

अप्रैल  
April  
2023

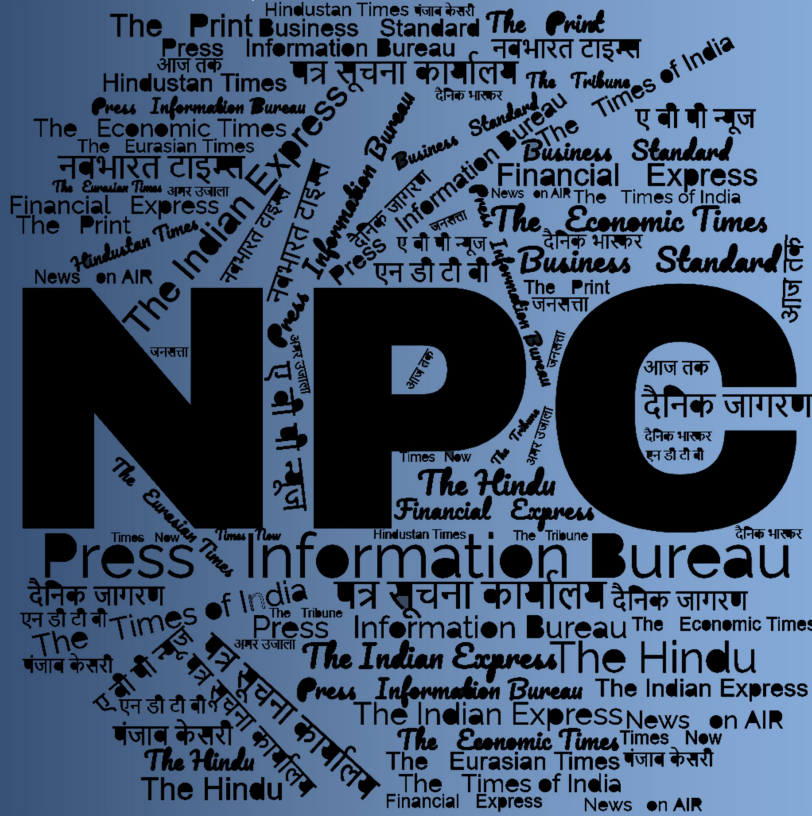
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13/04/2023

# समाचार पत्रों से चयित अंश Newspapers Clippings

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

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# DRDO News

## DRDO on Twitter



**DRDO**   @DRDO\_India

[#DRDOUpdates](#) | Academia-Industry meet on Defence Communication, organised by DEAL, Dehradun was inaugurated by Dr B K Das, DG (ECS) in presence of Shri LC Mangal Director DEAL & Prof Durgesh Pant Director Uttarakhand State Council for S&T(UCOST)  
[@DefenceMinIndia](#)  
[@SpokespersonMoD](#)



4:44 PM · Apr 12, 2023 · 6,754 Views

18 Retweets 1 Quote 184 Likes

**DRDO**   @DRDO\_India · 17h

Two-day meet has participation from more than 20 industries, numerous academic institutions and over 85 delegates to deliberate upon the advance and future trends in Defence Communication.

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Press Information Bureau  
Government of India

Ministry of Defence

*Wed, 12 Apr 2023*

## **Robust Defence Finance System Backbone of Strong Military; Need to Maximise the Value of Money Spent on Security Needs: Raksha Mantri at International Conference on Defence Finance & Economics in New Delhi**

**Shri Rajnath Singh calls for judicious use of financial resources, advice based on sound economic analysis, internal audit and payment & accounting**

**“Rule of competitive bidding through open tender must be followed in defence procurement”**

Raksha Mantri Shri Rajnath Singh has stressed on the need to devise innovative methods to maximise the value of money spent on the security needs of the country, terming a robust defence finance system as the backbone of a strong military. Inaugurating the three-day International Conference on Defence Finance & Economics in New Delhi on April 12, 2023, Shri Rajnath Singh asserted that a legal and procedural defence-finance framework is an integral part of a mature state system, which ensures prudent management of the defence expenditure.

The Raksha Mantri stated that such a framework, which includes expenditure control as per guidelines, financial advice by professionals, audit, payment authentication mechanism, etc., ensures that the defence spending is well within the allocated budget and the full value of money is realised. He emphasised that while the Armed Forces require a superstructure of defence ecosystem, involving R&D organisations, industries, soldier welfare organisations, etc., they also need a well-funded system with a robust architecture to ensure the optimum and judicious use of financial resources.

Shri Rajnath Singh was of the view that it is difficult to apply the economic concept of full value of money in defence expenditure, as in this sector, there is no visible revenue stream and no easily identifiable beneficiaries. To maximise the value of money spent, he stressed that the rule of competitive bidding through open tender must be followed in defence procurement.

“In the case of procurement of defence platforms/equipment, either under capital or revenue route, the gold standard of Open Tender should be adopted to the extent possible. A competitive bid based procurement process, which is open to all, is the best possible way to realise the full value of the public money being spent. There would be some rare cases when it may not be

possible to go for an open tender process. Such instances should come under exceptions and exceptions should not become the rule,” the Raksha Mantri said.

