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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

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



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Fri, 27 Jan 2023

### दुश्मन पर कहर बनकर टूटेगा भारत का ये हाइपरसोनिक हथियार, 12 हजार kmph की स्पीड... ओडिशा में हुआ टेस्ट

भारतीय रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने शुक्रवार यानी 27 जनवरी 2023 को ओडिशा तक के पास हाइपरसोनिक टेक्नोलॉजी डिमॉन्सट्रेटर व्हीकल (Hypersonic Technology Demonstrator Vehicle - HSTDV) का परीक्षण किया. टेस्ट में क्या नतीजे आए उसके बारे में किसी तरह का खुलासा नहीं किया गया है लेकिन हम आपको बताते हैं कि आखिर ये हथियार है क्या?

भारत पिछले कुछ सालों से हाइपरसोनिक हथियार पर काम कर रहा है. इसकी टेस्टिंग भी कर चुका है. डीआरडीओ ने मानव रहित स्क्रेमजेट का हाइपरसोनिक स्पीड फ्लाइट का सफल परीक्षण साल 2020 में किया था. हाइपरसोनिक स्पीड फ्लाइट के लिए मानव रहित स्क्रेमजेट प्रदर्शन विमान है. जो विमान 6126 से 12251 किमी प्रतिघंटा की रफ्तार से उड़े, उसे हाइपरसोनिक प्लेन कहते हैं.

पिछली बार एचएसटीडीवी का परीक्षण 20 सेकंड से भी कम समय का था. हालांकि, फिलहाल इस दौरान इसकी गति करीब 7500 किमी प्रति घंटा थी. भविष्य में इसकी गति को घटाया या बढ़ाया जा सकता है. अगर इसमें पारंपरिक या परमाणु हथियार लगाकर दागते हैं, तो पाकिस्तान में हमला कुछ ही सेकंड में जो जाएगा. इस यान के जरिए बम गिरा सकते हैं या फिर इसे ही बम बनाकर दुश्मन के अड्डे पर गिरा सकते हैं. क्योंकि इसकी गति बेहद घातक होती है.

सवाल ये उठता है कि हाइपरसोनिक मिसाइल या विमान की जरूरत क्यों पड़ रही हैं. इसकी वजह है अमेरिका. अमेरिका पिछले कुछ सालों से लगातार हाइपरसोनिक मिसाइल और विमान बनाने का प्रयास कर रहा है. हालांकि रूस उससे इस मामले में आगे निकल चुका है. रूस के पास कई हाइपरसोनिक मिसाइलें हैं. भारत के पड़ोसी देश चीन के पास भी इस तरह के हथियार के होने की खबर है. ऐसे में जरूरी है कि रणनीतिक स्तर पर संतुलन बनाए रखने के लिए हाइपरसोनिक हथियार या विमान को जल्द से जल्द बना लिया जाए.

#### भारत तैयार कर रहा है ब्रह्मोस-2 हाइपरसोनिक मिसाइल

भारत ब्रह्मोस-2 हाइपरसोनिक मिसाइल बना रहा है. इसमें भी स्क्रेमजेट इंजन लगाया जाएगा, जो इसे तेज गति और ग्लाइड करने की ताकत देगा. इसकी रेंज अधिकतम 600 किलोमीटर होगी. लेकिन गति 8,575

किलोमीटर प्रतिघंटा होगी. इसे जहाज, पनडुब्बी, विमान या जमीन पर लगाए गए लॉन्चपैड से दागा जा सकेगा.

### **क्या होते हैं हाइपरसोनिक हथियार?**

हाइपरसोनिक हथियार वो होते हैं, जो साउंड की गति से पांच गुना ज्यादा स्पीड में चले. यानी 6100 किलोमीटर प्रतिघंटा या उससे ज्यादा. भारत ने आज जो परीक्षण किया है वह हथियार पिछले टेस्ट में ही 7500 किलोमीटर प्रतिघंटा की रफ्तार हासिल कर चुका है. भविष्य में इसे 12 हजार किलोमीटर प्रतिघंटा तक पहुंचाने का प्रयास होगा. इनकी गति इतनी तेज होती है कि इन्हें ट्रैक करके मार गिराना आसान नहीं होता. रूस यूक्रेन युद्ध में रूस ने यूक्रेन पर हाइपरसोनिक मिसाइल से हमला तक किया था.

### **भविष्य में ये हथियार हो जाएंगे और खतरनाक**

भविष्य में हाइपरसोनिक हथियारों का जखीरा बढ़ेगा और ये ज्यादा घातक हो जाएंगे. अमेरिका तो ऐसे हथियार बना रहा है जो बैलिस्टिक मिसाइल की तरह लॉन्च होगा लेकिन टारगेट को ध्वस्त करने से पहले उसकी गति आवाज की गति से आठ गुना ज्यादा हो जाएगी. अमेरिका ऐसी तकनीक का परीक्षण अपने जमवॉल्ट क्लास विध्वंसक में कर रहा है.

### **क्या किसी भी मिसाइल को हाइपरसोनिक बना सकते हैं**

किसी भी कूज और बैलिस्टिक मिसाइल की गति तेज होती है. इनकी गति और दिशा को ट्रैक कर सकते हैं. इन्हें मार कर गिरा सकते हैं. लेकिन गति अगर 6100 किलोमीटर प्रतिघंटा या उससे ज्यादा होती है तो इन्हें गिराना लगभग असंभव हो जाता है. अगर खुद से दिशा बदलने की तकनीक लगा दी जाए तो फिर इन्हें ट्रैक करना बहुत मुश्किल होता है.

### **हाइपरसोनिक हथियार कितने प्रकार के होते हैं?**

हाइपरसोनिक हथियार दो प्रकार के होते हैं. पहले होते हैं ग्लाइड व्हीकल्स. दूसरे कूज मिसाइल. फिलहाल दुनिया के ज्यादातर देश यहां तक कि भारत भी हाइपरसोनिक ग्लाइड पर ध्यान दे रहे हैं. असल में इन ग्लाइड व्हीकल्स के पीछे मिसाइल लगाई जाती है. एक तय दूरी तक करने के बाद मिसाइल अलग हो जाती है, उसके बाद ग्लाइड व्हीकल्स खुद ही दिशा और गति तय करते हुए टारगेट की तरफ बढ़ते हैं. इन हथियारों में स्क्रेमजेट इंजन होता है जो हवा में मौजूद ऑक्सीजन का इस्तेमाल करके तेजी से उड़ता है.

### **किन देशों के पास हैं हाइपरसोनिक मिसाइल?**

फिलहाल हाइपरसोनिक मिसाइल अमेरिका, रूस और चीन के पास हैं. उत्तर कोरिया के बारे में भी कहानियां आती रहती हैं लेकिन पुख्ता सबूत नहीं है. भारत भी ऐसे हथियार विकसित करने लगा है. साथ ही ऑस्ट्रेलिया और यूरोपीय देश भी जुटे हैं. दुनिया का सबसे घातक हाइपरसोनिक हथियार रूस के पास है. इसे एवगार्ड मिसाइल कहते हैं. यह एक ICBM है. जो 24,696 किलोमीटर प्रतिघंटा की रफ्तार से उड़ सकती है.

<https://www.aajtak.in/science/story/drdo-test-hypersonic-vehicle-weapon-of-future-all-you-need-to-know-about-tstrd-1624752-2023-01-27>

## India Conducts Another Test in A Bid to Develop Hypersonic Weapons

India on Friday tested its own hypersonic technology demonstrator vehicle (HSTDV) powered by a scramjet engine, amid the ongoing race among China, Russia and the US to manufacture manoeuvrable hypersonic weapons that fly over five times the speed of sound and can negate missile defence systems.

The indigenous HSTDV, which in the future could serve as a critical building block for hypersonic weapons with speeds over Mach 5, was tested from the APJ Abdul Kalam Island off the Odisha coast in the afternoon, sources said.

There was, however, no official word from either the defence ministry or DRDO on whether the test was successful or not. A source, in turn, said, "The initial launch and take-off was successful. But there are question marks on the subsequent performance of the scramjet engine of the HSTDV for which the data has to be analysed in detail."

