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# अमरउजाला

Tue, 16 Jan 2024

## पिनाका में दिलचस्पी दिखा रहे दक्षिण अमेरिकी देश, लंबी दूरी के रॉकेट विकसित कर रहा डीआरडीओ

रक्षा क्षेत्र में भारत तेजी से 'आत्मनिर्भर' हो रहा है। दुनिया के कई देश अब भारत की हथियार प्रणाली में दिलचस्पी दिखा रहे हैं। इसका ताजा उदाहरण 'पिनाका' मल्टी-बैरल रॉकेट लॉन्चर (एमबीआरएल) है। इसमें दो दक्षिण अमेरिकी देशों ने इसमें रुचि दिखाई है। वहीं, रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ऐसे भी रॉकेट विकसित कर रहा है, जो 120 और 200 किलोमीटर की दूरी पर लक्ष्य को भेद सकेंगे।

### पहले आर्मेनिया को भी निर्यात हो चुका पिनाका एमबीआरएल

पिनाका हथियार प्रणाली का नाम भगवान शिव के धनुष के नाम पर रखा गया है। इसे डीआरडीओ ने विकसित किया है। रक्षा अधिकारियों ने बताया, 'हम पहले ही आर्मेनिया को पिनाका एमबीआरएल निर्यात कर चुके हैं। इसकी क्षमताओं को देखते हुए दो दक्षिण अमेरिकी देशों ने भी पिनाका हथियार प्रणाली में दिलचस्पी दिखाई है।' उन्होंने बताया कि डीआरडीओ ने अब दो तरह के लंबी दूरी के रॉकेट को विकसित करने का काम शुरू कर दिया है। जिसमें 120 किलोमीटर और 200 किलोमीटर तक के लक्ष्य भेदने वाले संस्करण शामिल हैं।

### 75 से 80 किलोमीटर तक के लक्ष्य को भेद सकते मौजूदा रॉकेट

डीआरडीओ निजी और सार्वजनिक दोनों क्षेत्रों के उद्योगों में अपनी भागीदारी बढ़ाकर नए रॉकेटों का उत्पादन और विकास करेगा। मौजूदा रॉकेट 75 से 80 किलोमीटर तक के लक्ष्य को भेद सकते हैं। रक्षा अधिकारियों ने कहा, डीआरडीओ अब लंबी दूरी के रॉकेटों पर काम कर रहा है। जिन्हें उन्हीं लॉन्चर से दागा जा सकेगा, जो पहले से ही भारतीय सेना में सेवा में हैं। यह लागत को बचाने में भी मदद करेंगे।

### परियोजना में निजी क्षेत्र की कंपनियों के शामिल होने की उम्मीद

पिनाका मल्टी बैरल रॉकेट लॉन्चर डीआरडीओ द्वारा निजी और सार्वजनिक क्षेत्र की इकाइयों के साथ साझेदारी में विकसित स्वदेशी हथियार प्रणाली है। लॉन्चर वाहन टाटा समूह टाटा समूह और लार्सन एंड टुब्रो द्वारा बनाए जाते हैं। जबकि, रॉकेट सौर उद्योग और मुनिशन इंडिया लिमिटेड द्वारा बनाए जाते हैं। नए रॉकेट की परियोजना में निजी क्षेत्र की कंपनियों के शामिल होने की उम्मीद है।

<https://www.amarujala.com/india-news/south-american-nations-showing-interest-in-pinaka-india-working-on-developing-120-km-200-km-rockets-for-it-2024-01-16>

*Tue, 16 Jan 2024*

## **South American Nations Showing Interest in Pinaka, India Working on Developing 120 Km, 200 Km Rockets for it**

In what could be a significant success for indigenous weapon systems, two South American countries have shown interest in the Pinaka multi-barrel rocket launchers.

The Defence Research and Development Organisation (DRDO) is also developing rockets that would be able to strike targets at 120 km and 200 km.

The Indian-made Pinaka weapon system is named after the bow of God Shiva and has been developed by the DRDO.

"We have already achieved success in the exports of the Pinaka MBRLs to Armenia. Two South American nations have shown interest in the system seeing its capabilities," defence officials told ANI.