Shri Rajnath Singh underscored the importance of comprehensive Blue Books, codifying the rules and procedures of procurement of defence equipment & systems for a fair and transparent system. He said, with this vision, the Government has formulated Blue books in the form of Defence Acquisition Procedure 2020 for capital acquisition; Defence Procurement Manual for revenue procurement and Delegation of Financial Powers to Defence Services. “These manuals play a very important role in ensuring that the process of defence procurement is rule-bound and follows the principles of financial propriety. Since these manuals are critical, they need to be carefully crafted by defence finance and procurement experts in consultation with all the stakeholders. This needs to be a continuous exercise, so that these documents are dynamically updated, incorporating new rules and procedures as and when required,” he said.

The Raksha Mantri also emphasised on the role of expert financial advice to the Service personnel in day-to-day financial matters. He said, the system of Integrated Financial Advisor (IFA) has been created to provide financial advice to the Competent Financial Authority (CFA) in order to help them in avoiding the wastage of public money. In this system, the IFA and CFA work as a team towards utilising public money in a prudent manner, he said.

Shri Rajnath Singh batted for a fool-proof system of internal and external audit which would tackle the instances of wastages, pilferage and corruption, if any, even after following the principles of financial prudence and propriety. The role of auditors is that of a watchdog or a sentinel, he said.

The Raksha Mantri also elaborated on the need for a sound system of accounting, passing of bills and payment, salary and pension disbursement, etc., as it frees the Armed Forces personnel to concentrate on their core jobs. He added that the separation of functions of defence finance from the core defence organisations has multiple advantages. “The chances of leakages, corruption, wastages are reduced. A positive public opinion is generated when there is a justified confidence that public money is being spent optimally and prudently. With greater public trust and confidence in the system of defence expenditure, the defence system benefits overall, as the chances of greater funding by legislature increases pari-passu (Latin for equal footing),” he said.

Shri Rajnath Singh asserted that the central idea is that defence establishments like Army, Navy, Air Force, Defence Research organisations etc. require a specialised agency, which is dedicated to defence finance and economics. In India, this work is being done competently by the Defence Accounts Department under the leadership of Financial Advisor (Defence Services), he said.

Before the international delegates, the Raksha Mantri also put forth the idea of shared security. “In the spirit of collective security of the whole world as one family, we are all partners in the path towards a secure and prosperous future for the entire humankind. We have a lot to learn from your experiences in the field of defence finance and economics and we are ready to share our learning with you,” he said.

The Raksha Mantri stated that the full potential of society’s development can be realised only when it is secure from external and internal threats. He described security of the people from external aggression and internal disruptions as the prime function of the state. Security is the bedrock on which the prosperity, arts and culture of any society flourish and prosper, he said. Chief of Defence Staff General Anil Chauhan, Chief of the Army Staff General Manoj Pande,

Secretary (Ex-Servicemen Welfare) Shri Vijoy Kumar Singh, Secretary, Department of Defence R&D & Chairman DRDO Dr Samir V Kamat, Financial Advisor (Defence Services) Smt Rasika Chaube, Additional CGDAs Shri Praveen Kumar & Shri SG Dastidar and delegates from within in the country & abroad were present on the occasion.

The three-day conference, organised by the Ministry of Defence (Finance), will witness the participation of eminent policy makers, academics and government officials from India and abroad, including from USA, UK, Japan, Australia, Sri Lanka, Bangladesh & Kenya. It will provide a platform to them to share their insights and experiences on Defence Finance and Economics in the context of evolving security challenges and policies globally.

The conference aims to foster dialogue and collaboration among the participants and contribute to the country's defence readiness with optimum financial resources and effective implementation of the Defence Budget. The objective is to disseminate best practices, experiences & expertise of various countries and align processes in the Indian context with international standards. It also hopes to facilitate collaborations with foreign governments, international institutions and global leaders in the domain of Defence Finance and Economics to support the Government's ongoing efforts on indigenisation and self-reliance in the Defence sector, and to advance transformative reforms.

The topics of discussion will include current challenges and opportunities in the areas of Defence Finance and Economics, such as how to allocate and use resources efficiently & effectively and how to manage logistics in a cost-conscious way. The participants will also deliberate upon different models and practices of finance and economics related to Defence Acquisition around the world as well as the latest developments and innovations in Defence Research and Development.

In addition, the discussions will address best practices on managing human resources in Defence, including issues related to pay, pensions and welfare of Defence Personnel and the role & functions of oversight mechanisms within defence ecosystems.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1915843>



*Thu, 13 Apr 2023*

## **Rajnath Singh Bats for Competitive Bidding through Open Tender in Defence Procurement**

Union Minister for Defence Rajnath Singh stressed the need to devise innovative methods to maximise the value of money spent on the security needs of the country, terming a robust defence finance system as the backbone of a strong military.

Inaugurating the three-day International Conference on Defence Finance and Economics in New Delhi on Wednesday, Rajnath Singh asserted that a legal and procedural defence-finance

framework is an integral part of a mature state system, which ensures prudent management of the defence expenditure.

The Defence Minister stated that such a framework, which includes expenditure control as per guidelines, financial advice by professionals, audit, payment authentication mechanism, etc., ensures that the defence spending is well within the allocated budget and the full value of money is realised.