The first test of the HSTDV failed in June 2019. But the second one in September 2020 was successful to the extent that the scramjet-powered 'cruise vehicle' or HSTDV flew for 22-23 seconds at Mach 6 speed after separation from the 'launch vehicle' of solid rocket motor of an Agni-I ballistic missile at a 30km altitude.

Flight tests of a much longer duration -- at least a few minutes -- will be required to eventually develop hypersonic weapons, which could become a reality after five to six years.

India's intent to develop hypersonic weapons was made quite clear by defence minister Rajnath Singh when he directed the DRDO in December 2021 to move swiftly towards developing such an arsenal to 'maintain' the country's minimum credible deterrence against adversaries, as was then reported by TOI.

The directive had come after China had tested a nuclear-capable missile carrying a hypersonic glide vehicle and warhead in July that year. China has forged ahead of even the US in developing hypersonic weapons with nuclear warheads. Both China and Russia, in fact, are regarded to be ahead of the US in designing aerodynamically manoeuvrable hypersonic weapons for use with nuclear warheads.

Hypersonic weapons are basically of two types. One, hypersonic cruise missiles that are powered by high-speed, air-breathing engines or "scramjets" during their entire flight. And two, hypersonic glide vehicles that are launched atop ballistic missiles before gliding to their targets at speeds over Mach 5.

Hypersonic weapons pose a challenge to the current missile and air defence systems due to their enormous speed and manoeuvrability, both vertically and horizontally, as well as low altitudes of flight.

The Indian armed forces already have the conventional ramjet-powered BrahMos supersonic cruise missiles, which fly at Mach 2.8 speed, developed jointly with Russia. Their strike range

has been enhanced from the original 290-km to 450-km now. But while ramjet engines operate well at supersonic speeds around Mach 3, their efficiency drops at hypersonic speeds.

<https://timesofindia.indiatimes.com/india/india-conducts-another-test-in-a-bid-to-develop-hypersonic-weapons/articleshow/97389386.cms>

## Defence News

# Defence Strategic : National/International



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

**Ministry of Defence**

*Sat, 28 Jan 2023*

## **Startup 20 Inception Meet – NIIO Showcase**

The Naval Innovation and Indigenisation Organisation(NIIO) showcased medical innovations undertaken by Indian Naval officers during the inception meeting of the Startup20 Engagement Group under India's G20 presidency. Various medical innovations including the 'Aadyant' Oxygen Recycling System(ORS), 'Spandan' low-cost digital stethoscope and 'Nebiro' smart portable nebuliser were displayed.

Delegates from G 20 countries and senior functionaries including G20 Sherpa Mr Amitabh Kant and CEO Niti Aayog Mr Parameswaran Iyer interacted with the naval officers and praised the innovative work being done by the Indian Navy under the theme "Indian Navy – Innovating towards Nation Building".

The two-day event, set up under India's G20 presidency is being held on 28-29 Jan 23 at Hyderabad. Startup20 aspires to create a global narrative for supporting start-ups and enabling synergies between start-ups, corporates, investors, innovation agencies and other key ecosystem stakeholders.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1894286>



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Sat, 28 Jan 2023*

## **IAF's Joint Air Defence Exercise with Japan, 'Veer Guardian 2023' Concludes**

The inaugural edition of the bilateral air exercise 'Veer Guardian 2023' between the Indian Air Force (IAF) and Japan Air Self Defence Force (JASDF) concluded in Japan, on 26 January 2023.

The JASDF participated in the exercise with its F-2 and F-15 aircraft, while the IAF contingent participated with the Su-30 MKI aircraft. The IAF fighter contingent was complemented by one IL-78 Flight Refueling Aircraft and two C-17 Globemaster strategic airlift transport aircraft.

During the joint training spanning 16 days, the two Air Forces engaged in complex and comprehensive aerial manoeuvres in multiple simulated operational scenarios. The exercise involved precise planning and skillful execution by both the air forces. IAF and JASDF engaged in air combat manoeuvring, interception and air defence missions, both in Visual and Beyond Visual Range settings. Aircrew of the two participating Air Forces also flew in each other's fighter aircraft to gain a deeper understanding of each other's operating philosophies.

Exercise 'Veer Guardian 2023' provided the two Air Forces with an opportunity to enhance mutual understanding. The exercise also witnessed numerous ground interactions between IAF and JASDF personnel wherein various aspects were discussed by both sides. This enabled the participating contingents to obtain an invaluable insight into each other's best practices and learn from each other's unique capabilities.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1894080>

## **THE ECONOMIC TIMES**

*Sun, 29 Jan 2023*

### **Made-In-India Weapon Systems Highlight of Army's 'Exercise Topchi'**

Indigenously manufactured weapon systems were the highlight of the Indian Army's 'Exercise Topchi', an annual firepower demonstration and training exercise conducted at the School of Artillery in Devlali here on Sunday. The mega event took place under the stewardship of Lt Gen S Harimohan Iyer, AVSM, Commandant School of Artillery and Col Commandant Regiment of Artillery.

"The event shows the capability of the Indian artillery. This year, we have stressed on 'Atmanirbharata' (self-reliance). All the gun systems and other equipment displayed today, showcase the capacity of the Indian industry," Lt Gen Iyer said. The guns and other systems be it the K-9 Vajra, Dhanush system or M777 gun system, all have been assembled in India, he said.

The SWATHI radar system, remotely-piloted vehicles have been made in India and it is on par with any such system across the world, the Army official said. "I am glad that we are moving towards 'Atmanirbharata' with enthusiasm and the Indian Army and Regiment of Artillery is ready to face any challenge," Lt Gen Iyer told reporters.

Dhanush gun system arrived four months ago and at the end of the year, five regiments of Dhanush will be included in the Indian Artillery, he said he added. This edition of "Exercise Topchi" showcased the integrated employment of firepower and surveillance assets to include guns, mortars, rockets, drones, and aviation assets. In line with the 'Atmanirbhar Bharat', the highlight of the exercise was display and firing by indigenously manufactured artillery equipment viz K-9 Vajra, Dhanush, Indian field gun (IFG)/ light field gun (LFG) system and Pinaka multi-barrel rocket launchers.

The event was witnessed by student officers of Defence Services Staff College, Wellington, Defence Services Technical Staff Course, Pune, Nepal Army Command & Staff College and civil administration officers.

[https://m.economictimes.com/news/defence/made-in-india-weapon-systems-highlight-of-armys-exercise-topchi/amp\\_articleshow/97418195.cms](https://m.economictimes.com/news/defence/made-in-india-weapon-systems-highlight-of-armys-exercise-topchi/amp_articleshow/97418195.cms)



*Mon, 30 Jan 2023*

## **Indian Army Puts Up Imposing Firepower Display with Indigenous Artillery Guns**

The Indian Army on Sunday put up an imposing firepower display at the sprawling field firing range in Maharashtra's Devlali, with a raft of indigenous artillery guns, rocket systems and ammunition, including weapons, deployed along the contested Line of Actual Control (LAC) where the Indian and Chinese armies have been locked in a lingering dispute for over 32 months.

The blockbuster demonstration of the army's capabilities, code-named 'Exercise Topchi-2023', by the elite School of Artillery featured several big guns, including the latest 155mm/45-calibre Dhanush towed artillery gun, 155mm/52-calibre tracked self-propelled K9 Vajra-T guns, the M777 ultra-light howitzers, upgraded Sharang guns, the 105mm/37-caliber Indian field guns and the light field gun, and the Pinaka rocket systems (155mm denotes the diameter of the shell and calibre relates to barrel length). HT was invited to witness the show.

The focus of the exercise was to showcase the indigenous capabilities and strides made in achieving self-reliance in the defence sector, said Lieutenant General S Harimohan Iyer, commandant of the Devlali-based School of Artillery. "Atmanirbharta in defence is scaling new heights. The army is ready for any challenge," he said.