The Defence Research and Development Organisation has also now started working on developing two types of long-range rockets for the systems, including a 120Km and a 200Km strike capability version, they said. The DRDO would be producing and developing the new rockets with its partners in both private and public sector industries.

The present rockets can strike targets at up to 75-80 Kms. "The DRDO is now working on the long range rockets which could be fired from the same set of launchers that are already in service with the Indian Army and will help in saving costs," the officials said.

The Pinaka MBRL has been one of the success stories in the indigenous weapon systems developed by the DRDO in partnership with private and public sector units.

While the launcher vehicles are made by the Tata Group and Larsen and Toubro, the rockets are made by the Solar Industries and the Munitions India Limited.

The new rockets' project is also expected to involve private sector firms in development and production.

The rockets have been a huge success in Indian defence forces also as the recently cleared the proposal for the acquisition of two types of these rockets, known as Area Denial Munition Type 2 and Type-3, defence for the Army.

The rockets would be procured by the Indian Army from indigenous sources only and two main contenders include the Economic Explosives Limited of Solar Industries and the Munitions India Limited-- one of the ammunition-producing companies created by the corporatisation of the erstwhile Ordnance Factories, they said.

As part of larger artillery modernisation plans, the army has a requirement of large of regiments of the Pinaka MBRL.

Pinaka regiments of the Indian Army include launchers with automated gun aiming and positioning systems and command posts.

<https://www.aninews.in/news/national/general-news/south-american-nations-showing-interest-in-pinaka-india-working-on-developing-120-km-200-km-rockets-for-it20240116203239/>



Press Information Bureau  
Government of India

Ministry of Defence

Tue, 16 Jan 2024

## CDS Gen Anil Chauhan to Inaugurate Ninth Chapter of CAPSTAR – 9 on the Theme ‘Artificial Intelligence: Transforming Warfare’ in MILIT, Pune

Chief of Defence Staff Gen Anil Chauhan will inaugurate the prestigious ninth chapter of ‘Capsule on Science, Technology and Applied Research’ (CAPSTAR) at Military Institute of Technology (MILIT), Pune on 17 January 2024. The three day CAPSTAR – 09 will see the active participation from services, academia, DRDO Labs and private defence industries.

The participation of major private firms such as Bit Mapper, Gridbots Technologies, Dimension NXG, PureID Ltd, Varshasookt Pvt Ltd, Nirmittee.io, Innefu Labs, Protech Solutions & Services Ltd, Resonating Mindz, Edvantech Solutions Ltd and academic institutions such as IIT Indore, DIAT and others is aimed as an initiative in policy making on AI for Armed Forces.

The CAPSTAR – 09 is being held as part of the 12th Raising Day celebrations of MILIT which is commemorated on 19 January every year.

The Institute with motto ‘Victory through Technology’ traces its roots to ‘Institute of Armament Studies’ which was set up in ‘College of Military Engineering’ in early 50s. In 1967, the Institute moved to the picturesque locale of Girinagar. From its limited scope of Armament Studies, the role of the Institute was considerably enhanced by the Defence R&D council in 1964 and further in 1981. In order to meet the specific and futuristic training requirements of the Armed Forces, MILIT was raised on 19 Jan 12 and subsequently, MILIT emerged as independent tri-services Armed Forces Technical Training Institute under Headquarters, Integrated Defence Staff (HQ IDS) which conducts the flagship Defence Services Technical Staff Course and a number of Training capsules for officers from tri-Services on cutting-edge, disruptive and Niche Technologies.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1996745>

THE  HINDU

Wed, 17 Jan 2024

## Minister of State for Defence Visits Ordnance Factory Medak

Minister of State for Defence and Tourism Ajay Bhatt visited the Ordnance Factory Medak (OFMK), a key production unit under Armoured Vehicles Nigam Limited (AVNL).

Mr. Bhatt was accompanied by Sanjay Dwivedi, CMD/AVNL, K. Sudhakar, CGM/OFMK, and other senior officers, and was given an overview of the unit's manufacturing capabilities within the Infantry Combat Vehicles sector. Mr. Bhatt also participated in a tree plantation ceremony on the factory premises after which he took a ride on the BMP (Sarath) to better understand the functioning of the Infantry Combat Vehicle.