He emphasised that while the armed forces require a superstructure of defence ecosystem, involving R&D organisations, industries, soldier welfare organisations, etc., they also need a well-funded system with a robust architecture to ensure the optimum and judicious use of financial resources.

The Union Minister was of the view that it is difficult to apply the economic concept of full value of money in defence expenditure, as in this sector, there is no visible revenue stream and no easily identifiable beneficiaries. To maximise the value of money spent, he stressed that the rule of competitive bidding through open tender must be followed in defence procurement.

“In the case of procurement of defence platforms/equipment, either under capital or revenue route, the gold standard of open tender should be adopted to the extent possible. A competitive bid-based procurement process, which is open to all, is the best possible way to realise the full value of the public money being spent. There would be some rare cases when it may not be possible to go for an open tender process. Such instances should come under exceptions and exceptions should not become the rule,” he said.

Rajnath Singh underscored the importance of comprehensive blue books, codifying the rules and procedures of procurement of defence equipment & systems for a fair and transparent system. He said, with this vision, the Government has formulated blue books in the form of Defence Acquisition Procedure 2020 for capital acquisition; Defence Procurement Manual for revenue procurement and Delegation of Financial Powers to Defence Services.

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“The chances of leakages, corruption, wastages are reduced. A positive public opinion is generated when there is a justified confidence that public money is being spent optimally and prudently. With greater public trust and confidence in the system of defence expenditure, the defence system benefits overall as the chances of greater funding by legislature increases pari-passu (Latin for equal footing),” he said.

Rajnath Singh asserted that the central idea is that defence establishments like Army, Navy, Air Force, Defence Research organisations require a specialised agency, which is dedicated to defence finance and economics. In India, this work is being done competently by the Defence Accounts Department under the leadership of financial advisor (defence services).

### **INTERNATIONAL CONFERENCE ON DEFENCE FINANCE AND ECONOMICS**

The three-day conference, organised by the Ministry of Defence (Finance), will witness the participation of eminent policy makers, academics and government officials from India and abroad, including from USA, UK, Japan, Australia, Sri Lanka, Bangladesh and Kenya. It will provide a platform to them to share their insights and experiences on Defence Finance and Economics in the context of evolving security challenges and policies globally.

The conference aims to foster dialogue and collaboration among the participants and contribute to the country's defence readiness with optimum financial resources and effective implementation of the Defence Budget. The objective is to disseminate best practices, experiences and expertise of various countries and align processes in the Indian context with international standards.

It also hopes to facilitate collaborations with foreign governments, international institutions and global leaders in the domain of Defence Finance and Economics to support the government's ongoing efforts on indigenisation and self-reliance in the defence sector and to advance transformative reforms.

<https://www.indiatoday.in/india/story/rajnath-singh-bats-for-competitive-bidding-through-open-tender-in-defence-procurement-2359284-2023-04-13>



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

**Ministry of Defence**

*Wed, 12 Apr 2023*

## **Exercise Cope India 2023**

The next phase of the Exercise Cope India 23 will commence at Air Force Station Kalaikunda on 13 April 2023. This segment of the exercise will witness participation of B1B bombers of the United States Air Force (USAF). F-15 fighter aircraft of the USAF will also join the exercise subsequently. The Indian Air Force (IAF) element will include the Su-30 MKI, Rafale, Tejas and Jaguar fighter aircraft. The exercise will be supported by aerial refuellers, Airborne Warning and Control System and Airborne Early Warning and Control aircraft of the IAF. The exercise will conclude on 24 April 2023.



Like the air mobility component of the Ex Cope-India -23, this phase will also help enhance professional relations between the two air forces, while sharing the best practices between them. Personnel from the Japanese Air Self Defence Force will also observe the exercise and interact with the two participating air forces.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1915928>



*Wed, 12 Apr 2023*

## **Exercise Cope India 23 Kickstarts April 13; Rafale, Sukhoi and US' B1B, F-15 Jet to be in Action – Details**

Amid tensions with China, India and the United States of America will begin military exercise from April 13, 2023. The Exercise Cope India 23 will commence at Air Force Station Kalaikunda on Thursday.

India's frontline fighter aircraft including Rafale, Sukhoi-30 MKI, Tejas and Jaguars will participate in the Exercise Cope India 23. The Indian Air Force (IAF) will also be deploying its other military assets like aerial refuellers, Airborne Warning and Control System and Airborne Early Warning and Control aircraft for the exercise.

The United States Air Force (USAF) has announced that B1B bombers and F-15 fighter aircraft will participate in the Exercise Cope India 23.

Exercise Cope India 23 will conclude on April 24, 2023.

The exercise will help enhance professional relations between the USAF and IAF.

Interestingly, personnel from the Japanese Air Self Defence Force will also observe the exercise and interact with IAF and the USAF, Defence Ministry reported.

India-China border row

It may be noted that India and Japan have border issues with China.

In 2022, Beijing had strongly objected to the joint Indo-US military exercises that were near the Line of Actual Control (LAC) in November.

The 18th edition of the India-US joint military exercise 'Yudh Abhyas' was conducted in Uttarakhand, about 100 km from the LAC.