The two-hour display also included the 155 mm FH 77 BO2 guns (better known as Bofors), the 155mm Soltam guns, the 130mm M46 guns, the Russian-origin Grad BM 21 multi-barrel rocket system, unmanned aerial vehicles, weapon locating radars, mortars, helicopters and several surveillance systems. The drills came at a time when the army is pursuing a major firepower



upgrade, and is set to induct more artillery guns, longer range rockets and loitering munition to bolster its capabilities along the China border.

The artillery capability upgrade will involve induction of more K9 Vajra-T guns, additional Dhanush guns and the new 155mm/52-calibre advanced towed artillery gun system (ATAGS), Iyer said. Artillery regiments are also preparing to induct longer range Pinaka rocket systems, precision ammunition, loitering munition, unmanned aerial vehicles, and reconnaissance and observation systems to scale up their capabilities to meet battlefield challenges.

**Here's a low-down on the weapons that were deployed in the exercise:**

### **Dhanush towed artillery guns**

The gun made its maiden appearance at the Republic Day parade in 2017. Manufactured by Jabalpur-based Gun Carriage Factory, its costs ₹14.50 crore apiece, and has a range of 38 km. The weapon, also known as the desi Bofors, is the first long-range artillery gun to be manufactured in India and is touted as a 'Make in India' success story. The army has already operationalised its first Dhanush regiment along the China border, and is now looking at raising a second regiment with 18 guns by March 2023.

### **K9 Vajra-T guns**

The guns have been manufactured in India by private sector defence major Larsen & Toubro and South Korea's Hanwha Techwin. The army has already inducted 100 of these under a 2017 contract worth \$720 million, and some of them have been deployed in the Ladakh sector after winterisation upgrades as the guns were originally bought for a desert role. The army plans to buy 100 more K9 Vajra-T guns.

### **M777 ultra-light howitzers**

India ordered 145 M777 howitzers from the US for \$750 million in November 2016. The M777s were the first artillery guns to be ordered after the Bofors scandal unfolded in the late 1980s. The 155 mm/39-calibre howitzers can be sling-loaded to helicopters and swiftly deployed to high-altitude areas. M777 manufacturer BAE Systems delivered 25 ready-built howitzers and the remaining guns have been built locally in collaboration with Mahindra Defence under the Narendra Modi government's 'Make in India' initiative.

### **Sharang guns**

The upgraded Sharang artillery guns are an important element of the ongoing artillery modernisation. The army already has three Sharang regiments, it's raising a fourth one, and eventually plans to have 15 such regiments. The Sharang project involves upgrading the army's vintage Soviet-origin 130mm M46 towed artillery pieces to 155 mm/45-calibre standard. The upgraded guns have an enhanced range – up from 27 km to 37 km – and better terminal effectiveness.

### **What's next**

The army is looking at inducting ATAGS by the year-end. The indigenous howitzer was deployed for the ceremonial 21-gun salute during the 75th Independence Day celebrations at Red Fort last year, along with British guns that have been traditionally used for the event. The Defence Research and Development Organisation began the ATAGS project in 2013 to replace older army guns with a modern 155 mm artillery gun. It partnered with two private firms, Bharat

Forge Limited and Tata Advanced Systems Limited, to manufacture the gun, which has a range of 48 km.

<https://www.hindustantimes.com/india-news/indian-army-puts-up-imposing-firepower-display-with-indigenous-artillery-guns-101675045435438-amp.html>

## Business Standard

Sun, 29 Jan 2023

### Indian Army has Advantage Over PLA on Border: General M M Naravane

*By Ajai Shukla*

Former Indian Army chief, General MM Naravane, on Friday said India's military, for the first time, enjoyed an advantage on the Sino-Indian border vis-à-vis China's People's Liberation Army (PLA). "We should negotiate the (Sino-Indian) border with China from that position of advantage," he said, while addressing a New Delhi-based think-tank called the Foundation for Non-Violent Alternatives (FNVA) at the release of its new report, "Resetting India's Tibet Policy 2022".

Naravane commanded the Indian Army from January 2019 to April 2022, a period of border turmoil in which the PLA made inroads into the Indian territory at several points in Eastern Ladakh. In a brutal hand-to-hand encounter between the two armies in the Galwan river valley, Indian soldiers were killed for the first time since 1975.

New Delhi admitted deaths of 20 Indian soldiers in that clash, while Beijing acknowledged that four PLA soldiers lost their lives. Naravane said the Indian Army gained a major moral advantage, stemming from the fact that, for the first time in decades, an adversary had inflicted casualties on Chinese soldiers.

"It doesn't matter whether four Chinese soldiers were killed or 40. What is material is that we stood up to the PLA and inflicted casualties," he said.

The message that had gone out to the PLA and the Chinese leadership, said Naravane, is that any aggression hereafter by China would result in their paying a price. "It will not be a small price, but a heavy one," he said.

The former Army chief also claimed that the Indian position of advantage came from the fact that the large number of Chinese soldiers now deployed on the Sino-Indian border had to be resupplied from bases far away on China's eastern seaboard.

"The PLA's lines of communication to their western border with India are 4,000 km long, while India's lines of communication to its Himalayan border are barely 400-500 km," said Naravane.

This leads to a position of stalemate, said Naravane, in which neither the Chinese nor the Indian side can benefit from conflict. It is a position that calls for negotiation.

[https://www.business-standard.com/article/current-affairs/indian-army-enjoys-advantage-over-china-on-border-says-mm-naravane-123012701140\\_1.html](https://www.business-standard.com/article/current-affairs/indian-army-enjoys-advantage-over-china-on-border-says-mm-naravane-123012701140_1.html)

## India 4th in World with Ability to Develop Mach 6 Missiles

India on Friday carried out a test of indigenously designed Hypersonic Technology Demonstrator Vehicle (HSTDV) off the Odisha coast. This niche technology is only available with three other countries — the US, China and Russia. It will enable development of hypersonic missiles which can travel at six times the speed of sound.

The Defence Research and Development Organisation (DRDO) carried out the test. The DRDO had conducted three tests earlier in 2019, 2020 and 2021. The aim of the HSTDV project is to have a scramjet engine which can fly at an altitude of 15 to 20 km.

A scramjet engine (supersonic-combustion ramjet) is one which can operate at hypersonic speeds. Hypersonic missiles can travel at speeds faster than Mach 5 (five times the speed of sound) or 3,800 miles per hour, much faster than other ballistic and cruise missiles. They are highly manoeuvrable and do not follow a predictable arc as they travel. They can deliver conventional or nuclear payloads within minutes.

A Hypersonic Vehicle can be an airplane, missile, or spacecraft. The Indian hypersonic vehicle will take another three to four years to become fully operational. In 2020, the DRDO successfully demonstrated the hypersonic air-breathing scramjet technology with the flight test of HSTDV.

With this successful demonstration, many critical technologies such as aerodynamic configuration for hypersonic manoeuvres, use of scramjet propulsion for ignition and sustained combustion at hypersonic flow, thermo-structural characterisation of high temperature materials, separation mechanism at hypersonic velocities were proven.

Apart from being used as a vehicle for hypersonic long-range cruise missiles, the HSTDV is a dual-use technology that will have multiple civilian applications, including the launching of small satellites at low cost.

<https://www.dailypioneer.com/2023/page1/india-4th-in-world-with-ability-to-develop-mach-6-missiles.html>

## AMPHEX 2023: Tri-Services Conclude Exercise to Hone Military OP Skills

The three Services including the Navy, IAF and Army recently conducted the biennial amphibious exercise 'AMPHEX 2023' to hone synergy in various facets of amphibious operations, the Navy said here on Friday.

The latest edition of the drill was the largest ever and took place off Kakinada, Andhra Pradesh for the first time.

It was conducted from January 17 to 22 and witnessed the participation of a number of amphibious ships consisting of Large Platform Dock (LPD), Landing Ships and Landing Crafts, Marine Commandos (MARCOS), helicopters and aircraft from the Indian Navy. Indian Army participated in the exercise with over 900 troops which included Special Forces, Artillery and Armoured vehicles. Jaguar fighters and C 130 aircraft from the IAF also participated in the exercise.