During the visit, a presentation was delivered to the dignitary, showcasing the extensive competence, capabilities and capacity of AVNL, with a particular focus on OFMK's contributions to manufacturing, testing, research and development, indigenisation, and export.

<https://www.thehindu.com/news/national/telegana/minister-of-state-for-defence-visits-ordnance-factory-medak/article67745495.ece>



*Tue, 16 Jan 2024*

## **Ready to Face Fresh Challenges on Northern Border, Says Army Chief**

The Indian Army is fully prepared to handle the challenges arising from the protracted standoff with China, which has resulted in heightened deployment along the Line of Actual Control (LAC), stated General Manoj Pande, the Chief of the Indian Army, on Monday.

He affirmed, "On the northern borders, the Indian Army is fully prepared and capable of facing any challenges. The army has taken several steps to strengthen its defenses."

He also discussed other security challenges and emphasised that amidst the rising challenges, the force has taken steps to bolster border defences.

He added that in recent times, through emergency procurement procedures, the Army has inducted several cutting-edge equipment, including various weapon systems equipped with niche technologies.

General Manoj Pande addressed the audience during the 76th Army Day parade, which took place at the parade grounds of the 11 Gorkha Rifles Regiment in Lucknow.

Regarding internal security matters, he said, "There has been significant progress in this area. Our priorities include making efforts and coordinating with other state agencies to strengthen our borders. In the western region, the situation in Jammu and Kashmir is under control. However, in the Rajouri and Poonch sectors, terrorist activities have increased."

He added that while a ceasefire is in place on the Line of Control, continuous ongoing infiltration suggests that terrorist camps across the border remain active.

He said, "The Indian Army has thwarted infiltration attempts with unwavering vigilance. In remote areas of Jammu and Kashmir, the strong measures taken by the security forces have resulted in reduced rates of violence."

He also discussed the situation in the northeast and the peace talks with local insurgent groups, stating that the Indian Army has conducted successful peace talks.

<https://www.newindianexpress.com/nation/2024/Jan/16/ready-to-face-fresh-challenges-on-northern-border-says-army-chief>

Tue, 16 Jan 2024

## **Indian Army's Brave Encounters: Unveiling Clashes and Covert Operations against Chinese Intrusions**

In the backdrop of ongoing talks at military and diplomatic levels, fresh revelations have come to light regarding Chinese attempts to attack and seize Indian Army positions in Eastern Ladakh. The period between September 2021 and November 2022 saw at least two instances of such aggressive moves by Chinese troops, leading to confrontations that resulted in injuries to several Chinese soldiers. These details emerged through an investiture ceremony held by two commands of the Indian Army over the weekend, shedding light on the heroic actions of Indian soldiers during these clashes.

Earlier reports from August 2020 had hinted that the Galwan clash was not an isolated incident, with several preceding skirmishes, including all-night clashes causing substantial injuries on both sides. The recently disclosed clashes offer a deeper understanding of the escalating tension between these two nuclear-armed powers, locked in a standoff since May 2020.

The investiture ceremony videos, showcasing soldiers honoured with gallantry medals for their acts of bravery across the Army's operational areas, were initially made public. However, as information about these clashes trickled out, the Western Command took down the YouTube video.

The Central Command's ceremony, on the other hand, highlighted the valour of a major from the Para SF, the Army's elite commando unit. Stationed in North Sikkim, he crossed over to the "enemy" side, providing 120 hours of live feed of military movement despite challenging weather conditions.

Although China was not explicitly named, it's worth noting that Sikkim shares a boundary with Tibet, which is under Chinese occupation. Regarding developments in Eastern Ladakh, it has now been disclosed that the People's Liberation Army (PLA) soldiers attacked an Indian Army post at a location called Shankar Tekri along the Line of Actual Control (LAC) on January 7, 2022.

The citation of a sepoy from the Sikh Light Infantry revealed the exceptional bravery displayed during this incident. The sepoy, with unmatched valour, confronted intruding Chinese troops in a brutal hand-to-hand battle, successfully repulsing the attack. In the process, he wounded four PLA soldiers and confiscated their rifles.

