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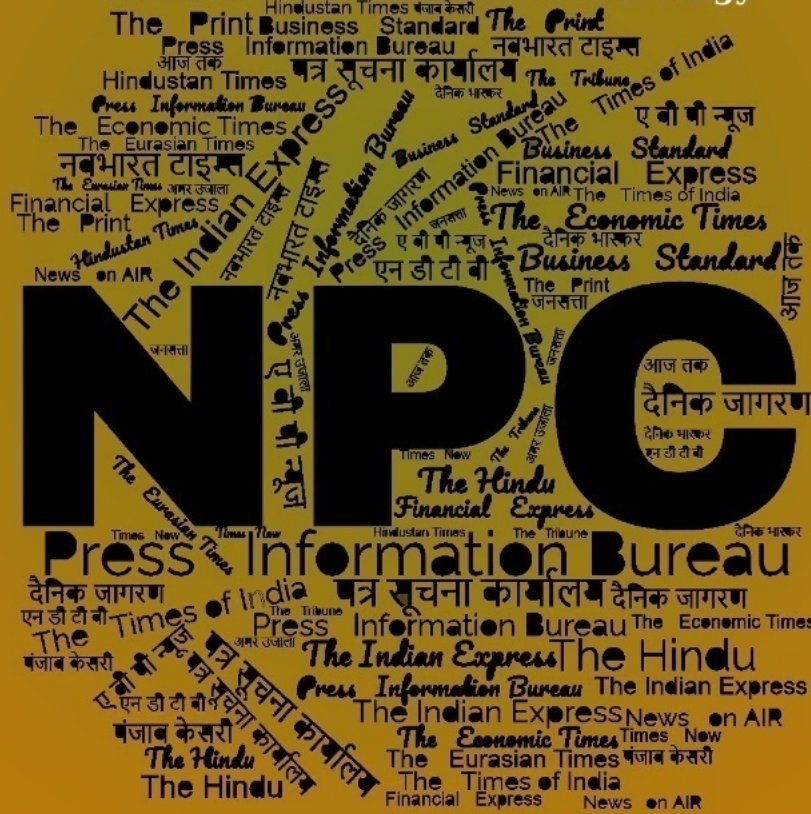
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# समाचार पत्रों से चयित अंश Newspapers Clippings

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## **Business Standard**

*Thu, 07 Mar 2024*

### **IAF's C-17 Aircraft successfully Airdrops Indigenously Built Platform**

A C-17 transport aircraft of the Indian Air Force airdropped an indigenously developed heavy platform that can carry a maximum load of over 22 tonnes, officials said on Wednesday.

"In a major milestone on its path towards Atmanirbhar Bharat, an extra-long and heavy platform, indigenously developed by ADRDE & capable of carrying approximately 45000 Lbs of load, was successfully air-dropped during trials from an IAF C-17 aircraft," the Indian Air Force said in a post on X.

The Aerial Delivery Research and Development Establishment (ADRDE) is a premier defence research laboratory.

According to the Indian Air Force, capable of carrying multiple such platforms, the combat capabilities of C-17 aircraft will be further enhanced in its varied missions to air-deliver critical loads to troops on the ground.

[https://www.business-standard.com/india-news/iaf-s-c-17-aircraft-successfully-airdrops-indigenously-built-platform-124030700091\\_1.html](https://www.business-standard.com/india-news/iaf-s-c-17-aircraft-successfully-airdrops-indigenously-built-platform-124030700091_1.html)



Wed, 06 Mar 2024

### **Indian Defence and Security Forces Procure Passive Exoskeletons**

The Indian military has procured passive exoskeletons to support logistics and potentially combat operations, it has been confirmed to *Janes*.

The company that developed the exoskeletons – Newndra Innovations in Rajasthan – has provided two types of exoskeletons to the Indian Army, Indian Air Force (IAF), and the National Disaster Response Force (NDRF) in the past few months.

Ganesh Ram Jangir, CEO of Newndra Innovations, told *Janes* in early March that the exoskeleton products, named JaipurBelt and ArmMax, “help to increase the productivity and endurance of soldiers while also reducing the risk of musculoskeletal injuries”.

