्ड विजुअल रेंज की लड़ाई, हवा से जमीन पर सटीक हमला, डिजिटल ग्लास कॉकपिट उपकरण, उड़ान के दौरान ईंधन भरना और इलेक्ट्रॉनिक युद्ध शामिल हैं।

<https://navbharattimes.indiatimes.com/world/china/china-pakistan-surrounding-india-by-deploying-j-10-fighter-jet-to-fight-indian-air-force-rafale/articleshow/110665824.cms>



Mon, 03 Jun 2024

## **J-10 ‘Vigorous Dragon’: China & Pakistan’s Jets Breathe Down India’s Neck On ‘Both Sides’ To Fight Rafales**

While the deployment of J-20s has been widely reported, the presence of “Rafale Challenger” J-10 warplanes has not really caught the media’s attention. J-10s are the only fighters deployed on both sides of the Indian border with China and Pakistan.

Pakistan has inducted and deployed these single-engine multi-role fighters specifically to counter the French Rafales that the Indian Air Force (IAF). The question remains if India’s two frontline fighter jets—Rafales and LCA Tejas MK1A—can take up the gauntlet thrown by the Vigorous Dragon.

As the EurAsian Times reported, China has stationed these fighter jets, along with six J-20s, at the Chinese Shigatse Airbase, located less than 300 kilometers from Hasimara Air Base in West Bengal, where the Rafale fighter jets are located. India, unlike China, does not have a fifth-generation aircraft in its arsenal.

The satellite imagery of China’s deployment of fighter jets comes as India announces the implementation of the long-pending demand of raising a new Army division for deployment in eastern Ladakh. Relations between the countries have been spiraling down since the Galwan clash in 2020, and Beijing has called the repositioning of 10,000 Indian Army troops non-conducive to peace and stability in the region.

The Indian Army has been gearing up for Chinese aggression as the summer is here in the Indian subcontinent. During his visit to the US, Indian Army Chief General Manoj Pande was provided

with detailed and quality technical-signal intelligence and satellite feeds on Chinese military movements in Tibet and neighboring provinces.

Despite the anticipation and the build-up, Indian air power needs an immediate shot in the arm to match the collective capability of two of its neighbors. The induction of 36 Rafales was the first step in modernizing the IAF's aging fleet and arresting its falling number of fighter squadrons.

Since then, the delivery of LCA Tejas Mk1A has been pushed back, and there has been no movement on the acquisition of the 114 Medium Role Fighter Aircraft or additional Rafale fighter jets.

Pakistan inducted the aircraft in its combat fleet in response to India's induction of French Rafale fighter jets. It is equipped with an indigenous AESA (Active Electronically Scanned Array) fire-control radar. The aircraft is capable of all-weather operations. Its primary role is air-to-air combat, but it can also perform strike missions.

The J-10 C is often compared to upgraded variants of the American F-16 Fighting Falcon. Like the F-16, the J-10 boasts a highly agile, aerodynamically unstable airframe, which is stabilized by a computer in its fly-by-wire flight control system.

Its capabilities include beyond-visual-range engagement, precision air-to-ground strike, digital glass cockpit instruments, in-flight refueling, and electronic warfare.

### **J-10 vs Rafale**

Air Marshal Anil Chopra (retired), an IAF fighter test pilot and the ex-director-general of the Center for Air Power Studies, thinks that the comparison between the J-10CE and Rafale fighter jets is "somewhat unfair" as the latter is a twin-engine combat-proven fighter jet. Its electronic warfare suite is unparalleled.

"The J-10 and the Rafale can both be termed 4.5-generation multi-role fighter jets that, on some counts, have similar performance and capabilities. However, the Rafale has a clear edge over the J-10 in terms of technology, weapons, aero-engines, and combat experience," the senior IAF official says.

Both fighter jets are categorized as 4.5-generation, but Rafale's electronic warfare suites are among the best in the world.

"The Rafale has been used in combat operations in Mali, Afghanistan, Libya, Iraq, and Syria. The J-10 has, at best, only done joint exercises with Pakistan," Air Marshal Chopra concludes, comparing the two fighter jets.

However, India only has 36 of these French fighter jets and two adversaries on both sides of the Eastern and Western sectors.