Another clash occurred on November 27, 2022, where around 50 PLA soldiers attempted to cross the LAC at Atari Post. In this instance, a naib subedar from the 19th Battalion of the J&K Rifles was awarded the Sena Medal (Gallantry) for leading the charge against the invading PLA troops. Despite sustaining injuries in the attack, the naib subedar effectively led the operation to thwart the PLA, leaving around 15 of them injured.

The citations also brought to light covert operations carried out by Indian troops. While specific dates were not disclosed, an officer from the 15th Battalion of the Kumaon Regiment was awarded the Sena Medal (Gallantry) for leading a covert operation "deep within" Chinese territory. This operation, codenamed "Operation Dorji," remains classified. Another soldier from the same battalion received the Sena Medal (Gallantry) for a similar operation.

Additionally, the citations revealed the bravery of an officer deputed to the Intelligence Corps. On September 16, 2022, under Operation Snow Leopard, the officer ventured into "enemy territory" in

Eastern Ladakh. Despite suffering from high-altitude sickness, the officer persevered, completing the assigned task without being detected by the enemy. He was also honoured with the Sena Medal (Gallantry) for “displaying stealth and tactical skill, enhancing India’s strategic edge in the area.”

During the annual press conference on the eve of the Army Day, Army Chief General Manoj Pande, characterized the situation at the LAC with China as “stable but sensitive” and outlined India’s expectations for China to take specific military actions to bring an end to the ongoing standoff.

<https://www.financialexpress.com/business/defence-indian-armys-brave-encounters-unveiling-clashes-and-covert-operations-against-chinese-intrusions-3366264/>

## The Statesman

Tue, 16 Jan 2024

### India, UAE Conclude Joint Military Drills in Raj

India and the UAE concluded their two-week joint military exercise “Desert Cyclone” with the validation training in Rajasthan.

The exercise facilitated synergy in conduct of joint tactical operations and strengthened the understanding and interoperability between the two armed forces.

The UAE Land Forces contingent comprising 45 personnel arrived in India on January 1 to participate in the first edition of the joint exercise.

The exercise began at Mahajan in Rajasthan on 2 January. The UAE contingent was represented by troops from the Zayed First Brigade. The Indian Army contingent comprising 45 personnel was represented mainly by a Battalion from the Mechanised Infantry Regiment.

The aim of the exercise, according to the Ministry of Defence (MoD), was to enhance interoperability in Sub-conventional Operations, including Fighting in Built-Up Area (FIBUA) in desert/ semi desert terrain under Chapter VII of the United Nations Charter on peacekeeping operations. The exercise is expected to enhance cooperation and interoperability between both sides during peacekeeping operations.

Drills held during Exercise ‘Desert Cyclone’ included Establishment of a Joint Surveillance Centre, Cordon and Search Operation, Domination of Built-Up Area and Heliborne Operations.

Exercise ‘Desert Cyclone’ signifies further strengthening of bonds of friendship and trust between India and the UAE, the MoD said.

<https://www.thestatesman.com/india/india-uae-conclude-joint-military-drills-in-raj-1503260084.html>



Wed, 17 Jan 2024

### 2024 Military Strength Rankings: US most Powerful, India at 4th Position behind China

India has maintained its position as the fourth strongest military globally, with the United States being named the most powerful followed by Russia and China, according to the Global Firepower rankings.

According to GFP's assessment, India holds a Power Index (PwrIndx) score of 0.1023. (A score of 0.0000 is considered 'perfect'). The US holds a Power Index score of 0.0699, Russia 0.0702 and China 0.0706.

A total of 145 countries were assessed on the basis of their global military prowess for the Global Firepower's 2024 Military Strength Rankings.

India's neighbour Pakistan has been ranked ninth and Italy takes the 10th position. South Korea, the United Kingdom, Japan and Turkey also feature in the top 10 list.

The rankings for the index are reached after judging the countries on several parameters, including military resources, natural resources, industry and geographical features and available manpower.

On their assessment methodology, Global Firepower said on their website: "Our formula allows for smaller, more technologically-advanced, nations to compete with larger, lesser-developed powers and special modifiers, in the form of bonuses and penalties, are applied to further refine the list which is compiled annually."