“[The] JaipurBelt provides support to a soldier's back and spine while [the] ArmMax can support [the] back, spine, and arms,” Jangir added.

These exoskeletons can augment a soldier's capacity to carry weight by about 5 to 35 kg, depending on the requirement, he said.

“Our exoskeletons are self-powered, meaning they do not require any kind of batteries, motors, or other external power sources. We have developed a hinge mechanism, which consists of hydraulics and springs that conserve the gravitational potential energy when somebody bends down. This mechanism is applicable to [the] arms, knees, and back, and the energy conserved is used to support the user when the user is carrying anything heavy or doing strenuous activities,” Jangir added.

The JaipurBelt and ArmMax exoskeletons have a weight of around 1.8 kg and a shelf life of three to five years, Jangir said. He added that the exoskeletons are used by defence and security personnel while handling heavy ammunition, loading and unloading, and carrying weight for long distances, among other applications.

<https://www.janes.com/defence-news/news-detail/indian-defence-and-security-forces-procure-passive-exoskeletons>

## **MH 60R Seahawk: Indian Navy to commission 1st squadron of choppers in Kochi**

The Indian Navy is set to commission the first squadron of MH-60R Seahawk helicopters at the INS Garuda in Kerala's Kochi on Wednesday, in a move to strengthen India's defence journey. The commission will take place at 4:30pm. According to the Indian Navy, the multi-role choppers would mark a “pivotal moment” in India's defence modernisation journey.

### **All you need to know about ‘Seahawk’ squadron:**

1. The MH 60R Seahawk helicopter is the maritime variant of the Black Hawk helicopter. It is a part of the 24-aircraft foreign military sales contract signed with the US government in February 2020. The first Seahawk squadron will be raised today with the six helicopters that have been delivered to the Navy.
2. The helicopter is designed for anti-submarine warfare, anti-surface warfare, search and rescue, and medical evacuation among other operations. According to the Navy, its advanced weapons, sensors, and avionics suite make the Seahawks ideal for the Indian Navy's maritime security needs, offering enhanced capabilities for both conventional as well as asymmetric threats.
3. The Indian Navy received its first two MH-60R choppers at Kochi two years ago. The twin-engine helicopters can operate from frigates, destroyers and aircraft carriers. They are armed with AGM-114 Hellfire missiles, MK 54 torpedoes, and advanced precision weapons.
4. “The MH-60R helicopter will enhance India’s blue-water capabilities, extending the operational reach of the navy and supporting sustained naval operations across spectrums and over vast maritime domains...The commissioning of the Seahawks underscores the Indian Navy's steadfast dedication to fortifying maritime security, aligning seamlessly with the Government of India's visionary goal of ensuring security and growth for all in the region,” the Navy said.
5. The helicopter has been rigorously tested in Indian conditions and is fully integrated into the naval fleet.
6. The commissioning of the helicopters in the INAS 334 squadron is expected to significantly enhance the Navy's operational capability in the Indian Ocean region which has been witnessing increasing Chinese military forays.

<https://www.hindustantimes.com/india-news/mh-60r-seahawk-indian-navy-to-commission-1st-squadron-of-choppers-in-kochi-top-points-101709710396868.html>



## **Navy chief: INS Jatayu apt tribute to Ramayan's 'first responder'**

Navy Chief Admiral R Hari Kumar Wednesday compared INS Jatayu — the new naval base at the Minicoy Island of Lakshadweep — to the mythical character Jatayu in Ramayan, saying that naming the base on him is a recognition of the spirit of providing security, surveillance and selfless service.

At the commissioning ceremony of INS Jatayu, Admiral Kumar said, in the Ramayan Jatayu was the “first responder” trying to stop the abduction of Sita, even at the cost of his life exemplifying “service before self”.

“The naming of this unit as Jatayu is an apt recognition of this spirit of providing security, surveillance and selfless service. Jatayu’s information to Lord Rama provided him crucial situational awareness leading to the successful quest that followed,” he said.

The Navy Chief said INS Baaz to the east in Andamans and INS Jatayu in the west at Minicoy will now serve as the eyes and ears of the Navy.