### **LCA Mk1A Vs J-10C**

The situation is reversed when the Vigorous Dragon is compared to the latest variant of the indigenous fighter jet LCA Mk1A. The IAF has bet heavily on the fighter jet and placed a contract for 83+97 of these fighter jets to be manufactured by Hindustan Aeronautics Limited (HAL).

The industry has been abuzz about the first of this variant, which will be delivered to the IAF by February 3, 2024.

However, HAL has pushed back the delivery of the fighter jet to mid-2024, citing the disruption of the global supply chain. The LCA Tejas Mk1A is to replace the MiG-21 bison aircraft. In other words, the Soviet-vintage fighter aircraft are awaiting the delivery of the indigenous variant to be phased out.

The IAF needs to maintain 42 squadrons to maintain combat parity with both its neighbors. But its numbers are down to 31 fighter squadrons. Phasing out MiG-21 squadrons without a replacement would mean further dipping in the numbers.

According to technical specifications, the J-10 is larger, heavier, and has a higher speed ceiling than the Tejas LCA. However, the Tejas LCA offers better range and agility.

However, J-10 C has already been deployed in China and Pakistan, whereas LCA Tejas Mk1A remains in the assembly lines.

### **MRFA Is Critical For The IAF**

Despite the IAF pushing hard for it, the Indian government, emphasizing “Made in India,” has not budged about purchasing 114 Medium Role Fighter Aircraft from foreign manufacturers at an estimated US \$20 billion.

While the IAF’s capabilities have increased, its war endurance capacity and the strength of fighter and combat support platforms need attention. The IAF’s overall deterrence capability has not kept pace with the existing threat perception.

The former Vice Chief of IAF Air Marshal Anil Khosla told the EurAsian Times that while the Indigenous Tejas are good to make, “there is a requirement for new-generation multi-role aircraft to maintain a balanced force (till the domestic Tejas Mk II and Advanced Medium Combat Aircraft is ready).”

“MRFA aircraft need to be procured (maybe in the next installment of defense spending). These should be procured in phases (maybe two to three squadrons at a time. This would spread the expenditure over some time, and we would get later and better technology and features,” Khosla added.

Despite the Indian government’s emphasis on ‘Make In India’ for armed forces modernization, the LCA Mk2 project has yet to receive government funding. This means that it is still a dream.

The Tejas Mk 2 aims at the IAF with a 4.5-generation medium-weight-class fighter aircraft. It is meant to be an advanced version of the Tejas Mk 1A. India’s Cabinet Committee on Security (CCS) gave official approval to the project on September 1, 2022, for development, flight testing, and certification of the fighter jet. It did sanction USD 809.17 million.

However, the funding was tied to the US government’s approval of a 100 percent transfer of engine technology to India.

LCA Mk-2 will have enhanced range and endurance. The Mk-2 is 1,350 mm longer, featuring canards, and can carry a payload of 6,500 kg compared to the 3,500 kilograms that LCA can have. LCA Mk-2 will be powered by the General Electric F414-INS6 engine (earlier LCA variants used the F404).



The LCA Mk2 is expected to have a maximum speed of 1.8 Mach and a service ceiling of 50,000 feet. Heavy weapons of the SCALP class, Crystal Maze, and Spice-2000 will also be integrated into the Mk-2. The IAF is expected to order over 200 LCA Mk-2 fighters.

[https://www.eurasiantimes.com/j-10-vigorous-dragon-china-pakistans-fighters/#google\\_vignette](https://www.eurasiantimes.com/j-10-vigorous-dragon-china-pakistans-fighters/#google_vignette)

# THE ECONOMIC TIMES

*Mon, 03 Jun 2024*

## **China beats the war drums at Shangri-La Dialogue**

Speaking at the Shangri-La Dialogue, an international defence and security conference held in Singapore from May 31 to June 2, Chinese Defense Minister Admiral Dong Jun declared, "We will not allow hegemonism and power politics to undermine the interests of Asia-Pacific countries. We will not allow anyone to bring geopolitical conflicts or any war, whether hot or cold, to our region. We will not allow any country or any force to create conflict and chaos in our region."

This was fighting talk from China, which has already created immense security concerns in the Asia-Pacific region. Indeed, these words formed a sharp juxtaposition as China Coast Guard personnel, just days earlier, fired water cannons, harassed a medical evacuation and stole and destroyed supplies airdropped to Philippine troops aboard a beached ship guarding Second Thomas Shoal in the South China Sea.