Since May 2020, India and China have been engaged in a bitter border dispute in eastern Ladakh. The tensions between the nuclear-powered neighbours simmered following Galwan Valley clash.

Following the Galwan clash, India and China had deployed military equipment near the LAC.

India has maintained that People's Liberation Army's (PLA) attempts to move a large number of troops to the disputed areas in the LAC violated the bilateral agreements.

<https://www.timesnownews.com/india/exercise-cope-india-23-kickstarts-april-13-rafale-sukhoi-and-us-b1b-f-15-jet-to-be-in-action-details-article-99439534>

*Wed, 12 Apr 2023*

## **Defence Ministry to Buy Hundreds of Electric Light Vehicles for Indian Army, IAF**

The Defence Ministry is seeking potential bidders for the procurement of 439 light electric vehicles for the Indian Army and the Indian Air Force (IAF).

According to media reports, 415 of these electric light vehicles will be procured for the Indian Army while 24 will be given to the Indian Air Force (IAF).

Apart from this, the defence ministry will also procure 35 fast chargers for these electric light vehicles of which 29 will go to the Indian Army and 6 to the IAF.

These electric light vehicles will be procured under the “Buy (Indian-IDDMM)” category with at least 50% indigenous content.

According to the conditions set down by the ministry of defence, these electric light vehicles should be capable of reaching speeds of up to 120 kmph and have a range of 400 km.

These vehicles should also be able to carry payloads of 900 kg and have a motor life of at least 8 years or 160,000 km.

The Indian Army intends to conduct field evaluation trials with suppliers that submit bids. In order to attain net zero carbon emissions, the Indian Army plans to replace its current fleet of Light vehicles with electric ones that are powered by Internal Combustion Engine (ICE) technology.

<https://www.firstpost.com/india/defence-ministry-to-buy-hundreds-of-electric-light-vehicles-for-indian-army-iaf-12444512.html>



*Wed, 12 Apr 2023*

## **China Warns as US, Philippines Stage Combat Drills**

China warned on Wednesday that a deepening security alliance between the United States and the Philippines should not harm its security and territorial interests and interfere in long-simmering territorial disputes in the South China Sea.

When asked to comment on the combat exercises between American and Filipino forces that started on Tuesday in the Philippines, the Chinese Embassy in Manila on Wednesday issued a statement by Chinese Foreign Ministry spokesperson Wang Wenbin, who said that such drills “should not target any third party and should be conducive to regional peace and stability.”

Wang did not say how China would respond if it concludes that the US-Philippine security cooperation was hurting Beijing's core interests.

In Washington, the US and Philippine defence and foreign secretaries met on Tuesday to discuss the development of nine Philippine military camps, where American forces have been allowed to stay indefinitely under the 2014 Enhanced Defence Cooperation Agreement.

“These sites will support combined training exercises and interoperability between our forces to ensure that we're even better prepared for future crises,” Defence Secretary Lloyd Austin said.

He added the US was allocating more than \$100 million to build infrastructure at the sites, where Americans would be stationed.

China has strongly opposed that agreement, which would allow American forces to establish military staging grounds and surveillance outposts in the northern Philippines across the sea from the Taiwan Strait and in western Philippine provinces facing the disputed South China Sea, which Beijing claims virtually in its entirety on historical grounds. Washington disputes China's claims.

Austin said he also discussed with his Philippine counterpart, Carlito Galvez, the US delivery of much-needed defence equipment, including radars, unmanned aerial systems, military transport aircraft and coastal and air defence systems to Philippines over the next five to 10 years under a security assistance roadmap.

This year's Balikatan exercises between the treaty allies are the largest since the two sides started joint military combat-readiness exercises in the early 1990s. They will run until April 28 and involve more than 17,600 American and Filipino personnel and a small Australian contingent. About a dozen countries including Japan and India but not China were sending observers, organizers said.

In a live-fire drill the allies will stage for the first time, US and Filipino forces will sink a ship in Philippine territorial waters off western Zambales province on April 26 in a coordinated coastal artillery bombardment and airstrike, Col. Michael Logico, a Philippine spokesman for Balikatan, told reporters on Tuesday.

President Ferdinand Marcos Jr. has been briefed about the live-fire drill and plans to watch it, Logico said.

In Palawan, which faces the South China Sea, the exercises will involve beach assaults and retaking an island seized by enemy forces, Logico said.

Marcos, who took office in June last year, has nurtured closer relations with Washington than his predecessor, Rodrigo Duterte, who often lashed out at US security policies while praising China and Russia.

Duterte tried to abrogate a key defence pact that would have restrained American forces from entering the Philippines for large-scale war drills but later backpedalled from the effort.

Left-wing activists and nationalists have steadfastly opposed American military presence in the Philippines, a former US colony where America remains popular among Filipinos based on independent polls. “The Philippines is caught in an inter-imperialist conflict between the US and China,” Renato Reyes of the left-wing Bayan alliance said. “We are merely being used as a footstool for American power projection and provocation in the region.”

The drills are the latest display of American firepower in Asia, as the Biden administration strengthens an arc of alliances to better counter China, including in a possible confrontation over Taiwan, an island democracy that Beijing claims as its own.

