

सितम्बर

Sep  
2023

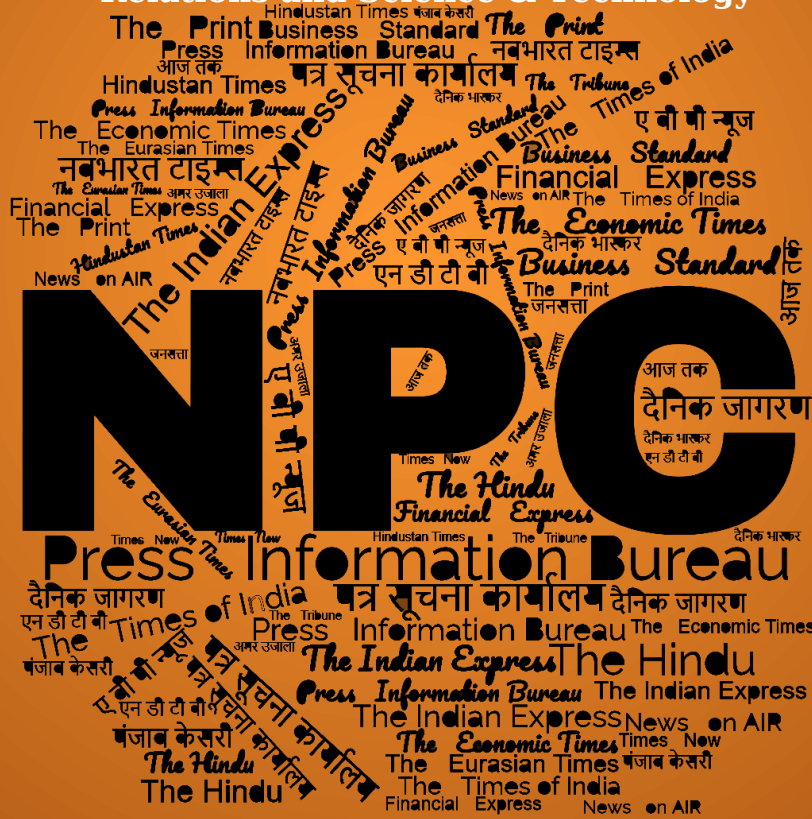
खंड/Vol. : 48 अंक/Issue : 181

26/09/2023

# 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

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



रक्षा विज्ञान पुस्तकालय

Defence Science Library

रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र

Defence Scientific Information & Documentation Centre

मेटकॉफ हाउस, दिल्ली - 110 054

Metcalf House, Delhi - 110 054

# CONTENTS

S. No.	TITLE		Page No.
	<b>Defence News</b>		<b>1-11</b>
	<b>Defence Strategic: National/International</b>		<b>1-11</b>
1.	Long Range Training Deployment of First Training Squadron to South East Asia	<i>Press Information Bureau</i>	1
2.	Headquarters Integrated Defence of Staff Joint Doctrine Review Conference - 2023	<i>Press Information Bureau</i>	1
3.	First Ever Drone Exhibition cum Display 'Bharat Drone Shakti 2023' Inaugurated by Raksha Mantri at Hindan Air Force Station	<i>Press Information Bureau</i>	2
4.	Defence Minister Rajnath Singh Inaugurates Bharat Drone Shakti Show at Hindan Airbase	<i>Hindustan Times</i>	3
5.	IAF Inducts C-295 Tactical Aircraft, First of 56 'Rhinos'	<i>The Times of India</i>	4
6.	Army Chief Gen Manoj Pande Interacts with IPACC Counterparts, Discusses Ways to Enhance Defence Cooperation	<i>The Statesman</i>	5
7.	We Wanted to Create an Indigenous System that Overwhelms Enemies: Former Air Chief Dhanoa	<i>News Nine</i>	6
8.	Hope Floats for Augmentation of Navy's Underwater Assets	<i>The Tribune</i>	8
9.	Private Sector may Get Rs 60,000 Crore Defence Contracts in 2024-2025	<i>Deccan Herald</i>	9
10.	NATO to Adopt SAPIENT as C-UAS Standard	<i>Janes</i>	10
	<b>Science &amp; Technology News</b>		<b>11</b>
11.	Gaganyaan Mission: ISRO Completes Key Engine Test	<i>The Hindu</i>	11