<https://indianexpress.com/article/india/2024-military-strength-rankings-us-india-position-china-9112312/>



*Tue, 16 Jan 2024*

## **North Korea is Testing Hypersonic Missiles. How do they Work?**

North Korea said on Monday it had tested a new solid-fuel hypersonic missile with intermediate range, amid an intensifying race for the next generation of long-range rockets that are difficult to detect and intercept.

The United States, China, Russia and other countries have also been developing hypersonic weapons in recent years.

### **How the missiles work**

Hypersonic missiles typically launch a warhead that travels at more than five times the speed of sound or about 6,200 km per hour (3,850 mph), often manoeuvring at relatively low altitudes.

Despite their name, analysts say the main feature of hypersonic weapons is not speed - which can sometimes be matched or exceeded by traditional ballistic missile warheads - but manoeuvrability.

North Korea's first hypersonic missile test in 2021 featured a glider-shaped warhead, while a 2022 launch used what South Korean military officials and analysts said was actually a conical manoeuvrable reentry vehicle (MaRV), or a ballistic missile warhead capable of manoeuvring to hit a target.

North Korean state media said Sunday's test was aimed at checking the reliability of new multi-stage, high-thrust solid-fuel engines and an intermediate-range hypersonic manoeuvrable controlled warhead.

Combining a glide vehicle with a missile that can launch it partially into orbit - a so-called fractional orbital bombardment system (FOBS) - could strip adversaries of reaction time and traditional defence mechanisms.

Intercontinental ballistic missiles (ICBMs), by contrast, carry nuclear warheads on ballistic trajectories that travel into space but never reach orbit.

### **Who leads the race?**

China launched a rocket carrying a hypersonic glide vehicle that flew through space in 2021, circling the globe before cruising down toward its target, which it missed by about two dozen miles.

Earlier that year, Russia successfully tested a Tsirkon (Zircon) hypersonic cruise missile, which President Vladimir Putin touted as part of a new generation of missile systems. Moscow also tested the weapon from a submarine and a frigate for the first time.

The United States said in September 2021 that it had tested an air-breathing hypersonic weapon - meaning it sustains flight on its own through the atmosphere like a cruise missile - marking the first successful test of that class of weapon since 2013.

### **North Korea's hypersonic goal**

At a key ruling Workers' Party meeting in January 2021, North Korean leader Kim Jong Un singled out securing hypersonic weapons as one of five main tasks under a five-year plan to boost military power, alongside developing solid-fuel ICBMs and a nuclear submarine.

North Korea fired its first hypersonic missile in September 2021, calling it a "strategic weapon" designed to bolster its defence capabilities, though some South Korean analysts described the test as a failure.

In January 2022, Seoul officials reported that North Korea tested another potentially hypersonic missile that flew at relatively low altitudes at up to 10 times the speed of sound (12,348 kmh/7,673 mph).

Sunday's launch involved what would be Pyongyang's first such missile powered by solid fuel that would facilitate a quicker launch with little preparation.

During a rare trip to Russia last September, Kim inspected Moscow's hypersonic missiles, among other weapons.

### **Why it matters**

The global push for hypersonic weapons is part of an arms race in which smaller Asian nations are striving to develop advanced long-range missiles alongside major military powers.

Hypersonic weapons and FOBS could be a concern as they can potentially evade missile shields and early warning systems.

"North Korea appears to be trying to develop hypersonic missiles and intermediate range ballistic missiles based on solid propellant rocket boosters," said Chang Young-keun, a professor at Korea Aerospace University.

"In particular, mid- to long-range hypersonic missiles would be useful for striking Guam while evading the U.S. missile defence system."

<https://www.thehindu.com/sci-tech/science/north-korea-is-testing-hypersonic-missiles-how-do-they-work/article67743784.ece>