He said it is crucial to recognise the pressing need for heightened surveillance amidst the prevailing geo-political developments which underscore the strategic significance of Lakshadweep to India.

He said the Indian Ocean Region is witnessing an upsurge in maritime terror, crime and piracy and the Indian Navy has responded with alacrity, assuming an assertive posture in the West and North Arabian Sea, undertaking anti-drone and anti-piracy operations to safeguard all merchant traffic in the region.

He said INS Jatayu will serve as a vanguard providing crucial ‘Maritime Domain Awareness’ while enhancing surveillance of the Arabian Sea.

He said, with the ongoing augmentation of infrastructure in coordination with Island Development Authority and NITI Aayog, these islands would be transformed into a hub of our Blue Economy endeavour and reflect a resilient and self-sufficient ‘Viksit Bharat’.

“The growing strength of the Indian Navy is not just to cater to these short-term ongoing crises, but more importantly to ensure the future balance of power in the Indo-Pacific region,” he said.

INS Jatayu will be upgraded to a naval base with additional infrastructure such as airfield, housing and personnel.

There are plans to construct a new airfield that will be capable of operating both military and civil aircraft. This will extend the Navy’s reach and operational surveillance capabilities at a time when India is seeking to counter the growing Chinese influence in the Indian Ocean Region.

<https://indianexpress.com/article/india/ins-jatayu-navy-lakshadweep-islands-9199606/>

## US Army Experimenting with Generative AI Chatbots in War Games: Report

The United States Army Research Laboratory is experimenting to see whether OpenAI's generative AI solutions can help battle planning, but within a military video game.

The *New Scientist* on Wednesday reported how US Army researchers are using OpenAI's GPT-4 Turbo and GPT-4 Vision models to provide information about simulated battlefield terrain and details on friendly and enemy forces, as well as military lessons on attacking and defending.

They also used two other AI models based on older technology. After that, they gave the AI assistants a mission to destroy all enemy forces and seize an objective point.

The AI assistants immediately outputted many courses of action, at which point, a user playing the role of a commander asked the model to refine that output. While OpenAI's GPT models worked better than the other two models, they also caused more casualties while carrying out mission objectives.

The use of generative AI is just one small part of the US Army's push to take full advantage of artificial intelligence in their strategy.

Project Maven, the US Department of Defense's flagship AI effort, has located rocket launchers in Yemen and surface vessels in the Red Sea and helped narrow targets for strikes in Iraq and Syria, reported *Bloomberg* in February.

But this potential use of AI on battlefields also raise many ethical concerns. The prospect of leaving decisions that could potentially kill people to machines is more reminiscent of the Terminator series of movies than that of a bright future espoused by AI evangelists. But that has not stopped the military.

The Pentagon asked US lawmakers for billions of dollars to develop its artificial intelligence and networking capabilities, reported *DefenseScoop* in March. It has also established a Chief Digital and AI Officer positions to help use and spread the technology across the department.

<https://indianexpress.com/article/technology/science/us-army-ai-chatbot-war-games-9199456/>



**Press Information Bureau**  
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*Wed, 06 Mar 2024*

### **CSIR-Indian Institute of Petroleum signs MoU with UCOST to deploy the Pine Needles-based Fuel-Making Technology in Champawat**

Under the directions and guidance of Hon'ble Chief Minister Shri Pushkar Singh Dhama, an MoU was signed on Tuesday, 5<sup>th</sup> March, between CSIR Indian Institute of Petroleum, Dehradun and UCOST under the aegis of the "Adarsh Champawat" mission. On this occasion, Dr Harendra Singh Bisht, Director of the Indian Institute of Petroleum and Professor Durgesh Pant, Director General of UCOST, signed the MoU documents and inaugurated a historic project on deploying the technology of making fuel from Pine Needles in Champawat.

Under this agreement, the CSIR - Indian Institute of Petroleum will implement two major technologies at the grassroots level in Champawat. The selected technologies include a briquetting unit with a capacity of 50 kg per hour based on Pine Needles and 500 units of Improved Cookstoves for rural households.