However, the greatest threat from bellicose China was reserved for democratic Taiwan. "We will take resolute actions to curb Taiwan's independence and make sure such a plot never succeeds. Anyone who dares to separate Taiwan from China will only end up in self-destruction."

Worryingly, Beijing's rhetoric at this annual Singapore conference that attracts defence ministers from all over the world reached a new level of intimidation. No other country at the Shangri-La Dialogue issues such blatant threats, and one wonders why China is given an international platform to air violent rhetoric.

Such toxic comments also underscored how Chinese officials have locked themselves in a self-imposed echo chamber sustained by a constant diet of false propaganda and nationalistic jingoism. A Chinese delegate even went as far as saying that recent military drills against Taiwan were designed to "punish separatists" and not the Taiwan people. He added that "Taiwan people call on the People's Liberation Army (PLA) to protect them".

Such notions are sheer idiocy. The Chinese Communist Party (CCP) continues to fervently spout such nonsense, seemingly believing its own delusions and thinking the rest of the world somehow agrees with it.

This spirit of willful ignorance - and arrogance - was evidenced by PLA officers who used formal question-and-answer sessions at the Shangri-La Dialogue not to ask genuine questions, but to reemphasize Chinese talking points and solidify accusations. Indeed, this is China's profound difficulty. It wants to come across as a responsible power that cares about others, but it cannot refrain from bullying. For example, Dong said in his speech, "Despite problems and differences

that have occurred from time to time, dialogue and consultation have always been our favourite choices for resolving differences and disagreements."

Furthermore, China's defence minister said his nation, "As a responsible major country, is ready to share its practices that have proved successful and work together with other countries to embrace a bright future".

Dong said that Chairman Xi Jinping's "vision and initiatives echo the trend of history and respond to the longing of people around the world for a better life". Of course, its "successful" model features authoritarianism, one-party rule, tight surveillance of the populace, mass incarcerations and militarism. Ignoring the glossy language for a moment, very few would like to embrace this future promulgated by Beijing.

Its efforts at statesmanship are continually undermined by threats against any who disagree with it, and nor do its actions match its words. In almost the same breath, Dong warned of the danger of being drawn in as pawns into blocs by hegemonic powers. In other words, China's neighbours cannot be trusted to make their own choices.

After listening to Dong's speech at the three-day Dialogue, Rory Medcalf, head of the National Security College at the Australian National University, could only conclude, "That was the most consistently intimidating speech we've heard from China at a Shangri-La Dialogue. Defence Minister Dong Jun warned of 'resolute' military action against Taiwan's 'fanatical' forces, then said 'there is a limit to our restraint' against the Philippines."

The overwhelming sense emanating from Chinese delegates is one of tone deafness - only China's interests matter and everybody else is to blame if their interests do not coincide. This kind of historical blinker is dangerous and echoes the historical "grievances" that Vladimir Putin used as the *raison d'etre* for attacking Ukraine. Thus, the Shangri-La Dialogue has become an annual occasion where China can lay out its historically inaccurate and spurious claims, and harangue and threaten others with violence unless they concede to Chinese narratives.

In his keynote address, Dong made five key points. Each highlighted the uncomfortable and increasingly glaring paradox between Chinese word and deed. The first theme was that "China's strategic culture is anchored on universal love and non-aggression". Unfortunately, this is difficult to reconcile with its actions in the South China Sea or along the Indian border, nor its insistence on supporting warmonger Putin and refusing to attend a Ukrainian peace summit in Switzerland.

Dong said Beijing has been promoting peace talks, has never provided weapons, and has never done anything to fan the flames in Ukraine. "We stand firmly on the side of peace and dialogue." However, in a surprise visit to Singapore for the Shangri-La Dialogue, Ukrainian President Volodymyr Zelensky said he did not meet a single Chinese official despite his efforts to set up meetings. So much for standing on the side of dialogue! Zelensky lamented: "With China's support for Russia, the war will last longer. And that is bad for the whole world."

Dong also addressed China's spectacular build-up of its nuclear-weapon stockpile. "China's nuclear policy is a highly stable, consistent and predictable one." China has embarked upon the most dramatic build-up of nuclear weapons the world has ever seen, but this is brushed aside as being "stable, consistent and predictable"! No other explanation is necessary, according to China.