# Science & Technology News



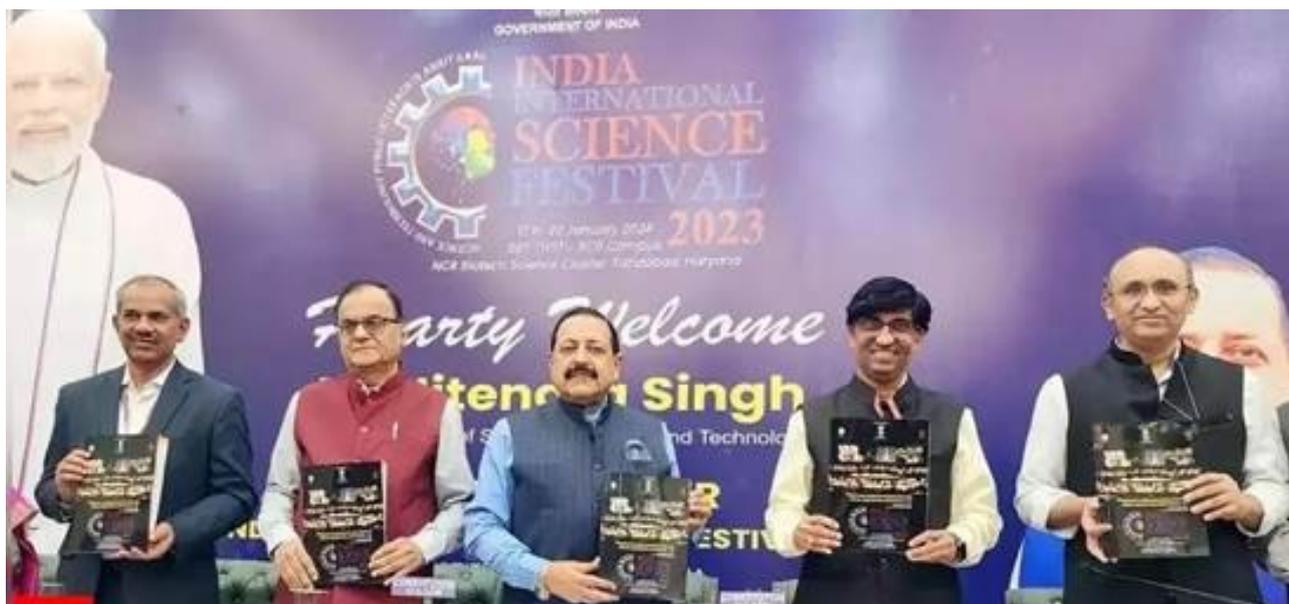
**Press Information Bureau**  
**Government of India**

**Ministry of Science & Technology**

*Tue, 16 Jan 2024*

## **India International Science Festival 2023 : A Snapshot of Events**

The India International Science Festival (IISF) 2023 is set to begin from tomorrow. The preparations are in full swing. The mega science festival will start from January 17, 2024 and will end at January 20, 2024. The Department of Science and Technology (DST), Govt. of India is organizing the 9th edition of IISF and its autonomous organization National Innovation Foundation-India is the coordination and implementation body of IISF 2023. The Department of Biotechnology (DBT) institutes Regional Centre for Biotechnology (RCB) – Translational Health Science and Technology Institute (THSTI) located in Faridabad (Haryana) is the host institute of the grand event.



Union Minister of State for Science & Technology Dr. Jitendra Singh while releasing the brochure of the ninth edition of India International Science Festival (IISF) 2023 on 16 December 2023 during the Curtain raiser program organised at Constitutional Club, New Delhi. Principal Scientific Adviser Prof. Ajay Kumar Sood, Secretary DST Dr. Abhay Karandikar, Secretary DBT Dr. Rajesh S. Gokhale and Secretary MoES Dr. M. Ravichandran are accompanying to hon'ble Minister.

The aim of this science festival is to celebrate the achievements of India in the frontier areas of science and technology. The festival also aims to acknowledge the achievements of science enthusiasts and inculcate scientific temper among young students and spread the same among the Indian citizens. The central theme of IISF 2023 is "Science and Technology Public Outreach in Amrit Kaal".

This time, 22 countries are also participating at IISF 2023. These include Argentine Republic, Republic of Armenia, Commonwealth of Australia, Kingdom of Cambodia, French Republic, Federal Republic of Germany, Republic of Indonesia, Japan, Republic of Kenya, Lao People's Democratic Republic, Malaysia, Republic of the Union of Myanmar, Republic of Namibia, Republic of the Philippines, Republic of Rwanda, Republic of Singapore, Republic of South Africa, Kingdom of Thailand, United Kingdom, United States of America (USA), Socialist Republic of Vietnam, and Republic of Zimbabwe.