An extended field trial study will be conducted regarding energy conservation and its environmental impact. The briquetting unit will be established in the Energy Park in Champawat as a part of the Women Empowerment initiative. The briquettes produced will be used as fuel in homes and local industries.

Dr Harendra Singh Bisht, Director of the CSIR - Indian Institute of Petroleum, said that the use and management of Pine Needles are necessary to reduce the instances of forest fires. The Pine Needle briquettes and pellets can replace coal and protect the environment. The briquettes can be used for domestic cooking and as direct or co-firing fuel in brick kilns and thermal power plants.

He also informed that the Indian Petroleum Institute had been rigorously working towards the utilization and value addition of Pine Needles and has developed an improved technology for briquetting of Pine Needles and an energy-efficient, low-cost, natural draft biomass cookstove. The biomass cookstove works with Pine Needles briquettes at an energy efficiency of 35% and reduces household pollution by 70%. In addition, the CSIR - Indian Institute of Petroleum is a laboratory designated to certify biomass pellets for use in thermal power plants. The laboratory has advanced facilities for the biomass characterisation and evaluation of biomass combustion equipment.



Professor Durgesh Pant said that under the direction and guidance of the Hon'ble Chief Minister, UCOST, as the nodal agency, has worked over the years to make Champawat an ideal district. He informed us that the Pine Needles collection, its value addition, and its supply to the industry offer good business opportunities for the rural people of Champawat. Moreover, with minor technical training on briquetting and quality control parameters, the rural people of Champawat can supply it to the industries and make it a regular source of income. Pine Needles briquetting can be converted into a full-time sector, providing regular employment opportunities, as there will be high demand for these briquettes in the future. Moreover, manufacturing and marketing of improved cookstoves will become an attractive option for the skilled and semi-skilled rural masses. He added that another CSIR laboratory, CSIR-CIMAP, Lucknow, is also doing excellent work in Champawat under the "Aroma Mission".

Mr Pankaj Arya, lead project Scientist, informed that the Indian Institute of Petroleum has been working on a science and technology-based model for sustainable development of Champawat district, with components of demonstration, implementation and skill development. He said that this project will give special attention to promoting rural entrepreneurship through training, skill development and market linkages. Additionally, more than 100 identified beneficiaries/stakeholders will be trained in the manufacturing, operating, and maintaining biomass briquetting and advanced combustion equipment, generating new employment opportunities in Champawat.

Also, distance learning methods, workshops, and exhibitions will be organized to revive local women and youth's scientific temperament and skill development. Ultimately, this project will help in energy conservation, employment generation, skill development, and women's empowerment in Champawat. On this occasion, Dr. Sanat Kumar, Dr G. D. Thakre from the Indian Institute of Petroleum, and Dr D. P. Uniyal, Mrs Poonam Gupta from UCOST were also present, who made essential contributions in designing the project and provided suggestions for its successful implementation.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2012038>



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

*Wed, 06 Mar 2024*

## **New Catalyst can facilitate Urea-Assisted Water Splitting – a new strategy for Energy-Efficient Hydrogen Production**

Scientists have identified a new catalyst that can efficiently oxidize urea and lower the energy demand for hydrogen generation by urea-assisted water splitting thereby making way for improved production of the green fuel.

Understanding the importance of hydrogen energy in reversing climate change, the scientific community is intensifying efforts to revolutionize hydrogen production, a key player in the clean energy landscape. Electrolytic generation of hydrogen at cathode, while inherently clean and green, has been hampered by the energy demands of the oxygen evolution reaction at the anode (counter electrode).

A viable solution emerges from replacing the oxygen evolution reaction with other anodic processes such as urea electro-oxidation reaction (UOR) possessing lesser overall cell potential. By adding urea to water, it has practically been shown to reduce the energy demand for electrochemical hydrogen production by about 30%.

This not only reduces the electrical energy input and hence, the cost for hydrogen generation from water but also holds a promise for remediating urea from wastewater in conjunction with energy generation while converting urea into nitrogen, carbonate, and water. Despite the potential advantages of this reaction, the catalysts developed so far not stable vulnerable to CO<sub>x</sub> poisons (by-products of UOR) posing barriers to industry-scale implementation of this process.