That dovetails with efforts by the Philippines under Marcos to defend its territorial interests in the South China Sea.

The ongoing drills, which started in the early 1990s, will showcase US warships, fighter jets, Patriot missiles, HIMARS rocket launchers and anti-tank Javelins, according to US and Philippine military officials.

<https://www.deccanherald.com/international/world-news-politics/china-warns-as-us-philippines-stage-combat-drills-1208927.html>

## THE ECONOMIC TIMES

*Wed, 12 Apr 2023*

### **Taiwan says China Planning to Close Airspace amid Military Drills**

China plans to close airspace north of Taiwan next week, the self-ruled island's defence ministry said on Wednesday, which could disrupt flights in the region amid rounds of intense military drills by Beijing.

When asked about an earlier Reuters report on the airspace's closing, Yan Yu-hsien, deputy chief of the general staff for intelligence from Taiwan's defence ministry, said the "no-fly zone" would fall within the country's air defence identification zone (ADIZ), about 85 nautical miles north of its shores. "We all know that there are many international flights to Japan and the United States from Taiwan's north," Yan said, adding that the ministry was aware of the development and was closely monitoring it.

An ADIZ is a section of international airspace countries can arbitrarily define as theirs to monitor. Chinese foreign ministry spokesman Wang Wenbin said he was unaware of the situation.

Japan said on Wednesday China had notified it about a no-fly zone near Taiwan from April 16-18, saying it related to aerospace activities. The closings will coincide with a meeting of Group of Seven (G7) foreign ministers scheduled to take place in Japan the same dates.

One senior government official with direct knowledge of the matter said the flight ban would affect 60%-70% of flights between Northeast Asia and Southeast Asia, as well as flights between Taiwan and South Korea, Japan and North America. The official declined to be named because of the sensitivity of the matter. When China imposed such restrictions during military drills last August, there were significant disruptions to flights in the region, with some aircraft required to carry extra fuel, according to OPSGROUP, an aviation industry cooperative that advises on flight risks.

Japanese authorities said that there were no major flight cancellations to or from Japan during those drills.

## **STORMY SEAS**

Earlier on Wednesday, China said President Tsai Ing-wen was pushing Taiwan into "stormy seas" after meeting with U.S. House Speaker Kevin McCarthy in California.

Tsai said the overseas trip, which included the meeting with McCarthy in the U.S. and stops in Guatemala and Belize, showed the world Taiwan's determination to defend freedom and democracy. The trip infuriated Beijing, prompting days of military drills designed to show it could forcefully retake control of the self-ruled island, which China claims as its own.

China views Tsai as a separatist and has rebuffed repeated calls from her for talks. Tsai says she wants peace but that her government will defend Taiwan if it is attacked. "Tsai Ing-wen brought danger to Taiwan. Tsai Ing-wen almost completely sided the United States, pushing Taiwan into stormy seas," China's Taiwan Affairs Office (TAO) spokesperson Zhu Fenglian said on Wednesday.

Zhu said the drills around Taiwan were "a serious warning against the collusion and provocation of Taiwan independence separatist forces and external forces".

Tsai, who returned to Taiwan a day before the drills began, said the trip had been a success in winning support against an aggressor that was threatening the island's freedom. "Through this trip we again sent a message to the international community that Taiwan is determined to safeguard freedom and democracy which won acknowledgment and support from our democratic partners," Tsai said as she met Canadian lawmakers at her office in Taipei.

"Faced with continued authoritarian expansionism it is even more critical for democracies to actively unite," she added. "Canada is a very important democratic partner. We are willing to do our utmost to jointly safeguard the values of freedom and democracy with Canada and many more like-minded international partners."

Despite the tensions with China, Tsai looked relaxed as she greeted the 10 Canadian legislators, even cracking a joke. Beijing has continued military activities around Taiwan, despite announcing the three days of drills had ended as scheduled on Monday.

The ministry said earlier on Wednesday that in the previous 24 hours it had detected 35 Chinese military aircraft and eight navy vessels around Taiwan.

Of those aircraft, 14 had crossed the median line of the Taiwan Strait, according to a ministry-provided map; the line normally serves as an unofficial barrier between the two sides.

The aircraft crossing the median line included five Su-30 fighters at its northern end, with the other planes crossing at points in the centre and south. Although Chinese fighters previously only occasionally crossed the median line, the country's air force has done so regularly since staging war games near Taiwan in August, after a visit to Taipei of then-U.S. House Speaker Nancy Pelosi. China says it does not recognise the existence of the line.

Taiwan's government strongly rejects China's sovereignty claims and says only Taiwan's people can decide their future.

<https://economictimes.indiatimes.com/news/defence/taiwan-says-china-planning-to-close-airspace-amid-military-drills/articleshow/99430794.cms>

*Wed, 12 Apr 2023*

## **Russia Tests ICBM that can 'Destroy a City, Evade All Air Defence Systems'**

Russia has executed a successful test launch of an “advanced” intercontinental ballistic missile, just weeks after suspending participation in its last remaining nuclear arms control pact with the US, according to AFP.