Ironically, Dong said China "advocates settlement of disputes through dialogue and consultation and despises the law of the jungle. When addressing border and maritime disputes, we have never provoked incidents or easily resorted to the use of force." However, video footage released by the Philippine government and media shows this claim is utterly unfounded, as Chinese law enforcement vessels resort to growing levels of recklessness and violence.

It seems only a matter of time before Filipino seamen are killed. In fact, the Philippines copped high criticism from Beijing. "...A certain country, emboldened by outside powers, has broken bilateral agreements and its own promises, made premeditated provocations and created false scenarios to mislead the public." He warned Manila, "China has exercised great restraint in the face of such infringements and provocations, but there is a limit to our restraint. We hope this country could see where its true interests lie, return to the right track of dialogue and consultation, and work with other countries in the region to make the South China Sea a sea of peace, friendship and cooperation." Moving on to the Chinese defence minister's second point, he said his regime is "committed to pursuing common security. China champions a vision of common, comprehensive, cooperative and sustainable security." He added, "Seeking bloc confrontation can only exacerbate tension and provoke war and conflict."

His third point was that China is "committed to equality and mutual respect". "China hopes that all countries are equal regardless of their size, and all militaries are equal regardless of their strength ... The Chinese military never acts from the so-called position of strength in its relations with foreign militaries." With all seriousness, Dong said, "On international and regional security issues, China has never coerced others into taking sides or interfered in the internal affairs of other countries."

Answering a question following his speech, Dong said of Philippine efforts to defend its exclusive economic zone in the South China Sea: "I think this is blackmail and hijacking rules because we are always talking about rules-based international order. I think this is not even morally right. And China's law enforcement is very restrained and in accordance with our law ... But I also want to say our tolerance for deliberate provocation, we have a limit." He reiterated Beijing's desire to "build a more just and equitable international order". Yet, while paying lip service to international law, Beijing continues to flagrantly break it in the South China Sea. Collin Koh, Senior Fellow at the Institute of Defence and Strategic Studies in Singapore, said of China's refusal to acknowledge the Permanent Court of Arbitration's authority and application of the United Nations Convention on the Law of the Sea (of which China is a signatory): "[It's] outright disinfo. Under the compulsory dispute settlement mechanism provisions of UNCLOS, Manila can unilaterally refer the case to arbitration. The tribunal convened under UNCLOS auspices satisfied itself that it could legally hear the case before it proceeded to do so." Fourthly, Dong said, China is dedicated to openness and inclusiveness, claiming that the PLA has military exchanges with more than 150 nations. He said, "We stay open to exchanges and cooperation with the US military. But this requires efforts from both sides."

Dong met US Defense Secretary Lloyd Austin in a 75-minute encounter on 30 June, their first meeting, but he failed to acknowledge that it was China who unilaterally suspended all communications between their respective defence departments for around 15 months until they were renewed last November. Dong's fifth point was a commitment to safeguard national core interests. "China always respects the legitimate concerns of other countries, and China's core

interests are sacred and inviolable. To safeguard China's sovereignty and territorial integrity is the sacred mission of the Chinese military."

Naturally, what China sees as legitimate is typically completely different from others' views, preventing any meaningful dialogue or agreement. Taiwan is the number one core issue for China, and the Chinese defence minister accused the ruling Democratic Progressive Party thereof "pursuing separation in an incremental way". With gusto, he continued, "Those separatists recently made fanatical statements that show their betrayal of the Chinese nation and their ancestors. They will be nailed to the pillar of shame in history."

The USA came in for blame too. "At the same time, some external interfering forces keep hollowing out the One China principle with a salami-slicing strategy. They have cooked up Taiwan-related legislation and continued to sell arms to Taiwan and have illegal official contacts with it. In fact, what they are doing is emboldening Taiwan independence separatists in an attempt to contain China with Taiwan.

These malicious intentions are dragging Taiwan into a dangerous situation." He described Taiwan as an entirely internal affair that brooks no foreign interference. "China stays committed to peaceful reunification. However, this prospect is increasingly being eroded by separatists for Taiwan's independence and foreign forces. The danger of national division is still there." He spoke as though Taiwan was once part of communist China, but it never has been.