A team of scientists from Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru – Mr. Nikhil N. Rao, Dr. Alex Chandraraj and Dr. Neena S. John, have demonstrated a non-noble metal catalyst, Ni<sup>3+</sup>-rich – Neodymium Nickelate (NdNiO<sub>3</sub>) with metallic conductivity that efficiently oxidizes urea, thereby lowering the energy demand for hydrogen generation by urea-assisted water splitting.

The investigation was taken up as part of an ongoing project to develop high-active and tolerant catalysts based on high-valent Ni-oxides for urea electrolysis, which is supported by the erstwhile Science and Engineering Research Board (SERB), now ANRF.

The team used neodymium nickelate as an electrocatalyst for UOR, and using techniques such as X-ray absorption spectroscopy, electrochemical impedance spectroscopy, and Raman spectroscopy performed *operando* (under operating conditions), substantiated that the catalyst drives the reaction specifically through a ‘direct mechanism’.

The direct mechanism exhibited by electrochemically activated neodymium nickelate stands out for its minimal catalyst degeneration and reconstruction, contrasting with the indirect mechanism requiring regeneration after each cycle of UOR that prevails in Ni<sup>2+</sup>-rich catalysts such as NiO.

The catalyst has superior reaction kinetics (making the reaction faster), and enhanced stability during prolonged electrolysis, which are the attributes of a good electrocatalyst.

Towards addressing the challenge posed by CO<sub>x</sub> poisons, which are known for deactivating UOR catalysts and compromising their long-term electrolysis durability, neodymium nickelate emerges as a promising solution. Its exceptional tolerance to CO<sub>x</sub> poisons endows it with notable electrocatalytic stability. Computational calculations in collaboration with Dr. Moumita Mukherjee and Prof. Ayan Datta from Indian Association for the Cultivation of Science (IACS), Kolkata, validate the experimental findings.

Published in ACS Catalysis, a journal dedicated to publishing experimental and theoretical research on catalytic materials, this work could direct future studies aiming to enhance the number of NiOOH species and stabilize these species on Ni<sup>3+</sup>-rich substrates.

The goal is to achieve improved performance with low mass loading of active Ni in the catalyst, marking a significant step towards sustainable and efficient hydrogen production.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2011830>



**Press Information Bureau  
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*Wed, 06 Mar 2024*

## **Biomanufacturing and Bio-foundry will drive India's future Bioeconomy and promote "Green Growth" says Union Minister Dr. Jitendra Singh**

**After policy shift Under PM Modi, Biotechnology research and bio start-ups are prioritised and have taken centre stage, says Dr. Jitendra Singh**

**Dr. Jitendra Singh addressed the 17th Annual International Biocuration Conference, India 2024 as Chief Guest**

**S&T Minister launches 'ICE'-Integrated Computing Environment, a cloud-based computational facility for life science researchers, besides 3 data Submission portals**

**"India has reached to nearly 6,000 bio-startups from 50 in the past 10 years": Dr. Jitendra Singh.**

**India has conducted the first human clinical trial of gene therapy for haemophilia A (FVIII deficiency)**

Biomanufacturing and Bio-foundry will drive India's future bioeconomy and promote "Green Growth", said Union Minister of State (Independent Charge) for Science & Technology, MoS PMO, Department of Atomic Energy, Department of Space, Personnel, Public Grievances and Pensions, Dr Jitendra Singh while inaugurating the 17<sup>th</sup> Annual International Biocuration Conference (AIBC-2024) being organised by Indian Biological Data Centre (IBDC) at Regional Centre for Biotechnology (RCB), in Faridabad, Haryana.

"After a policy shift under Prime Minister Shri Narendra Modi, Biotechnology research and Bio StartUps are prioritised and have taken centre stage", he said.

Dr. Jitendra Singh said, "In keeping with India's realisation of a global vision, the recent 'Vote-on-Account' envisages an exclusive scheme to promote biomanufacturing and bio-foundry".