The Russian defence ministry stated in a statement that a “combat crew successfully launched an intercontinental ballistic missile (ICBM) of a mobile ground-based missile system” from its Kapustin Yar test site on Tuesday.

It added, “The missile’s training warhead hit a mock target at the Sary-Shagan training ground (Republic of Kazakhstan) with given precision.”

Since deploying soldiers into Ukraine last year, Russian President Vladimir Putin has voiced thinly veiled warnings that if Russia is attacked, he will use nuclear weapons.

Putin said in late February that Russia would withdraw from the New START deal, under which Russia and the United States committed to restrict nuclear stockpiles and submit to mutual inspections, according to AFP.

Less than three weeks ago, Putin declared that he will deploy tactical nuclear weapons in Belarus, bringing the nukes to the European Union’s doorstep.

Both moves drew condemnation from NATO.

While the Russian defence ministry did not specify the type of missile used in Tuesday’s launch, it said the exercise’s purpose “was to test advanced combat equipment of intercontinental ballistic missiles”.

It added, “This launch made it possible to confirm the correctness of the circuit design and technical solutions used in the development of new strategic missile systems.”

Following concerns that the weapon had failed a recent test, Putin stated in February that a new type of ICBM will be deployed this year.

The Sarmat, called “Satan 2” by Western commentators, is capable of carrying multiple nuclear warheads and is one of Putin’s “invincible” next-generation missiles, reported AFP.

<https://www.firstpost.com/world/russia-conducts-successful-test-launch-of-advanced-intercontinental-ballistic-missile-12442322.html>

*Wed, 12 Apr 2023*

## **Japan Progresses Hypersonic and Long-Range Missile Programmes**

Japan's Ministry of Defense (MoD) has signed a contract with Mitsubishi Heavy Industries (MHI) to develop and mass-produce upgraded Type 12 surface-to-ship missiles (SSMs).

The MoD also signed the contracts to mass-produce hypersonic glide vehicles (HGVs) and develop a submarine-launched guided missile with MHI.

An MoD spokesperson told Janes the ministry allocated JPY33.8 billion (USD253 million) for the development of Type 12 SSMs in the 2023 budget draft and expects the total cost required for research and development to be approximately JPY150 billion. "The development of [the] upgraded Type 12 SSMs is scheduled to be completed in financial year (FY) 2028," the spokesperson added. According to the MoD, the upgraded Type 12 SSM can be launched from land, aircraft, and surface combatants.

Janes assesses that the features of the upgraded Type 12 SSM include an extended range from 200–1,000 km, an increased missile length, a modified shape, an up-to-date command (UTDC) link, and increased engine endurance to support longer operations.

Japan refers to its HGV programme as the Hyper Velocity Gliding Projectile (HVGP) project.

In FY 2023 budgetary documents, the MoD allocated funding to the HVGP project worth JPY50.5 billion. A total of 31% of this funding has been allocated to research and the remainder to early production activities.

<https://www.janes.com/defence-news/defence/latest/japan-progresses-hypersonic-and-long-range-missile-programmes>

*Wed, 12 Apr 2023*

## **Iran's IRGC Unveils New Attack UAV**

Iran's Islamic Revolution Guard Corps (IRGC) has developed a new type of one-way-attack unmanned aerial vehicle (UAV) called the Meraj-532, the Tasnim News Agency reported on 9 April.

It cited General Ali Kouhestani, the head of the IRGC Ground Force's Research and Self-Sufficiency Jihad Organisation, as saying the Meraj-532 'suicide drone' had been successfully tested. He said the UAV has been designed so it can be rapidly set up for launch from a vehicle and is powered by a piston engine. It has a range of 450 km, an endurance of three hours, a 50 kg warhead, and can fly at 12,000 ft.



The Meraj-532 one-way-attack UAV shown on a launch vehicle. (Tasnim News Agency)

Tasnim released a video showing a UAV with an X-tail being launched from a frame mounted on the bed of a moving pickup truck and hitting a shipping container on a range. It had a pitot tube for gathering data for an onboard navigation system, indicating it has an autonomous flight capability, as well as an antenna that would enable an operator to either control it from the ground or update its target co-ordinates during flight.

<https://www.janes.com/defence-news/air-platforms/latest/irans-irgc-unveils-new-attack-uav>

## Science & Technology News



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

**Ministry of Science & Technology**

*Wed, 12 Apr 2023*

### **DST Institute to Partner Indian Navy in Developing Secure Maritime Communications using Quantum Technology**

Quantum technologies will soon be used to develop secure maritime communications in a joint effort by the Raman Research Institute (RRI) and the Indian Navy.



RRI, an autonomous institute of the Department of Science and Technology (DST), inked a Memorandum of Understanding (MoU) with the Weapons and Electronics Systems Engineering Establishment (WESEE), the R&D establishment of the Indian Navy, during a ceremony held in New Delhi recently. The MoU, which is for a period of five years, was signed between Professor Tarun Souradeep, Director, RRI, and Vice Admiral Sandeep Naithani, Chief of Materiel, Indian Navy.

Under this agreement, RRI's Quantum Information and Computing (QuIC) lab will lead the research efforts towards developing quantum key distribution techniques that the Indian Navy could leverage in the nation's efforts towards securing free space communications.