After his speech, Dong fielded questions from the audience, but he spent the vast majority of his time lambasting Taiwan. "Taiwan is an inalienable part of China. It is a province of China. I think this fact is very clear." Rather than admitting that China was militarily coercing and intimidating Taiwan, he laid the blame for the PLA's ongoing aircraft and naval incursions solely on Taipei. "I think, facing the strong People's Liberation Army, their efforts will be futile. And their efforts can only lead to accelerated demise and only undermine the interests of people in Taiwan. And that is the least thing we want to see in China."

On the contrary, that is the top priority of the PLA, the armed wing of the CCP. Perhaps it is time to ban China from future editions of the Shangri-La Dialogue until it can learn to moderate its vindictive emotions and bullying threats. There would be many who would prefer to invite Taiwan next year instead.

<https://economictimes.indiatimes.com/news/defence/china-beats-the-war-drums-at-shangri-la-dialogue/articleshow/110672387.cms>

# ThePrint

*Mon, 03 Jun 2024*

## **Army chief felicitates Major Radhika Sen**

Army chief General Manoj Pande on Monday felicitated Major Radhika Sen, the Indian peacekeeper who was conferred a prestigious award by the United Nations last week.

Major Sen received the "2023 UN Military Gender Advocate of the Year Award" from UN Secretary-General Antonio Guterres on Thursday at the world body's headquarters in New York.

She served with the UN Organisation Stabilisation Mission in the Democratic Republic of the Congo (MONUSCO).

“General Manoj Pande, #COAS felicitated Major Radhika Sen in New Delhi, on her being conferred with the prestigious ‘UN Military Gender Advocate of the Year’ Award at #UN Headquarters, #NewYork,” the Army said on X.

Born in Himachal Pradesh in 1993, Major Sen joined the Indian Army eight years ago. She graduated as a biotechnology engineer and was pursuing her master’s degree from IIT-Bombay when she decided to join the armed forces.

Major Sen is a leader and a role model and her service is a true credit to the UN as a whole, Guterres said at the award ceremony.

<https://theprint.in/india/army-chief-felicitates-major-radhika-sen/2114251/>

## Science & Technology News



**Press Information Bureau**  
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Ministry of Science & Technology

*Mon, 03 Jun 2024*

### **CSIR's 'Phenome India' Project Hits Target with 10,000 Samples Collected, Aims for New Era in Precision Medicine**

**First ever Pan-India Longitudinal Study to Enable Better Prediction Model for Cardio-Metabolic Diseases in India : Senior Principal Scientist, CSIR-IGIB**

The Council of Scientific and Industrial Research (CSIR) announced the successful conclusion of the first phase of its groundbreaking longitudinal health monitoring project, the 'Phenome India-CSIR Health Cohort Knowledgebase' (PI-CheCK). To mark this significant milestone, CSIR organized a special event, 'Phenome India Unboxing 1.0', at the National Institute of Oceanography (NIO), Goa today, 3rd June.

Dr. Souvik Maiti Director, CSIR-Institute of Genomics and Integrative Biology (IGIB), Dr. Sunil Kumar Singh, Director at CSIR-National Institute of Oceanography (NIO), Dr. Shantanu Sengupta, Senior Principal Scientist at CSIR-IGIB, Dr. Rajendra Prasad Singh, Senior Principal Scientist at CSIR and Dr. Viren Sardana, Senior Scientist at Centre of Excellence for Intelligent Sensors and Systems were among the dignitaries present.

Addressing the media, Dr. Shantanu Sengupta, Senior Principal Scientist at CSIR-Institute of Genomics and Integrative Biology stated that this was a momentous day for Indian Healthcare. He explained that despite India bearing a huge burden of cardio-metabolic diseases, the reasons for such high incidence in the Indian population are not entirely clear. “The risk factors in the West may not be the same as the risk factors in India. A factor which may be important for a particular person may not be important for another person. So a one-size-fits-all concept has to go in our country”, he added.

He explained that for the first time, a pan-India longitudinal study is being conducted with an aim to develop an enhanced prediction model for cardio-metabolic disease, especially diabetes, liver diseases and cardiac diseases. Such a study is vital as these diseases have both genetic and lifestyle factors that contribute to risk, he said.