The participating forces undertook complex exercises in all domains of amphibious operations over five days. The exercise culminated in a successful amphibious assault which was reviewed by Vice Admiral Sanjay Vatsayan, Chief of Staff, Eastern Naval Command, in the presence of Force Commanders of the Indian Navy and Indian Army. 'AMPHEX 2023' successfully demonstrated the amphibious capabilities and validated the excellent coordination that exists between the three Services to undertake the full spectrum of amphibious operations.

<https://www.dailypioneer.com/2023/india/amphex-2023--tri-services-conclude-exercise-to-hone-military-op-skills.html>



*Sat, 28 Jan 2023*

## **India's Defence Allocation in Focus as Budget 2023 Aim to Modernise Armed Forces Amid LAC Tensions with China**

The Union Budget 2023, set to be announced by the Indian government, is expected to focus on modernising the country's armed forces in light of ongoing tensions with China along the Line of Actual Control (LAC). This will likely lead to increased allocation for defence-related public sector undertakings such as Bharat Dynamics Limited (BDL), Hindustan Aeronautics Limited (HAL), and Bharat Electronics Limited (BEL), potentially leading to an increase in their share prices on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE).

The tensions between India and China along the LAC have been escalating in recent years, with both countries increasing their military presence in the region. In response to this, the Indian government has been working on modernising its armed forces in order to better defend its borders and protect its sovereignty.

This has led to increased focus on defence allocation in the Union Budget, with the government looking to allocate more funds for the development and procurement of advanced weapons systems, military equipment and other defence-related infrastructure.

This increased focus on defence allocation is expected to benefit several public sector undertakings (PSUs). PSUs are involved in the production of advanced weapons systems and military equipment for the Indian armed forces.

Vikas Gupta, CEO and Chief Investment Strategist of OmniScience Capital, believes that the defence budget must be substantially increased due to various reasons. He cites ongoing friction

along India's border with China since 2017, and earlier, particularly in the North East near Bhutan to Ladakh in the North.

Additionally, India's border with Pakistan has always been volatile, requiring strong defence to prevent infiltration. Furthermore, Gupta highlights the need for monitoring and potentially taking control of Pakistan-China highways that pass through Indian territory.

The Union Budget 2023 is also expected to provide a target for defence allocation for the next financial year. This will give a clear indication of the government's spending plans for the defence sector and will provide investors with a better understanding of the opportunities available in the sector.

<https://www.indiatvnews.com/amp/business/budget/budget-2023-defence-allocation-govt-aim-modernising-armed-forces-lac-tensions-with-china-2023-01-28-842845>



*Sat, 28 Jan 2023*

## **Situation along Eastern Border with China Stable but Unpredictable: GOC-in-C**

The situation along the eastern border with China is "stable" but "unpredictable" due to the absence of delineation of boundaries, said General Officer Commanding-in-Chief (GOC-in-C) of the Eastern Command, Lt Gen R P Kalita.

The Eastern Command takes care of the LAC in the Arunachal Pradesh and Sikkim sectors.

Lt Gen Kalita also stated that the Army is constantly monitoring the activities across the border and is well prepared to meet any emerging challenges.

"The whole problem stems from the fact that the border between India and China is not clearly defined. There are different perceptions about the Line of Actual Control (LAC), which lead to problems.

"However, let me assure you that the situation in the eastern border in Sikkim and Arunachal Pradesh is stable but unpredictable due to the absence of delineation of borders," he told a Meet the Press programme at the Press Club, Kolkata.

There has been a fresh spike in tension between India and China after troops from the two sides were engaged in a clash along the LAC at Yangtse in the Tawang sector on December 9.

Defence Minister Rajnath Singh said in Parliament on December 13 that the Chinese troops tried to "unilaterally" change the status quo in the Yangtse area in Arunachal Pradesh, but the Indian Army compelled them to retreat with its firm and resolute response.

Recently Chief of Army Staff Gen Manoj Pande conducted a comprehensive review of India's military preparedness along the LAC in Arunachal Pradesh after last month's skirmishes in the Tawang sector.

"We have read reports that gradually there has been an increase in troop deployment (by China) opposite our sectors along with infrastructure development that the PLA has carried out in their bordering areas," the GOC-in-C of the Eastern Command said.

He maintained that the preparedness level of the Indian Army remained "very high" along the LAC, and it has adequate forces and reserves in each of the sectors to deal with any situation effectively.

To a question on reports of China building alternate access to Chumbi valley in Tibet near Sikkim and how it would threaten the security of the Siliguri corridor, the senior Army officer said, "Siliguri Corridor is geo-strategically extremely important to us.

Requisite measures and mechanisms are in place to ensure that there are no disruptions and maintenance of connectivity with the northeast remains intact."

Siliguri corridor, commonly known as the 'chicken's neck', connects the mainland with the northeastern states. The corridor shares international boundaries with Nepal, Bhutan and Bangladesh.

<https://www.dailypioneer.com/2023/india/situation-along-eastern-border-with-china-stable-but-unpredictable--goc-in-c.html>

## THE ECONOMIC TIMES

Mon, 30 Jan 2023

### Centre Considering Single Lead Intelligence Agency along LAC

The recent skirmishes along the Line of Actual Control (LAC) with China has brought back the focus on having a single lead intelligence agency (LIA) along the 3,488 km India-China border. While the Indo-Tibetan Border Police (ITBP) coordinates inputs from various agencies in Ladakh, the responsibility lies with Assam Rifles in Arunachal Pradesh, officials have said.

The move follows rapid infrastructure development on the Chinese side and frequent clashes among Indian and Chinese soldiers near LAC. Assam Rifles, one of the oldest paramilitary forces, is deployed along the India-Myanmar border and is also responsible for counter-insurgency duties in the northeast. "In an effort to bring synergy along LAC, it was advised that ITBP may be given a broader role for LIA. A sustained effort by Assam Rifles is required to maintain vigil along the 1,643 km Indo-Myanmar border," said one of the officials quoted above.

Border guarding forces BSF, ITBP, SSB follow the border outposts (BOPs) model while Assam Rifles follows the company operation bases (COBs) model, which is relatively smaller. The Indian Army, however, favours operational control of paramilitary forces, citing better and coordinated border management.

At present, ITBP has 180 BOPs, with a strength of about 140 soldiers at each outpost. The Centre had in 2020 sanctioned additional 47 BOPs, with 34 for Arunachal Pradesh and the rest for the western theatre. The government also sanctioned construction of 12 staging camps for ITBP that

provide rations, logistics and a place to stay during long-range patrols. The purpose was to help improve intelligence gathering.

In December last year, Indian and Chinese soldiers clashed in Yangtze near Tawang in Arunachal Pradesh, where troops from both sides "exchanged blows after hundreds of Chinese soldiers transgressed into India's side of the boundary".

The 2020 military standoff between the two countries led to clashes in Galwan which resulted in the death of 20 Indian soldiers. The process of disengagement in eastern Ladakh over the past two years has resulted in the evolution of "buffer zones" that are not being patrolled.

<https://economictimes.indiatimes.com/news/international/world-news/centre-considering-single-lead-intelligence-agency-along-lac/articleshow/97424534.cms>

# The Tribune

Sun, 29 Jan 2023

## US to Renew Efforts to Reduce India's Oil, Military 'Dependency' on Russia

The US will renew efforts by the West to wean India away from oil and arms dependency on Russia with a series of meetings in the coming days.

Notable among them is the interaction between NSAs Ajit Doval and Jake Sullivan this week on cutting-edge technologies besides a meeting in March between NATO and Ministries of External Affairs and Defence. Senior US diplomat Victoria Nuland, considered the original architect of the US policy on Ukraine, will also meet senior officials to help "India find alternatives to Russian military equipment".

In India for foreign office consultations, US Under Secretary of State for Political Affairs Victoria Nuland told the Senate Foreign Relations committee that India had "60 years of entanglement" with Russia which needs to end. She was essentially reiterating the statement she made last May after visiting India.

Her visit follows that of Assistant Secretary of State Donald Lu's trip early this month.