#### **The MoU was signed in New Delhi/ Credit: Indian Navy**

"I am absolutely delighted that Indian Science and Technology ecosystem has been opening borders in recent years that enable talented and world-class researchers in the academic research institutions to contribute to the growth of Science and Technology capabilities in strategic areas of national importance. Porosity of the perceived boundary between fundamental and applied sciences as well as Science and Technology, will bode well in the coming decades. RRI feels proud to partner with WESEE in cutting edge Science and Technology," said Prof. Souradeep.

Professor Urbasi Sinha, Group Head, QuIC lab, said, "This is a great opportunity to use indigenously developed science and technology knowledge to serve our nation. We are excited with the collaboration and believe that with our expertise in the domain of secure quantum communications, we will be able to help foster cutting-edge research towards identification of potential maritime use-cases for the Indian Navy."

This lab has been leading the country's research in the field of secure quantum communication. Some of its major achievements include the development of an end-to-end simulation toolkit named "qkdSim", ensuring safety in communication platforms, establishing secure communication between two buildings, and, more recently, between a stationary source and a mobile receiver. QuIC lab also happens to be India's first laboratory to propose and implement a wide range of applications using single and entangled photons, particularly towards establishing secure communications in strategic areas like banking, defence, and cyber security.

For more details, Professor Urbasi Sinha may be contacted at [usinha@rri.res.in](mailto:usinha@rri.res.in)

<https://pib.gov.in/PressReleasePage.aspx?PRID=1915786>



*Thu, 13 Apr 2023*

## **European Space Agency Set to Launch Jupiter Icy Moons Explorer (Juice): What is the Mission about**

The European Space Agency (ESA) is all set to launch the Jupiter Icy Moons Explorer, or Juice, mission on Thursday (April 13) from its spaceport in French Guiana on an Ariane 5 launcher. Planned to reach Jupiter in 2031, the mission aims to carry out a detailed exploration of the Solar System's largest planet and its icy moons, which potentially have habitable environments.

Juice has been constructed by an industrial consortium led by Airbus Defence and Space — a division of the Airbus group responsible for the development and manufacturing of the corporation’s defence and space products — based on the parameters provided by the ESA.

Only two other spacecraft have ever examined Jupiter: the Galileo probe, which orbited the gas giant between 1995 and 2003, and Juno, which has been circling the planet since 2016. Notably, by the time Juice reaches Jupiter, another spacecraft, NASA’s Europa Clipper, would already be orbiting the planet — scheduled to be launched in October this year, Europa Clipper would arrive at Jupiter in 2030 and aims to study its Europa moon.

### **What is the Jupiter Icy Moons Explorer (Juice) mission?**

According to ESA’s website, the Juice “will make detailed observations of the giant gas planet and its three large ocean-bearing moons — Ganymede, Callisto and Europa”, by using remote sensing, geophysical and in situ instruments.

Scientists for quite some time have known that these three moons of Jupiter possess icy crusts, which they believe contain oceans of liquid water underneath, making them potentially habitable. Juice will help probe these water bodies by creating detailed maps of the moons’ surfaces and enable the scientists, for the first time, to look beneath them.

Although the mission will examine all three moons, the main focus will be on Ganymede, as it is the largest moon in the Solar System — larger than Pluto and Mercury — and the only one to generate its own magnetic field. Juice, which will move into Ganymede’s orbit after approximately four of arriving at Jupiter, will “use its suite of ten sophisticated instruments to measure how Ganymede rotates, its gravity, its shape and interior structure, its magnetic field, its composition, and to penetrate its icy crust using radar down to a depth of about nine km.,” ESA said. Another primary goal of the mission is to create a comprehensive picture of Jupiter by trying to understand its origin, history and evolution. Scientists believe that this would help them provide “much-needed insight into how such a planetary system and its constituents are formed and evolved over time, as well as revealing how possibly habitable environments can arise in Jupiter-like systems around other stars.”

Juice will also analyse the chemistry, structure, dynamics, weather, and climate of Jupiter and its ever-changing atmosphere.

### **Is Juice capable of detecting life?**

As mentioned before, as the three moons, Ganymede, Callisto and Europa, are believed to hold immense amounts of water, which could be around six times more than the volume of water in Earth’s oceans, there is a possibility that life is present on them. According to ESA, life on these moons could be in the form of microbes. “More advanced species might also be present, like the ones we detect in deep-sea trenches and at hydrothermal vents on Earth, such as various kinds of coral, worm, mussel, shrimp and fish,” it added.

However, Juice isn’t equipped to detect life. What it is capable of is finding out whether there could be places around Jupiter, inside the icy moons, where the necessary conditions, such as water, biological essential elements, energy, and stability, to sustain life are present.

Speaking to Space.com, Adam Masters, senior lecturer in space and atmospheric physics at Imperial College London and a member of the team that built one of the scientific instruments for Juice, said, “If life exists on these moons, we expect it to be in the water, and that’s very hard

to access.” This is because, she added, it’s not yet possible to go very deep underneath the ice crusts, where life might be present.