# Defence Strategic: National/International



**Press Information Bureau**  
Government of India

**Ministry of Defence**

*Mon, 25 Sep 2023*

## **Long Range Training Deployment of First Training Squadron to South East Asia**

The ships of First Training Squadron (1TS) - INS Tir, INS Sujata, Sail Training Ship Sudarshini and CGS Sarathi are presently on a long Range training deployment to South East Asia. The deployment is part of the ongoing afloat training of the 105th Integrated Officers' Training Course. During the deployment, the ships will visit Thailand, Malaysia, Singapore, Indonesia and Vietnam. Various training activities, professional interactions and Joint Maritime Partnership Ex are planned to be conducted with the host navies and maritime forces during the visit.

Presently, trainees from friendly foreign countries- Bangladesh, Maldives, Mauritius and Vietnam are embarked onboard 1TS for the deployment. In addition, personnel from Indian Army, Indian Air Force and NCC cadets are also embarked furthering jointness and interoperability. The visit aims to strengthen India's commitment towards Maritime Security and foster goodwill in the region.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1960603>



**Press Information Bureau**  
Government of India

**Ministry of Defence**

*Mon, 25 Sep 2023*

## **Headquarters Integrated Defence of Staff Joint Doctrine Review Conference - 2023**

The maiden 'Joint Doctrine Review Conference - 2023' (JDRC-2023) was conducted at the Manekshaw Centre on 22 September, 2023. The conference was chaired by Air Marshal Jeetendra Mishra, the Deputy Chief of Integrated Defence Staff (Doctrine Organisation and Training).

This historic, first such, conference was aimed to synergise and bridge gaps in understanding between Headquarters Integrated Defence Staff (HQ IDS) and the three Services in formulation of

Doctrines, as also review the progress of Joint Doctrines being formulated. It also helped in sharing best practices and ongoing initiatives on doctrinal issues.

The Conference spanned over two sessions, brainstorming the Joint Doctrine Formulation Process and reviewing the ongoing as well as future Joint and Service Doctrines on diverse subjects such as Cyberspace, Amphibious, and Space. The conference was successful and achieved its stated aim.

The Conference was attended by Subject Matter Experts from the Doctrine Development Agencies of HQ IDS and the three Services as also members from reputed Think Tanks.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1960548>



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

**Ministry of Defence**

*Mon, 25 Sep 2023*

## **First Ever Drone Exhibition cum Display ‘Bharat Drone Shakti 2023’ Inaugurated by Raksha Mantri at Hindan Air Force Station**

**First C-295 transport aircraft formally inducted into Indian Air Force**

**C-295 will bolster the medium lift tactical capability of IAF: Shri Rajnath Singh**

Bharat Drone Shakti 2023, a first-of-its-kind drone exhibition cum display was inaugurated by Raksha Mantri Shri Rajnath Singh at Air Force Station, Hindan in Ghaziabad, Uttar Pradesh on September 25, 2023. It has been jointly organised by Indian Air Force (IAF) and Drone Federation of India (DFI). The two-day event, which is being held on September 25 & 26, 2023, features over 75 drone start-ups from across the country.

The drones featured during the event can be employed for a variety of military and civil applications. By showcasing their capabilities through a series of aerial & statics demonstrations, the IAF and DFI seek to bolster the Government’s initiative to make India a major drone hub by 2030.

The inauguration of Bharat Drone Shakti 2023 was followed by the formal induction of the first C-295 MW transport aircraft into the IAF. The ceremony consisted of a 'Sarv Dharm Puja' and a brief on the capabilities of the aircraft. This medium lift tactical aircraft, which is capable of taking off and landing from unprepared landing grounds, will replace the HS-748 Avro aircraft.

Through a post on X (formerly Twitter), the Raksha Mantri exuded confidence that the induction of C-295 will bolster medium lift tactical capability of the IAF. He termed the defence and aerospace sectors as the two important pillars for making India self-reliant in the coming years.

Attended the unveiling ceremony of C-295 MW at the Hindon Air Force Station. This medium lift tactical aircraft is capable of taking off and landing from unprepared landing grounds and it will replace the HS-748 Avro aircraft.