Nearly in parallel, NSA Ajit Doval and his US counterpart Jake Sullivan will be in Washington for the first "Initiative on Critical and Emerging Technologies". The initiative took shape after PM Narendra Modi underlined to US President Joe Biden the need to get the partnership on cutting-edge going when they met in Tokyo last year for the Quad Leaders' Summit.

The meeting on Tuesday would "forge closer linkages between government, academia and industry of the two countries in areas such as AI, quantum computing, 5G/6G, biotech, space and semiconductors", said an official statement while the White House said it would expand partnership in critical and emerging technologies. On Wednesday, there will be a high level dialogue on space issues, which will also be attended by the ISRO chief S Somnath.

In March, senior officials from NATO's policy planning division will hold a dialogue with officials from Ministries of External Affairs and Defence. The dialogue with NATO has taken

place infrequently but the March meeting is of significance as it will be held after Nuland's interaction and the hi-tech dialogue.

However, the news about the India-NATO meeting has drawn an adverse reaction from China. "If such cooperation goes further, New Delhi will have to encounter severe backlash from its people and face greater losses of diplomatic and strategic autonomy," wrote the Global Times.

The attempt to bring India close to the Western military bloc received a boost when the chair of the UK's defence select committee suggested the AUKUS agreement between Australia, the UK, and the US should expand to include India and Japan. AUKUS is aimed at helping Australia acquire nuclear-powered submarines. Japan, Australia and the US are part of the Quad whose fourth pillar is India.

<https://www.tribuneindia.com/news/nation/us-to-renew-efforts-to-reduce-indias-oil-military-dependency-on-russia-474728>



*Sun, 29 Jan 2023*

## **Missiles, UAVs, Loitering Munitions are Future Threats Facing Air Defence**

*By Dinakar Peri*

Missiles and Unmanned Aerial Vehicles (UAV) are likely to be a major future threat, calling for a mitigation strategy as part of an integrated air defence, and underlining the need for a comprehensive air defence solution. That's the biggest takeaway for India from an Army analysis of the war in Ukraine, in the context of the air battle fought there and its implications for Indian air defence, according to defence sources.

With the Russia-Ukraine conflict having lasted almost a year now, the Army is also feeling the pinch in terms of spares and ammunition, particularly for its air defence and armoured fleets, which are largely of Russian origin, a fact recently acknowledged by Army Chief General Manoj Pande.

Earlier this month, General Pande said that the Army had carried out a detailed analysis on the various lessons that the conflict threw up for India -- on weapon systems, tactics and operational procedures. These lessons will be applied and incorporated in the Indian context, he said.

"For ground-based air defences (GBAD), the most important aspect is Survivability against Suppression and Destruction of Air Defence (SEAD/DEAD) operations by the adversary. Deconfliction of air defence missiles with interceptors in exclusive engagement zones and decentralised execution of air defence function is a must," said a source, elaborating on the lessons for GBAD to be learned, which have emerged crucial, from the Russian offensive and the Ukrainian response.



### **Ukraine's air defence success**

The Russian Air Force attempted to gain control of Ukrainian air space as a prelude to the war. In the first three days of the conflict, there was an average of 140 sorties per day, with about 10% of the Russian aircraft lost to the Ukrainian air defences, analysis shows. Russian strike operations after the first three days were largely confined to stand-off launches using missiles, sources said, adding that this was also prompted by Russia's heavy losses due to Ukraine's Man Portable Air Defence Systems (MANPADS).

Ukrainian GBADs shot down almost 50% of Russian cruise and ballistic missiles launched against multiple targets, despite the fact that they were operating in tandem with Russia's Shahed-136 UAVs, the source observed.

Loitering munitions are another major threat that has emerged in this war, posing asymmetric challenge to both armour as well as air defences. Analysis has shown that the best air defences against them are high rate gun systems, better optic sights, fragmented ammunition and Active Electronically Scanned Array (ASEA) radars. MANPADS have been noticed to be highly effective when in range and with night vision, the source said. This is an area that the Indian Army has been looking to modernise for a while, with limited success.

### **Air defence modernisation**

The Army's air defence is in the midst of a major transition. Several inductions are in the pipeline and efforts are underway to put in place a layered air defence net for various ranges and altitudes, which has only gained urgency post the Ukraine war.

As part of modernisation efforts, a ₹200 crore networking and automation project -- on the lines of the Indian Air Force's Integrated Air Command and Control System (ICCCS) network -- is now ready. "All tests have been completed and it is ready to be fielded. Integration is distributed at all levels. It is scheduled to go for approval of the competent financial authority by March 31," said sources who know of the development.

The Defence Acquisition Council (DAC) which met on January 10 had given its approval for procurement of a Very Short Range Air Defence Systems (VSHORAD-Infrared Homing) missile system currently under design and development by the Defence Research and Development Organisation (DRDO).

### **Emergency procurement**

The Army has a major requirement for VSHORAD and several attempts to import the systems have not materialised. A major deal with Russia, which was shortlisted in a bidding process, has been stuck for several years and is now on the verge of cancellation. In the interim, in the backdrop of the standoff with Chinese forces in eastern Ladakh, the Army made an emergency procurement of Igla-S systems from Russia. The contract was signed in December 2020 and the equipment was delivered by December 2021. This includes 24 launchers, 216 missiles and testing equipment, as reported by *The Hindu* earlier.

At the short range level, the Army has the indigenous Akash Surface to Air Missile (SAM). A Quick Reaction SAM is under development by the DRDO, with a range of 25-30 km. At the next range, the Medium Range Surface to Air Missile (MRSAM) project jointly developed by the DRDO with Israel has now entered production, sources said.

General Pande had also stated that sustenance of weapon systems and equipment, in terms of spares and ammunition, is one issue that the Army has addressed. “We got a waiver and sanction to procure even if it is ex-imports for the next two to three years. We have 40 such cases, including spares and ammunition, largely pertaining to air defence and tank fleet. We are looking at how the sustenance requirement is met,” he added.

<https://www.thehindu.com/news/national/lessons-from-ukraine-war-missiles-uavs-loitering-munitions-are-future-threats-facing-air-defence/article66447079.ece>

## ThePrint

Sun, 29 Jan 2023

### UK’s House of Commons Defence Panel Calls for Expansion of AUKUS to Include India, Japan

*By Suchet Vir Singh*

Reflecting the need for increased global security cooperation, the United Kingdom’s House of Commons defence select committee has called for the expansion of the AUKUS trilateral security pact between Australia, the UK, and the United States to include India and Japan.

Tobias Ellwood, chair of the Commons defence select committee, suggested including India and Japan in the AUKUS given their significance to the Indo-Pacific region, *Sky News Australia* reported Saturday. The committee oversees the functioning of the UK’s Ministry of Defence and its affiliate bodies.

Announced in September 2021, the AUKUS was initially supposed to be a programme for developing a new class of nuclear-powered submarines for Australia. However, it has since expanded its scope to focus on security cooperation in the Indo-Pacific region. AUKUS also looks at cooperation on artificial intelligence, undersea technologies, hypersonic and counter-hypersonic weaponry, and electronic and information warfare.

However, in September 2021, shortly after the AUKUS was announced, the US stated that no other country including India and Japan could be a part of the security pact. Then White House press secretary Jen Psaki had even said jokingly that if India and Japan would join, “What would it become? JAUKUS? JAIAUKUS?”

India is already a part of the Quad or the Quadrilateral Dialogue comprising India, the US, Japan, and Australia. Some analysts argue that the proposal to include India and Japan in the AUKUS is an attempt by the UK to engineer a ‘Quad + Britain’ framework.

The formation of AUKUS had also led to questions over the purpose of the Quad, with speculation that the Quad would limit itself to a non-security focus.

However, the proposal to include India and Japan in AUKUS points to a larger security framework emerging in the Indo-Pacific that incorporates all like-minded stakeholders.