<https://indianexpress.com/article/explained/explained-sci-tech/european-space-agency-jupiter-icy-moons-explorer-juice-what-is-it-8552948/>

## THE TIMES OF INDIA

*Thu, 13 Apr 2023*

### **With PSLV-C55 Mission, ISRO Uses New Rocket INTEGRATION technique to Cut Time**

Isro is gearing up for the launch of PSLV-C55 mission next week and the lift-off is likely on April 22. Unlike previous launches, this launch is unique as integration of different stages of the rocket has been done in an innovative way to help reduce time in the assembly process. The PSLV-C55 is also the first rocket to be integrated at the new PSLV Integration Facility (PIF) and is said it will put a Singaporean satellite in space.

During previous PSLV missions, the entire space vehicle was integrated at the first launchpad with the help of the Mobile Service Tower (MST). However, Isro is following a new approach with the PSLV-C55 mission as the first and second stages will be integrated at the PIF centre and will be transferred to the first launch pad via the new mobile launch pedestal (MLP).

The new approach will allow the partial integration of a PSLV vehicle even if the first launch pad has been preoccupied with another launch and thus helps increase the launch frequency and allow the space agency to launch more missions in less time.

Isro’s workhorse PSLV or Polar Satellite Launch Vehicle is the third-generation rocket. Since its first successful launch in October 1994, it has emerged as the “reliable and versatile workhorse launch vehicle”. It has till now launched about 297 customer satellites for 33 countries to the low earth orbit (LEO).

In March, Isro’s heavy-lifter LVM3-M3 launched 36 satellites of UK-headquartered OneWeb, backed by Bharti Airtel, into space and successfully placed them in orbit. The OneWeb mission was Isro’s second launch of the year. In February, the space agency launched the SSLV-D2/EOS07 mission.

<https://timesofindia.indiatimes.com/india/with-pslv-c55-mission-isro-uses-new-rocket-integration-technique-to-cut-time/articleshow/99446716.cms>



*Thu, 13 Apr 2023*

### **India-Russia Discuss Tech Transfer, Making of 'RD-191' Semi-Cryo Rocket Engine**

WION has learnt that the Indian Government's Department of Space is facilitating the technology transfer of Russian-origin 'RD-191' semi-cryogenic rocket engines to Indian industry.

This technology transfer is meant to enable Indian industries to manufacture the Russian-origin rocket engine in India. This also opens up the possibility of exporting the made-in-India 'RD-191' engines and using the engine as part of India's heaviest rocket LVM3, thereby enhancing its payload carrying capability. India and Russia are learnt to have been in talks for a long time, regarding the sale of the 'RD-191' engines.

The 'RD-191' is a high-performance rocket engine fuelled by kerosene and liquid oxygen. It falls under the category semi-cryogenic, as its fuel kerosene can be stored at room temperature and the oxidiser liquid oxygen has to be stored at super-cooled temperatures (below -150 degrees Centigrade). India currently operates three kinds of engines on its operational rockets — solid-fuelled, liquid-fuelled and cryogenic (where liquid hydrogen and liquid oxygen are stored at super-cooled temperatures).

In a recent interview with the Russian News Agency Interfax, Andrey Elchaninov, First Deputy Director General of Russian Space Agency Roscosmos, was asked about the possibility of supplying India with RD-191 engines. He had said that India and Russia were discussing the details, characteristics and scope of deliveries of the RD-191 engines. "We hope to enter into a contract in the near future. We do not interrupt cooperation with anyone, we are open to all foreign customers" he said.

As the discussions are underway for the Russian-origin semi-cryogenic engine, the Indian Space agency ISRO is also gearing up for the maiden test of its indigenously-developed semi-cryogenic engine, a 2000kN engine powered by kerosene and liquid oxygen.

Dubbed as SCE-2000' the semi-cryo engine is being developed by ISRO's Liquid Propulsion Systems Centre, Thiruvananthapuram. While the engine is a standalone component, it is eventually integrated with fuel tanks and additional components, thereby completing what is known as a rocket stage. ISRO calls its semi-cryo stage 'SC-120'. For this engine, ISRO has developed a kerosene-based fuel that they call 'ISROSENE'.

In its latest annual report, ISRO had said that "the development of seven out of eight engine subsystems, have been completed. The intermediate configuration of the engine (Power Head Test Article) has been realised, wherein all the subsystems have been manufactured through Indian industries.

One ISROSENE propellant tank and two sets of LOX propellant tanks for the semi-cryogenic stage have been realised through industry, which has successfully undergone proof pressure tests. "We are getting ready for the first-ever test of the SCE-200". Dr. S. Somanath, Chairman, ISRO, told WION.

While liquid hydrogen and liquid oxygen are the most efficient cryogenic fuel combinations, storing liquid hydrogen in tanks is an extremely complicated and challenging engineering feat. Liquid hydrogen is explosive in nature and expensive to produce.

Rocket-grade kerosene is simpler to handle as it can be stored at room temperature and owing to its high-density, large quantities can be stored in moderate-sized tanks. The low-density of liquid hydrogen means that large tanks are required to store even a small quantity of it, thereby increasing the size and mass of the rocket stage.

<https://www.wionews.com/india-news/exclusive-india-russia-discuss-tech-transfer-making-of-rd-191-semi-cryo-rocket-engines-581784>