Stating that study managed to cross their target of 10,000 samples, the Senior Principal Scientist called upon other organizations to initiate similar sample collection drives. “Suppose, we get around 1 lakh or 10 lakh samples, then it will enable us to redefine all major parameters in the country”, he said as he explained that CSIR has developed a cost effective Standard Operating Procedure for sample collection.

Launched on 7th December 2023, the PI-CHeCK project aims to assess risk factors in non-communicable (cardio-metabolic) diseases within the Indian populace. This unique initiative has already enrolled nearly 10,000 participants, who have volunteered to provide comprehensive health data.

These participants include CSIR employees, pensioners, and their spouses from across 17 states and 24 cities. The collected data encompasses a wide range of parameters, including clinical questionnaires, lifestyle and dietary habits, anthropometric measurements, imaging/scanning data, and extensive biochemical and molecular data.

It is important to understand the mechanisms which underlie the increasing risk and incidence of cardio metabolic disorders in Indian population and develop new strategies for risk stratification, prevention and management of these major diseases.

Currently, most of these risk prediction algorithms are based on epidemiological data from Caucasian populations and there is evidence that they may be not very accurate for the Indian population due to ethnic diversity, varied genetic make-up and lifestyle patterns including dietary habits. It is therefore, important that India-specific risk prediction algorithms are developed.

The Phenome India project exemplifies CSIR's commitment to advancing precision medicine through Predictive, Personalized, Participatory, and Preventive healthcare.

By generating a comprehensive phenome database tailored to the Indian population, the project aims to catalyze similar initiatives across the country, thereby ensuring that risk prediction algorithms are more accurate and representative of India's diverse genetic and lifestyle landscape.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2022633>

## China's spacecraft carrying rocks from the far side of the moon leaves the lunar surface

China says a spacecraft carrying rock and soil samples from the far side of the moon has lifted off from the lunar surface to start its journey back to Earth. The ascender of the Chang'e-6 probe lifted off on June 4 morning Beijing time and entered a preset orbit around the moon, the China National Space Administration said.

The Chang'e-6 probe was launched last month and its lander touched down on the far side of the moon on June 2. Xinhua News Agency cited the space agency as saying the spacecraft stowed the samples it had gathered in a container inside the ascender of the probe as planned. The container will be transferred to a reentry capsule that is due to return to Earth in the deserts of China's Inner Mongolia region about June 25.

Missions to the moon's far side are more difficult because it doesn't face the Earth, requiring a relay satellite to maintain communications. The terrain is also more rugged, with fewer flat areas to land. Xinhua said the probe's landing site was the South Pole-Aitken Basin, an impact crater created more than 4 billion years ago that is 13 kilometers (8 miles) deep and has a diameter of 2,500 kilometers (1,500 miles).

It is the oldest and largest of such craters on the moon, so may provide the earliest information about it, Xinhua said, adding that the huge impact may have ejected materials from deep below the surface. The mission is the sixth in the Chang'e moon exploration program, which is named after a Chinese moon goddess. It is the second designed to bring back samples, following the Chang'e 5, which did so from the near side in 2020.

The moon program is part of a growing rivalry with the U.S. — still the leader in space exploration — and others, including Japan and India. China has put its own space station in orbit and regularly sends crews there. The emerging global power aims to put a person on the moon before 2030, which would make it the second nation after the United States to do so.

America is planning to land astronauts on the moon again — for the first time in more than 50 years — though National Aeronautics and Space Administration(NASA) pushed the target date back to 2026 earlier this year.

<https://www.thehindu.com/sci-tech/science/chinas-spacecraft-carrying-rocks-from-the-far-side-of-the-moon-leaves-the-lunar-surface/article68249123.ece>

## **ISRO develops fluid dynamics software PraVaHa for aerodynamic design and analysis**

The Vikram Sarabhai Space Centre (VSSC) has developed a Computational Fluid Dynamics software called PraVaHa, which is short for Parallel RANS Solver for Aerospace Vehicle Aero-thermo-dynamics Analysis. The software allows for external and internal flows on launch vehicles as well as winged and nonwinged reentry vehicles. The initial aerodynamic design studies for launch vehicles require evaluations in a large number of potential configurations. Any aerospace vehicle moving through the atmosphere of the Earth during launch or reentry is subjected to severe aerodynamic and aerothermal loads in terms of external pressure or heat flux.