<https://theprint.in/defence/uks-house-of-commons-defence-panel-calls-for-expansion-of-aukus-to-include-india-japan/1341460/?amp>

## **Italy and France Finalising Deal to Supply SAMP/T Air Defence System to Ukraine Amid War**

Italy and France are finalizing a deal to supply Ukraine with SAMP/T Aster 30 MAMBA surface-to-air defense missile system to target Russian offensive positions on the battlefield and protect Kyiv military's tactical sites, Italian Foreign Minister Antonio Tajani, confirmed in an interview with Rome-based newspaper *Corriere della Sera*.

MAMBA [as known by French Air Force] is the cornerstone addition of Italy and France to the North Atlantic Treaty Organization [NATO] tactical ballistic missile defense capability that can intercept missiles within a radius of 25 kilometers (15.5 miles). France's Air Force currently owns at least 7 MAMBA systems, while Italy has three. It remains unclear how many SAMP/T missile systems the two NATO countries plan to send to Kyiv, but it is capable of intercepting the Kh-22 anti-ship missiles used by the Russian military to target the civilian infrastructure.

### **To intercept Russia's Kh-22 Burya missiles**

The Kh-22 Burya [translates to *Storm* in English] is a Soviet anti-ship missile capable of carrying a nuclear warhead. It boasts a hit probability of 97%. Since Russia's President Vladimir Putin ordered the "special military operation" in Ukraine in February last year, invading Russian troops have launched an estimated 210 Kh-22 missiles on Ukrainian targets, fitted with 1000 kg conventional warheads. It is to be noted that Russia launched a Kh-22 missile armed with a 1-ton warhead from Tu-22M3 long-range Russian bombers that killed 45 civilians in Dnipro on January 13.

Italy's lower house of parliament this week approved a resolution with a 215 majority to simplify the procedures to send military aid to Ukraine in 2023. "Ukraine received the green light from the Chamber of Deputies, which extends the authorization for the transfer of military vehicles, materials, and equipment to Kyiv by one year, until December 31, 2023," Italian news outlet Rai reported. The resolution will make it easier for the shipment of weapons to Ukrainian President Volodymyr Zelenskyy's regime through inter-ministerial decrees [Defence in concert with Foreign Affairs and the Economy] as opposed to the current legislation processes that are subject to addressing the Chambers.

<https://www.republicworld.com/amp/world-news/russia-ukraine-crisis/italy-and-france-finalising-deal-to-supply-samp-t-air-defence-system-to-ukraine-amid-war-articleshow.html>

## **Ukraine: Talks Underway for Missiles, Planes**

Ukraine and its Western allies are engaged in "fast-track" talks on the possibility of equipping the invaded country with long-range missiles and military aircraft, a top Ukrainian presidential aide said on Saturday.

Mykhailo Podolyak, an adviser to Ukrainian President Volodymyr Zelenskyy, said Ukraine's supporters in the West "understand how the war is developing" and the need to supply planes capable of providing cover for the armoured fighting vehicles that the United States and Germany pledged at the beginning of the month.

However, in remarks to online video channel Freedom, Podolyak said that some of Ukraine's Western partners maintain a "conservative" attitude to arms deliveries, "due to fear of changes in the international architecture".

Russia and North Korea have accused the West of prolonging and taking a direct role in the war by sending Kyiv increasingly sophisticated weapons.

"We need to work with this. We must show (our partners) the real picture of this war," Podolyak said, without naming specific countries.

"We must speak reasonably and tell them, for example, This and this will reduce fatalities, this will reduce the burden on infrastructure. This will reduce security threats to the European continent, this will keep the war localized.' And we are doing it."

The US and Germany agreed on Wednesday to share advanced tanks with Ukraine along with the Bradley and Marder vehicles promised earlier, a decision that led to criticism not only from the Kremlin but from the prime minister of NATO and European Union member Hungary.

Hungarian Prime Minister Viktor Orban asserted Friday that Western countries providing weapons and money to assist Ukraine in its war with Russia have "drifted" into becoming active participants in the conflict.

Orban has refused to send weapons to neighbouring Ukraine and sought to block EU funds earmarked for military aid.

The Ukrainian Foreign Ministry said it would summon Hungary's ambassador to complain about Orban's remarks. A ministry spokesperson, Oleg Nikolenko, said Orban told reporters that Ukraine was "a no-man's land" and compared it to Afghanistan.

"Such statements are completely unacceptable. Budapest continues on its course to deliberately destroy Ukrainian-Hungarian relations," Nikolenko said in a Facebook post.

President Joe Biden's announcement that the US would send 31 M1 Abrams tanks to Ukraine reversed months of arguments by Washington that they were too difficult for Ukrainian troops to operate and maintain.

The US decision persuaded German Chancellor Olaf Scholz, who had expressed concern about a unilateral action drawing Russia's wrath, to agree to send 14 Leopard 2 tanks from Germany's stocks and to allow European countries with tanks to send some of theirs.

Western weapons have proven essential to Ukraine's defence while stoking ever-higher tensions with Moscow.

Russia's Defence Ministry said on Saturday that Ukrainian forces used US-made HIMARS rockets to strike a hospital in the eastern Ukrainian town of Novoaidar, killing 14 people.

Novoaidar is located in Luhansk province, which is almost entirely under the control of Russian forces or Russian-backed separatists. The Russian Defence Ministry alleged the hospital was deliberately targeted. Its claim of a strike in Novoaidar could not be immediately verified.

"A deliberate missile attack on a known operating civilian medical institution is an unconditional grave war crime of the Kyiv regime," the ministry said, according to Russian news agencies.

Amid the news of the Western pledges of heavy tanks, Russia bombarded Ukraine with missiles, exploding drones and artillery shells this week. The attacks continued on Saturday, when Russian missiles struck the city of Kostyantynivka in eastern Ukraine's Donetsk province.

The missiles fell in a residential area, killing three civilians, wounding 14 and damaging four high-rise apartment buildings, a hotel and garages, Gov. Pavlo Kyrylenko said.

"Kostyantynivka is a city relatively far from the front line, but still, it constantly suffers from enemy attacks. Everyone who remains in the city exposes themselves to mortal danger," Kyrylenko said. "The Russians target civilians because they are not able to fight the Ukrainian army."

In a separate Telegram post earlier on Saturday, Kyrylenko reported that Russian attacks in the province killed four civilians in all and wounded seven others in 24 hours.

Russian rockets hit a residential area the Donetsk town of Chasiv Yar on Friday night, killing of two people and wounding five more, the governor said. Photos attached to Kyrylenko's post showed a three-story school building on fire.

Donetsk province, where the territory is roughly split between Russian and Ukrainian control, has become the battle epicenter of the war as Moscow tries to jump-start a monthslong, grinding offensive to capture the city of Bakhmut.

Chasiv Yar lies on a hill strategically located for the defense of Bakhmut, and has come under intensified Russian shelling. Capturing Bakhmut would allow Russian troops to disrupt Ukrainian supply lines and potentially pave the way for them to threaten Sloviansk and Kramatorsk, the largest remaining Ukrainian-held cities in the country's east.

Russian forces continued ground attacks around Bakhmut and Avdiivka, another Donetsk city to the south, while Ukrainian troops were on the offensive in southern and northeast Ukraine, the Ukrainian military said in a Saturday morning update.

The General Staff of the Ukrainian Armed Forces said that Russian troops "are defending themselves" near Lyman in Luhansk and Kharkiv provinces north of Donetsk, as well in Kherson and Zaporizhzhia provinces in the south.

The fighting has largely been deadlocked over the past months, with winter conditions slowing down ground operations and neither side reporting significant progress.

In the same update, the military reported that Russian forces launched 10 missile strikes, 26 air strikes and 81 shelling attacks on Ukrainian territory between Friday and Saturday mornings. The shelling killed two civilians in Kherson, another province that is partly Russian-occupied.

Podolyak, the presidential adviser, said Ukraine needs supplies of Western long-range missiles "to drastically curtail the key tool of the Russian army" by destroying the warehouses where it stores cannon artillery used on the front line.