He said, the scheme will help transform today's consumptive manufacturing paradigm to the one based on regenerative principles. It will provide environment-friendly alternatives such as biode-

gradable polymers, bio-plastics, bio-pharmaceuticals and bio-Agri-inputs to supplement Bio-Start-Ups and bio-economy, he added.

On the occasion, Dr. Jitendra Singh launched 'ICE'-Integrated Computing Environment, a cloud-based computational facility for life science researchers. ICE is a dedicated Supercomputing environment accessible across the country and aims to build a cloud environment for storing, retrieving and analysing genomic data.

Dr. Jitendra Singh also launched 3 data Submission portals-1. Indian Nucleotide Data Archive – Controlled Access (INDA-CA) portal 2. Indian Crop Phenome Database Portal, & 3. Indian Metabolome Data Archive Portal.

Addressing the conference, which is the first ever Biocuration conference happening in India, the Science and Technology minister said, India developed the 1<sup>st</sup> ever DNA- Vaccine for Covid-19. The world acknowledges India's progress in robust vaccine development capacity which has been proved during COVID pandemic, and India is hailed as a global leader in Preventive Healthcare.

He also shared that India is making its 1<sup>st</sup> ever vaccine for Human Papilloma Virus (HPV) which will be administered to all school going adolescent girls to prevent them from cervical cancer.

Dr Jitendra Singh said that in the last 10 years under PM Modi, India's bio-economy has grown 13 folds from \$10 billion in 2014 to over \$130 billion in 2024. India is now being rated among top 12 biotechnology destinations in the world, he said.

"India has reached to nearly 6,000 bio-startups from 50 in the past 10 years", said Dr.Jitendra Singh.

Dr. Jitendra Singh said, "It is the best time for Bio-Technology, highlighting the progress of biotechnology in India".

"India has a huge wealth of bioresources, an unsaturated resource waiting to be harnessed and an advantage in Biotechnology especially due to the vast biodiversity and the unique bioresources in the Himalayas. Then there is the 7,500 kms long coastline and last year we launched the Deep Sea Mission which is going to dig the biodiversity beneath the seas," he said.

The Union Minister said, value addition in the Indian economy can be achieved through Bio-economy, Blue economy and Space economy. He also added that India is not only on the same page as the world but also ahead in many sectors.

Dr. Rajesh Gokhale, Secretary, Department of Bio-Technology and Dr. Arvind Sahu, Executive Director, RCB and Dr. Suchita Ninawe, Advisor, DBT along with foreign delegates and scientists from across the globe were present during the conference.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2011934>

## **Chandrayaan-4 will be launched in two phases, both LVM-3, PSLV to be used**

The Indian Space Research Organisation (Isro) after its historic success with the Chandrayaan-3 mission is already gearing up for the next lunar mission named Chandrayaan-4.

The mission will not be launched in a single phase like its predecessor, instead, two separate launches will push vehicles that will not only land on the Moon but also return rocks and soils (lunar regolith) from the lunar surface to India.

While Chandrayaan-3 consisted of three main components - lander, rover and the propulsion module, the Chandrayaan-4 mission will have two more additional components tasked to return the samples from the Moon and drop them on Earth.

### **Chandrayaan-4 Components**

The Chandrayaan-4 components will consist of five spacecraft modules, according to a presentation by ISRO chief S Somnath at the National Space Science Symposium. The five modules will be:

- \* **Propulsion Module:** Similar to Chandrayaan-3, the propulsion module will guide Chandrayaan-4 in lunar orbit, before separating.
- \* **Descender Module:** This module will make the lunar landing, similar to the Vikram lander on Chandrayaan-3.
- \* **Ascender Module:** Once the samples are collected and stored, the ascender module will eject from the lander and begin returning to Earth.
- \* **Transfer Module:** It will be responsible for grabbing the ascender module and getting it out of lunar orbit. It will journey back to Earth before the capsule with the rock and soil samples detach.
- \* **Re-entry Module:** This will be the capsule carrying the lunar regolith that will land on Earth after a return journey from the Moon.

### **Two Separate Launches**

The five components of the Chandrayaan-4 mission will not be launched together. According to Isro Chief, India's heaviest launch vehicle LVM-3 will launch with three components, which will include the Propulsion Module, the Descender Module and the Ascender Module.