The induction of C-295 will bolster medium lift... [pic.twitter.com/hERBXoo9qa](https://pic.twitter.com/hERBXoo9qa)

— Rajnath Singh (@rajnathsingh) September 25, 2023

While the first 16 of the 56 contracted aircraft will be delivered to the IAF in a 'fly-away' condition, the remaining 40 would be manufactured in India by Tata Advanced Systems Limited at their facility in Vadodara. The first IAF squadron to be equipped with the aircraft, 11 Squadron (The Rhinos), is also based at Vadodara.

During the event, the Raksha Mantri & the dignitaries were also briefed on the latest in-house innovations of the IAF at an exhibition which featured projects such as a Hybrid Drone Detection System, AI Engine for fault diagnosis, a Fly-By-Wire Tester, Stabilized Power Supply Trolleys, QR Code based Tool Crib management system and also modern teaching aids.

Minister of State for Civil Aviation and Road, Transport & Highways General (Dr) VK Singh (Retd), Chief of the Air Staff Air Chief Marshal VR Chaudhari, senior officers of the three services, Defence Attaches & officials from friendly foreign countries as well as representatives of the Indian industry attended the event.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1960413>



*Mon, 25 Sep 2023*

## **Defence Minister Rajnath Singh Inaugurates Bharat Drone Shakti Show at Hindan Airbase**

Defence Minister Rajnath Singh on Monday inaugurated the Bharat Drone Shakti-2023 exhibition at the Hindan Air Base in Uttar Pradesh's Ghaziabad here.

The mega drone show is being hosted by the Indian Air Force (IAF) and the Drone Federation of India (DFI).

After inaugurating the Bharat Drone Shakti-2023 exhibition, Defence Minister and Air Chief Marshal VR Chaudhari witnessed the prowess of the Indian drone industry.

Bharat Drone Shakti 2023 hosted live aerial demonstrations of a variety of drone operations and applications by various drone companies.

Addressing the gathering, Wing Commander Sonam Bakshi gave an opening to the live aerial demonstrations saying, "Wakif kaha zamana hamari udaan se, Wakif kaha zamana hamari udaan se vo aur the, Jo haar gaye aasaman se."

The first demonstration displayed a compact system of drones that can be carried on a motorbike. Special motorbikes are customised to carry unassembled drones.

Kisan drones can be transported using motorbikes across rural terrain to introduce modern agricultural practices.

Following this, the Defence Minister and Air Chief Marshal witnessed drones with the capability to carry 50kg-100 kg payload.

Additionally, the officials also witnessed the display of a Kamikaze drone during Bharat Drone Shakti-2023 at the Hindan Airbase.

Notably, the IAF, recognizing the potential of indigenous drone design and development, is collaborating with the Drone Federation of India (DFI) to jointly host Bharat Drone Shakti 2023. This event, scheduled for September 25 and 26, will take place at the IAF's Hindan airbase in Ghaziabad and will feature live aerial demonstrations.

In India, the utilization of drones is on the rise, spanning across military and civilian applications.

Drone technology has rapidly transformed both civil and defence sectors, enhancing efficiency, reducing risk exposure, and elevating capabilities, said a press release.

The IAF has extensive experience in deploying Remotely Piloted Aircraft for Intelligence Surveillance and reconnaissance operations.

To harness the burgeoning drone technology sector in India, the IAF initiated the Meher Baba Swarm Drone competition, showcasing its faith in the nation's drone capabilities, according to the release.

Now, with Bharat Drone Shakti 2023, the IAF is poised to further leverage this expertise.

Bharat Drone Shakti 2023 promises to spotlight the full potential of the Indian drone industry, with an impressive lineup of over 50 live aerial demonstrations.

These demonstrations will encompass a diverse range of drone applications, including survey drones, agriculture drones, fire suppression drones, tactical surveillance drones, heavy-lift logistics drones, loitering munition systems, drone swarms, and counter-drone solutions, said the release.

The event will also witness the active participation of more than 75 drone start-ups and corporate entities.

Anticipated to draw approximately 5,000 attendees, Bharat Drone Shakti 2023 will serve as a convergence point for a wide spectrum of stakeholders.