<https://www.dailypioneer.com/2023/world/ukraine--talks-underway-for-missiles--planes.html>



*Fri, 27 Jan 2023*

## **Russian Attacks on Ukraine Reported; Tank Training to Start**

Russian forces fired another rash of missiles and self-exploding drones across several parts of Ukraine early on Thursday, causing the first attack-related death of the year in Kyiv even as air defences shot down many of the incoming projectiles. The attacks adhered to Russia's recent pattern of launching widespread strikes about every two weeks. But the wave of weapons came a day after Germany and the United States upped the ante in Russia's 11-month war by promising to send high-tech battle tanks to Ukraine and green-lighting other allies to do the same.

Kyiv Mayor Vitali Klitschko said a strike killed one person, the city's first such death since New Year's Eve.

Two others were injured, he said. The head of the Kyiv city administration, Serhii Popko said Ukrainian air defences shot down 15 cruise missiles heading to the area were shot down.

Russia has carried out massive strikes on Ukrainian power plants and other infrastructure since early October. Valerii Zaluzhnyi, the commander of Ukraine's armed forces said Thursday's volley involved 55 missiles, of which 47 were intercepted.

Self-exploding drones swept in overnight before the missile strikes, in what a spokesperson for Ukraine's Southern Defence Forces said appeared to be a Russian attempt to overwhelm or distract Ukraine's air defences.

It was the first such barrage of Russian firepower across the country since January 14.

Maksym Marchenko, the governor of southern Ukraine's Odesa region, said energy infrastructure facilities were damaged in his and several other regions, causing "significant problems with electricity supply".

The regional administration in the nearby Kherson region, where Ukrainian troops recaptured the regional capital in November, said Russian shelling killed two people and wounded five over the past day.

The attacks came a day after Germany said it would supply 14 high-tech Leopard 2 battle tanks to Ukraine and authorise other European countries to send up to 88 more. The US said it planned to ship 31 Abrams M1 tanks to Ukrainian forces.

Along with Germany and the US, Britain, Poland, the Netherlands and Sweden are among the nations that have sent or announced plans to supply hundreds of tanks and heavy armored vehicles to fortify Ukraine as it enters a new phase of the war and tries to break through entrenched Russian lines.

The conflict has largely been a stalemate in recent months, though Ukrainian forces acknowledged on Wednesday a controlled pullout from the salt-mining town of Soledar in Donetsk province, a battle-scarred area of eastern Ukraine that has been embroiled in war since Russia-backed separatists seized large swaths of the broader Donbas region in 2014.

Gian Gentile, a US Army veteran and senior historian with the Rand think tank, said the M1 Abrams and the Leopards would give Ukraine a "mechanized armoured punching force."

German Defence Minister Boris Pistorius said Ukrainian crews will start their training in Germany in coming days on German-made Marders, which are infantry fighting vehicles, while training on the heavier Leopard 2 tanks would start "a little later". "In any case, the aim with the Leopards is to have the first company in Ukraine by the end of March, beginning of April," he added. "I can't say the precise day."

In an interview with Britain's Sky News on Wednesday, Ukrainian President Volodymyr Zelenskyy said he didn't know when the tanks from the US and Europe would arrive.

NATO Secretary-General Jens Stoltenberg, also speaking to the British network, declined to speculate on the timing, but said "allies are extremely focused on the importance of speed".

Kremlin spokesman Dmitry Peskov said the move to provide Ukraine with modern Western tanks reflected the West's growing involvement in the conflict.

"Both European capitals and Washington keep saying that the delivery of various kinds of weapons systems, including tanks, to Ukraine, absolutely does not mean the involvement of these countries or the alliance in the hostilities ongoing in Ukraine," Peskov told reporters. "We categorically disagree with that."

"Moscow views everything the alliance and the capitals I have mentioned as direct involvement in the conflict," he added.

<https://www.dailypioneer.com/2023/world/russian-attacks-on-ukraine-reported--tank-training-to-start.html>

*Sat, 28 Jan 2023*

## **French, Dutch Ministers Visit NATO Battlegroup in Romania**

The foreign ministers of France and the Netherlands paid an official visit on Friday to a military base in Romania where both nations station troops as a part of a NATO battlegroup that was bolstered in the wake of Russia's invasion of neighbouring Ukraine.

Catherine Colonna of France and Wopke Hoekstra of the Netherlands visited the military base in Cincu, central Romania, along with their Romanian counterpart, Bogdan Aureescu.

Hoekstra told troops from the multinational battlegroup stationed there that they demonstrate "precisely what our alliance stands for," and said they play a key role in "keeping this continent and our territory safe."

"Russia is waging war in a way we haven't seen in decades, and therefore we cannot let our guard down - we need to step up our efforts," Hoekstra said, adding: "There is only one way forward: Ukraine must win this war, for its own sake but also for ours." In response to Russia's invasion of Ukraine last February, NATO bolstered its presence on Europe's eastern flank, including by sending additional multinational battlegroups to alliance members Romania, Hungary, Bulgaria, and Slovakia.

Earlier this week, around 600 French soldiers held a combat exercise in the eastern Romanian town of Smardan to test the 30-nation military alliance's readiness on its eastern flank. The drill involved some 200 military vehicles, including four French Leclerc battle tanks that practiced firing live ammunition. Romania's defense ministry said the main purpose of that exercise was to train the battlegroup "on the rapid deployment capability and execution of a combat mission" within a collective NATO defense operation.

Later on Friday, the three foreign ministers will head to Romania's capital, Bucharest, for trilateral talks on Russia's aggression against Ukraine; cooperation within NATO; and Romania's ongoing efforts to join the so-called Schengen Area, Europe's ID-check-free travel zone, after being blocked from joining last month.

<https://www.dailypioneer.com/2023/world/french--dutch-ministers-visit-nato-battlegroup-in-romania.html>





*Sun, 29 Jan 2023*

### **ISRO to Launch Aditya-L1, India's First Mission to Study the Sun, by June-July: Chairman**

For the first time in history of India, the Indian Space Research Organisation (ISRO) is set to launch a scientific mission to study the sun in June or July. The ISRO recently received the Visible Line Emission Coronagraph (VELC), which is the primary payload on board Aditya-L1, from the Indian Institute of Astrophysics (IIA). VELC is the first scientific mission of India for studying the sun and will be launched by June or July.

The ceremony to hand over VELC took place at the IIA's Centre for Research and Education in Science and Technology (CREST) campus in the presence of the ISRO Chairman S Somanath.

IIA stated that the calibration, assembling and testing of the VELC has been successfully finished by them, which is the most challenging and largest among the seven payloads/telescopes which will fly on Aditya-L1, at its CREST campus.

More testing of VELC and its integration with the Aditya-L1 spacecraft will now be conducted by ISRO, the release stated.

Somanath congratulated the team of VELC and stated that Aditya-L1's launch will take place around June or July.

"Understanding the effect of the sun on Earth and its surroundings has become very important now and Aditya-L1 aims to shed light on this topic. It has taken 15 years for VELC from concept to completion, and this period was needed for a complex system like this. The VELC has been the finest collaboration between IIA and ISRO," he stated.

Aditya L1 is India's first space-based mission aimed at studying the sun from a halo orbit around the Sun-Earth system's Lagrangian point 1 (L 1).

The mission, which will have seven payloads on board to make observations of the chromosphere, the sun's outermost layers (the corona) and the photosphere, will make it possible to make multiple observations about the solar activities as well as its effect on space weather, stated officials of Indian Space Research Organisation (ISRO).

Meanwhile, IIA Director Prof Annapurni Subramaniam said, "VELC is a team effort and is a major milestone for the institute. The effort has involved close collaboration between IIA, ISRO and many industries across India. We look forward to exciting science results coming from this payload after it is operational."