ISRO intends to replace most of the CFD simulations for aerodynamic characterisation with PraVaHa, which is currently being carried out with commercial software. ISRO also intends to make the software available to larger sections of society.

### **Why does ISRO need PraVaHa?**

Understanding the airflow around rockets, aircraft and crew modules during reentry is essential to design the shape, structure and thermal protection systems (TPS) for these bodies. There are serious flow issues around such bodies because of unsteady aerodynamics, that can also create significant acoustic noise during the mission. CFD is a tool to predict the aerodynamic and aerothermal loads, which numerically solve the equations for conservation of mass, momentum and energy, along with the equation for state.

At present, CFD is mature enough for accurate predictions of complex aerodynamic flows, and has a faster simulation turnaround time on highperformance computing clusters. This makes the approach handy for characterising initial designs for optimum configurations that can be selected for further detailed evaluation.

### **Gaganyaan programme relies on PraVaHa**

The PraVaHa programme has been used extensively to support the Gaganyaan programme for aerodynamic analysis of human-rated launch vehicles, that is the Human Rated LVM3, the crew escape system (CES) and the Gaganyaan crew module. The software leverages both CPU as well as GPU architecture of present and upcoming supercomputing facilities. The software is secure and flexible enough to support collaborative development with academic institutions and government labs.

<https://www.news9live.com/science/isro-develops-fluid-dynamics-software-pravaha-for-aerodynamic-design-and-analysis-2560944>



## How Agnibaan rocket launch marks a turning point for India's space sector

Amidst all the political activity around the elections, a private space company, Agnikul Cosmos, carried out the first successful launch of its indigenously-built rocket last week, opening up a new chapter in India's space sector. The event was significant enough to be noticed by the Indian Space Research Organisation (ISRO) and everyone else in the space sector, in India and abroad. Prime Minister Narendra Modi, Home Minister Amit Shah, and External Affairs Minister S Jaishankar congratulated the company for the achievement.

To be sure, this was not the first time that an Indian private company had flown a rocket from Indian soil. In November 2022, Skyroot Aerospace, a young space start-up just like Agnikul, successfully launched a rocket which it has named Vikram, after Vikram Sarabhai, the legendary space leader credited with building ISRO in the initial years. That moment too had been hailed by the President, Prime Minister, and many others.

The inaugural flight of Agnikul's creatively named Agnibaan rocket builds on the success of Skyroot and signals the range of options that are opening up in India's space market. Agnibaan was powered by the world's first 3-D printed engine, and was launched from Agnikul's own launchpad, built at ISRO's Sriharikota launch facility. Both Agnikul and Skyroot hope to begin launching commercial satellites on their rockets within a year.

### Small satellites

The rocket flown on Thursday will eventually have several variants, capable of carrying payloads between 30 kg and 300 kg to lower earth orbits. The Skyroot rocket, Vikram, also has a few variants, with similar capabilities.

Both of these are targeting the small satellite market to cater to a rapidly growing demand for a variety of space-based applications in areas as diverse as communications, broadcasting, disaster management, climate change, earth and ocean observation, urban planning, and surveillance. These satellites are usually not meant for space exploration or scientific experiments.

ISRO itself is developing a new rocket, called SSLV or Small Satellite Launch Vehicle, to serve this demand. SSLV, which has flown twice but only once with success, is slightly more powerful and can carry payloads up to 500 kg.

### Agnibaan rocket

The uniqueness of Agnibaan lies in the fact that its semi-cryogenic engine is entirely 3-D printed. The engine does not have any components or moving parts at all. There are no joints, no welding, and no fusing. It is a smooth single piece of hardware. The use of 3-D printing in space hardware is not a novel idea. But no one has used an entire engine that is 3-D printed.

3-D printing can increase efficiency, bring down costs, and reduce the probability of something going wrong. In an engine that is an assembly of several moving points, each joint or wiring is a potential source of error. Agnibaan's engine, named Agnilet, has been an entirely in-house development.

The fact that Agnibaan was launched from a privately owned launch pad is a first for India. Thus far, all space launches were carried out from one of the two ISRO launch pads at Sriharikota. Given the prospect of a sharp rise in the number of space launches, ISRO is in the process of developing a second space port, at Kulasekarapattinam in Thoothukudi district, Tamil Nadu. It is meant to be used mainly for SSLV launches.