This will be a similar launch to the Chandrayaan-3 mission in 2023.

The Transfer Module and the Re-entry Module will be launched aboard a Polar Satellite Launch Vehicle (PSLV). Isro is yet to reveal finer details as to which launch will be the first.

This will, however, be the first such mission involving two launch vehicles aimed at completing a single mission.

Chandrayaan-4 aims to build on the accomplishments of the recently concluded Chandrayaan-3 mission while attempting more complex objectives. If successful, Chandrayaan-4 will make India only the fourth nation to bring back samples from the lunar surface.

<https://www.indiatoday.in/science/story/chandrayaan-4-will-be-launched-in-two-phases-both-lvm-3-pslv-to-be-used-2511197-2024-03-06>

## THE TIMES OF INDIA

*Thu, 07 Mar 2024*

### **How Sriharikota's little sister boosts India's Space ambitions**

The latest launchpad for India's expansive space goals is coming up close to the southern tip of Tamil Nadu, not very far from Kanniyakumari. PM Narendra Modi laid the foundation stone for Kulasekarapattinam spaceport on February 28 and the facility is expected to start operations in two years. Spread over 2,292 acres across three villages in two taluks and expected to cost about Rs 986 crore, the site will be handling the launch of smaller satellites.

Ready in 2 years Soon after the PM had left, an RH-200 rocket lifted off from a makeshift launchpad from the site off Bay of Bengal. Close to 60 years back, Indian Space Research Organisation (Isro) had fired its first Rohini rocket from the sleepy fishing village of Thumba in Thiruvananthapuram on the western coast.

If the launch of another sounding rocket, from Kulasekarapattinam this time, reminds of the historic first scripted in Kerala, it also forms the prologue to Indian space programme's next leap into the future.

ISRO chairman S Somanath has said the new spaceport will be ready in two years. While Satish Dhawan Space Centre at Sriharikota has two launchpads, Kulasekarapattinam will begin with one launchpad. But like at Sriharikota, it will also have rocket integration facilities, a mobile launch structure and checkout computers. The upcoming launchpad will be used for launching Isro's Small Satellite Launch Vehicle (SSLV) rocket, which carries relatively smaller satellites.

#### **Locational advantage**

Rockets launched from Kulasekarapattinam can save fuel as it avoids the need for a special flight path. Unlike a PSLV rocket launched from Sriharikota. PSLV rockets have to perform what is known as a 'dogleg manoeuvre', a sharp turn to deviate from a straight flight path.

The manoeuvre, dictated by the need to avoid flying over Sri Lanka so as to spare it the risk of falling space debris, entails an extra consumption of fuel. That, in turn, translates into reduced payload capacity. A rocket launched from Kulasekarapattinam can fly straight south, which means greater payload ratio.



### **Small satellites, big money**

Kulasekarapattinam will launch nano- and microsatellites, which are becoming the preferred tools for navigation and remote sensing due to their affordability. Experts say the global small satellite market, valued at \$3.2 billion in 2020, is projected to touch \$13.7 billion by 2030. Isro has launched 432 satellites for 34 countries, including micro- and nanosatellites, and is now aiming to tap into the global small satellite market with its SSLV rocket. The new complex can do two launches a month, catering to global demand for launching small satellites, Isro said. The new spaceport will also see more private sector participation on both launch vehicles and satellite services. In 2022, the Centre opened the space sector to private players In 2022, the Centre opened the space sector to private players and recently permitted 100% FDI in it.

### **More tech, more jobs**

With an eye on creating an ecosystem for space technology industries, Tamil Nadu govt is planning to set up a space industrial and propellant park on 2,000 acres close to the spaceport. The park, to be set up by the Tamil Nadu Industrial Development Corporation, is expected to create an industry cluster and spark job creation. It will have facilities for manufacturing propellant required for space activities and building launch vehicles, satellites and related equipment.

<https://timesofindia.indiatimes.com/india/how-sriharikotas-little-sister-boosts-indias-space-ambitions/articleshow/108280313.cms>