<https://www.wionews.com/india-news/in-a-first-indias-isro-to-launch-scientific-mission-to-study-sun-in-june-556886/amp>

## क्या होता है रीयूजेबल लॉन्च व्हीकल, ISRO के लिए क्यों है बहुत खास

अंतरिक्ष के क्षेत्र में किसी यान का प्रक्षेपण (Space Launch) बहुत महंगा काम है. इसकी सबसे प्रमुख वजह यही है कि एक बार उपयोग में लाया जाने वाला प्रक्षेपण यान दूसरी बार किसी उपयोग के लायक नहीं रहता और यहां तक कि उसका कोई भी हिस्सा वापस भी नहीं मिलता क्योंकि प्रक्षेपण यान सैटेलाइट (Satellite) को अपनी जगह पर पहुंचाने के बाद पृथ्वी के किसी महासागर में गिर जाता है. लेकिन पिछले कुछ सालों से दुनिया के स्पेस एजेंसी रीयूजेबल लॉन्च व्हीकल यानिपुनः प्रयोज्य लॉन्च वाहन (Reusable Launch Vehicle) पर काम कर रही हैं जिसका अब इसरो भी परीक्षण कर रहा है.

### वाहन का परीक्षण

इसरो अपनी पुनः प्रयोज्य लॉन्च वाहन (Reusable Launch Vehicle) की लैंडिंग का परीक्षण करने जा रहा है यह वाहन अभी तकनीक प्रदर्शन के दौर में चल रहा है. यह यान नासा के स्पेस शटल की तरह है जो अमेरिकी स्पेस एजेंसी के लिए पृथ्वी की निचली कक्षा के लिए सैटेलाइट पहुंचाने वाला सबसे भारी यान हुआ करता था.

### लैंडिंग का परीक्षण

यह इसरो का पहले लैंडिंग परीक्षण होगा. इससे भारत पुनः प्रयोज्य लॉन्च वाहन या रीयूजेबल लॉन्च व्हीकल को उपयोग की दिशा में बहुत बड़ा कदम माना जाएगा. इससे केवल सैटेलाइट भेजने के अलावा अंतरिक्ष यात्रियों को भी अंतरिक्ष में भेजा जा सकेगा. इसरो की यह इस साल का पहला सबसे बड़ा परीक्षण भी कहा जा रहा है.

### क्यों खास है यह यान

इस परीक्षण से भारत प्रयोज्य लॉन्च वाहन तकनीक में एक कदम और आगे बढ़ जाएगा उम्मीद की जा रही है कि इसके परीक्षण एक दो हफ्ते में कभी भी हो सकता है. आरएलवी अंतरिक्ष प्रक्षेपण की लागत को बहुत तेजी से कम करने काम करेगा. इस यान की खास बात यह है कि इसमें विमान और प्रक्षेपण यान दोनों का मिश्रण है.

### विमान की तरह दिखता है यान

बाहर से पुनः प्रयोज्य लॉन्च वाहन एक विमान की तरह ही दिखता है जिसका आगे का हिस्सा नुकीला है, इसमें डबल डेल्टा विंग हैं और दो ऊपर की ओर जाती पूंछ हैं जिन्हें एलीवोन्स और रडर कहते हैं. इसका परंपरागत ठोस बूस्टर (HS9) इस तरह से डिजाइन किया गया है जिससे इसकी गति ध्वनि की गति से भी पांच गुना ज्यादा होगी.

## पहले के चरण का हो चुका है परीक्षण

इससे पहले इसरो इसी यान के पहले हिस्से का परीक्षण कर चुका है। साल 2016 में उसने आरएलव-टीडी यानि रीयूजेबल लॉन्च व्हीकल टेक्नोलॉजी डेमोन्स्ट्रेशन प्रोग्राम का प्रक्षेपण किया था जिसका मुख्य लक्ष्य पृथ्वी की कक्षा में उपग्रह पहुंचाना और फिर वायुमंडल में दोबारा प्रवेश करना था। इस स्पेस शटल की लंबाई 6.5 मीटर और वजन 1.75 टन था। इस कार्यक्रम में हाइपर सॉनिक रॉकेट के साथ हवा की सांस लेने वाले इंजन और एक रीयूजेबल लॉन्च व्हीकल शामिल था।

## 2006 से चल रहा है कार्यक्रम

इस कार्यक्रम के इंजन का परीक्षण साल 2006 से चल रहा है। इसमें हाइपरसॉनिक उड़ान, ऑटोलैंड, शक्तियुक्त कूज उड़ान आदि शामिल हैं। इसमें हाइपरसॉनिक उड़ान प्रयोग (HEX), लैंडिंग प्रयोग (LEX), वापसी उड़ान प्रयोग (REX), स्क्रेमजेट प्रपल्शन प्रयोग (SPEX) की योजना शामिल थी। जिसमें 2016 को एचईएक्स प्रयोग किया गया जिसमें पूरी सफलता मिली चुकी है। अब लैंडिंग प्रयोग (LEX) का परीक्षण हो रहा है।

पुनः प्रयोज्य लॉन्च वाहन के निर्माण का उद्देश्य ऐसे पुनः प्रयोज्य तंत्र को विकसित करना है जिससे वह प्रक्षेपण बाजार में तगड़ी प्रतिस्पर्धा दे सके। फिलहाल इस क्षेत्र में स्पेसएक्स कंपनी सबसे आगे है। एलन मस्क की यह कंपनी 2022 में अपने फॉल्कन 9 रॉकेट के 61 सफल प्रक्षेपण कर चुकी है। इसरो के इस परीक्षण की सफलता उसे इस क्षेत्र में बहुत आगे ले जाने का काम करेगी।

<https://hindi.news18.com/news/knowledge/reusable-launch-vehicle-what-are-they-isro-to-test-its-landing-5291989.html>



Sat, 28 Jan 2023

## चांद पर कब्जा करने की ताक में है चीन, नासा ने कहा -सैन्य कार्यक्रम चलाना चाहते हैं चाइनीज

चीन अन्य देशों के इलाकों पर अपनी दावेदारी जताता रहा है, लेकिन भविष्य में वह चंद्रमा पर भी कब्जा कर सकता है। चीन की अंतरिक्ष महत्वाकांक्षाओं को लेकर नासा के प्रशासक बिल नेल्सन ने आशंका जताई है कि चीन चंद्रमा के संसाधन-समृद्ध क्षेत्रों पर अपना दावा कर सकता है। इंडो-पैसिफिक सेंटर फार स्ट्रैटेजिक कम्युनिकेशन) आइपीसीएससी (की रिपोर्ट के अनुसार चीन अपने अंतरिक्ष कार्यक्रम के जरिये खुद को सैन्य, आर्थिक और तकनीकी शक्ति में बदलने का प्रयास कर रहा है!

## 200 से अधिक अंतरिक्ष यान लांच करने की योजना बना रहा चीन

नेल्सन ने एक जनवरी को पोलिटिको के साथ साक्षात्कार में कहा कि उन्हें चिंता है कि चीन चंद्रमा पर संसाधन-समृद्ध क्षेत्रों में विज्ञानी अनुसंधान केंद्रों का निर्माण करेगा और फिर उस पर संप्रभुता का दावा करेगा। आइपीसीएससी ने बताया कि बीजिंग चंद्रमा के दक्षिणी ध्रुव के पास स्वायत्त चंद्र अनुसंधान स्टेशन

बनाने की भी योजना बना रहा है, जिसके 2025 में शुरू होने की उम्मीद है। चीन आर्थिक लाभ और रणनीतिक कारणों से अंतरिक्ष युद्ध जीतने की कोशिश कर रहा है!

आइपीसीएससी के अनुसार चाइना एयरोस्पेस साइंस एंड टेक्नोलाजी कारपोरेशन) सीएएससी (के अध्यक्ष वू यानशेंग ने 20 दिसंबर को चीन के अंतरिक्ष विकास लक्ष्यों को रेखांकित किया था। चीन 2023 में 60 से अधिक अंतरिक्ष मिशनों के साथ 200 से अधिक अंतरिक्ष यान लांच करने की योजना बना रहा है। रिपोर्ट में कहा गया है कि चीन और रूस के पास पहले से ही "खतरनाक उपग्रह" हैं जो अमेरिकी उपग्रहों को नष्ट कर सकते हैं और कहर बरपा सकते हैं।

<https://www.jagran.com/world/china-china-is-trying-to-capture-the-moon-nasa-said-chinese-want-to-run-military-program-23311999.html>