The following events are planned for all four days of the IISF 2023. On 17th January 2024, twelve events are planned. These include Student Science Village, Face to Face of New Frontiers of Science & Technology, Science through Games & Toys, Students Innovation Festival – Space Hackathon, State S&T Ministers and Centre and States S & T Secretaries and Officials Conclave, Education for Aspiring India – National Science Teachers Workshop, Young Scientists Conference, New Age Technology Show, National Social Organisations and Institutions Meet (NSOIM); Science, Technology, and Innovation Exhibition; Start-up, Technology and Innovation B to B Meet.

On 18th January, 2024, thirteen events are planned. These include Student Science Village, Vigyanika-Science Literature Festival, Science through Games & Toys, Students Innovation Festival – Space Hackathon, State S&T Ministers and Centre and States S&T Secretaries and Officials Conclave, Education for Aspiring India – National Science Teachers Workshop, Young Scientists Conference, New Age Technology Show, National Social Organisations and Institutions Meet, Science, Technology, and Innovation Exhibition, Start-up, Technology, and Innovation B to B Meet, IISF Challenge, and Science & Technology Media and Communicators Conclave.

On 19th January, 2024, a total of eleven events will take place. These include Student Science Festival, Vigyanika – Science Literature Festival, Science through Games & Toys, Students Innovation Festival – Space Hackathon, Education for Aspiring India – National Science Teachers Workshop, Young Scientists Conference, New Age Technology Show, National Social Organisations and Institutions Meet; Science, Technology, and Innovation Exhibition, Start-up, Technology, and Innovation B to B Meet, and Science & Technology Media and Communicators Conclave.

On the last day, 20th January 2024, eight events will be held. These include Student Science Village, Science through Games & Toys, Education for Aspiring India – National Science Teachers Workshop, Young Scientists Conference, New Age Technology Show; Science, Technology, and Innovation Exhibition; Start-up, Technology, and Innovation B to B Meet, and Face to face with New Frontiers of Science and Technology.

The Science Media Communication Cell (SMCC) at CSIR-National Institute of Science Communication & Policy Research (NIScPR) is coordinating and facilitating the media publicity of the India International Science Festival (IISF) 2023. The key objective of the SMCC is to disseminate and showcase R&D breakthroughs and scientific achievements of India on various platforms of media.

IISF is the largest science festival which brings together and connects all the segments of society. This has been organised since 2015 and the IISF 2023 is the ninth edition of the series. In this edition total 17 events have been scheduled. IISF organises a series of outreach events in R&D institutes, labs and schools for around one month to create awareness among different stakeholders in society.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1996605>

## **Japan to Attempt First Moon Landing of 2024 on Friday**

The Japan Aerospace Exploration Agency (JAXA) is set to make history as it attempts to land the country's first spacecraft on the Moon.

The highly anticipated touchdown of the Smart Lander for Investigating Moon (SLIM) is scheduled for January 19, making it the first country to attempt to land on the Moon in 2024.

The SLIM mission, which launched on September 6, 2023, aboard a Japanese H-2A rocket, aims to demonstrate precision landing capabilities that could revolutionise future lunar exploration.

After a fuel-efficient journey to the moon, SLIM successfully entered lunar orbit on Christmas Day, 2023. Now, all eyes are on the upcoming landing attempt, which promises to showcase Japan's advanced aerospace technology.

SLIM's descent towards the moon will commence at around 8:30 pm IST on January 20, with the perilune point being lowered to an altitude of 15km.

The landing on the lunar surface is expected to occur approximately 20 minutes later, around 8:50 pm IST. If successful, Japan will join the ranks of only a handful of nations — including the Soviet Union, the United States, China, and India — that have achieved a soft landing on the moon.

The mission's primary objective is to test pinpoint landing technology, aiming for an accuracy of less than 100 meters. This level of precision is unprecedented for a gravitational body like the moon and could significantly enhance the quality of data collected during future missions.

SLIM also carries two miniprobes that will deploy after landing to photograph the site and provide an independent communication system with Earth.

<https://www.indiatoday.in/science/story/japan-to-attempt-first-moon-landing-of-2024-with-slim-on-friday-2489358-2024-01-16>