Agnikul, the company, has built its own launch pad inside the Sriharikota range with the help of ISRO. It uses a lot of ISRO's facilities, but the separate launchpad gives it the flexibility to schedule its launches whenever it wants. Agnikul is hoping to carry out 35 to 40 launches of its Agnibaan rockets every year.

### **Rise of private players**

Agnikul and Skyroot represent the success of India's efforts to open up the space sector for private participation. They are not alone. Dozens of space companies have come up in the last few years, operating in different segments of the space market — satellites, space-based applications, hardware, communications, data centres, and everything else. Many of them have already started to make their mark.

With private players also coming in, space has become a sunrise sector that the government is promoting heavily. Prime Minister Modi has personally held several meetings with a select group of space entrepreneurs. Space has become an important part of India's diplomatic outreach to other countries, inviting other companies not just to utilise its capabilities for their own needs, but also to invest in an area that promises to grow at a very fast pace in the near and medium term.

<https://indianexpress.com/article/explained/explained-sci-tech/agnibaan-rocket-launch-9366069/>



*Tue, 04 Jun 2024*

## **To become a global leader in science & tech, India needs to allocate 3-4% of GDP for R&D: Karandikar**

Emphasising that India could not emerge as a global leader in science and technology without the participation of, and contribution from, the private sector, Abhay Karandikar, Secretary, Department of Science and Technology, said the government was preparing an ecosystem that would incentivise greater involvement of the industry in research and development activities.

In an interview with The Indian Express, Karandikar, the former director of IIT Kanpur, said some of the recent government interventions, including the launch of Quantum Mission and the mission

on artificial intelligence, had the potential to transform India's science and technology sector, and energise research activities.

“The fact is that the government cannot do it alone. Look at the countries that are considered leaders in science and technology. Each of them have a thriving private sector participation. In the countries that spend more than two per cent of their GDP on R&D activities, 70 to 80 per cent of the contribution comes from private industry. In our case, private sector contribution is just about 35 per cent,” Karandikar said.

India's expenditure on R&D is less than 0.7 per cent of its GDP, way below the global average of 1.8 per cent. For more than two decades, the official objective has been to raise this to at least 2 per cent of the GDP, but even as the research expenditure has increased in absolute terms, it has never approached anywhere close to even one per cent of the GDP. About 40 countries spend more than one per cent of their GDP on R&D.

Karandikar said for India to become a global leader in science and technology, it needs to allocate 3 to 4 per cent of its GDP for R&D.

“It can't be done with government resources alone. Private sector has to participate,” he said.

“Industry is more in tune with the market requirements. Its participation ensures greater innovation, product development and quicker deployment of technologies. The benefits of technology reach the common person much more quickly. That is what has been happening in developed countries,” he said.

Karandikar said along with funds, human resource was also a big challenge.

“We have a fairly large talent pool. But it is not enough for a country the size of India. We need more human resources in science, particularly in cutting edge research. The NRF (National Research Foundation, set up last year) is meant to address that by exposing people in universities and colleges to research. But it is a challenge. We don't just need more students graduating in science, engineering and mathematics, we also need a large number of faculties to train them in required numbers,” he said.

Karandikar said India had the ability to become a global leader in some of the advanced technologies that are still under development, like artificial intelligence or quantum technologies.

“Take the case of quantum technologies, for example. We launched a Quantum mission last year. There are four major areas here — computing, communications, sensors and devices and materials. If you look at the status of research happening in India in these areas, we have a very realistic chance of emerging as world leaders in at least communications and sensing. We have to develop capabilities in computing as well, but there we have a little bit of catching to do. In communications and sensing, however, we are almost at the cutting edge. If we do things right, we can be globally competitive in the next four to five years,” he said.

Karandikar said the Quantum Mission, along with similar initiatives in the field of semiconductors, artificial intelligence and cyber-security, could prove to be transformative for Indian science.

“These are also areas in which we have some start-ups already doing amazing work. We are trying to support these in whatever way we can. In this context, the budget announcement about the Rs

one lakh crore corpus is very significant. Private companies can avail long-term loans from this corpus and fund their R&D activities. It will energise R&D in the private sector,” he said.

<https://indianexpress.com/article/india/to-become-a-global-leader-in-science-tech-india-needs-to-allocate-3-4-of-gdp-for-rd-karandikar-9370363/>

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