Representatives from central government agencies, state departments, public and private industries, armed forces, paramilitary forces, friendly foreign countries, academic institutions, students, and drone enthusiasts are expected to grace the event, said the release.

This collaboration between the Indian Air Force and the Drone Federation of India underscores the commitment to advancing drone technology and its applications in India.

The event promises to showcase the capabilities of Indian drones and provide a platform for networking, knowledge exchange, and collaboration among industry leaders, innovators, and enthusiasts.

Bharat Drone Shakti 2023 marks a step towards harnessing the full potential of this transformative technology for the nation's benefit.

<https://www.hindustantimes.com/india-news/defence-minister-rajnath-singh-inaugurates-bharat-drone-shakti-hindan-airbase-101695629858903.html>

## THE TIMES OF INDIA

*Tue, 26 Sep 2023*

### **IAF Inducts C-295 Tactical Aircraft, First of 56 'Rhinos'**

The first C-295 tactical military airlift aircraft acquired by India was formally inducted into the IAF on Monday, with defence minister Rajnath Singh stressing that the defence and aerospace sectors are the two important pillars for making India self-reliant in the coming years.

The first C-295 squadron named "The Rhinos" will be based at Vadodara in Gujarat, under the mega Rs 21,935 crore contract inked for 56 such twin-turboprop aircraft two years ago.

While the first 16 planes will be delivered to the IAF in a flyaway condition by Airbus Defence and Space in the 2023-2025 time-frame, the rest 40 will then be produced at the Tata-Airbus facility at Vadodara. The first "Made in India" C-295 is slated to roll out in September 2026 and the last in August 2031.

The project will see the private sector manufacture a military aircraft for the first time in India, breaking the virtual monopoly of defence PSU Hindustan Aeronautics in the arena.

"This medium-lift tactical aircraft is capable of taking off and landing from unprepared landing grounds. It will replace the HS-748 Avro aircraft," Singh said, at the C-295 induction event at the Hindon air-base on the outskirts of Delhi, which included a multi-faith prayer ceremony.

The minister also inaugurated the first-ever drone exhibition-cum-display 'Bharat Drone Shakti 2023' at the air base, which features over 75 start-ups in the arena from across the country. The C-295s are capable of carrying up to 9-tonne of payload or 71 soldiers with a "short take-off and land" capability from semi-prepared surfaces in hilly terrain. They will boost the IAF's airlift capability along the 3,488-km Line of Actual Control with China as well as other places like the Andaman & Nicobar archipelago. Equipped with indigenous electronic warfare systems, the C-295s have rear ramp doors for quick-reaction and para-dropping of troops & cargo. IAF chief Air Chief Marshal V R Chaudhari had earlier said the orders for C-295s are likely to go up after the initial 56, with Coast Guard, Navy and home ministry too requiring such planes.

<https://timesofindia.indiatimes.com/india/iaf-inducts-c-295-tactical-aircraft-first-of-56-rhinos/articleshow/103945197.cms>

## The Statesman

*Tue, 26 Sep 2023*

### **Army Chief Gen Manoj Pande Interacts with IPACC Counterparts, Discusses Ways to Enhance Defence Cooperation**

Indian Army Chief Gen Manoj Pande on Monday interacted individually with Chiefs of Armies who arrived here to attend the Indo-Pacific Armies Chiefs Conference 2023, officials said on Monday.

According to the officials of the Indian Army, the Army Chief interacted individually with them to deliberate on ways for further enhancing the Defence Cooperation between the respective Armies.

"The chiefs he met included Gen Morishita Yasunori of Japan, Gen Simon Stuart, Australian Army, US Army chief Gen Randy George, Vietnam Peoples' Army's Dy Chief of General Staff Lt Gen Mnguyen Doan Anh & Lt Gen Peter Mbogo Njiru, Commander, Kenyan Army," officials said.

"Discussions on a collaborative approach for strategic & constructive partnership to promote peace & stability in the Indo-Pacific region were also carried out during the interactions," they added.

The armies of India and the United States will host the 13th biannual Indo-Pacific Armies Chiefs Conference (IPACC), the 47th annual Indo-Pacific Army Management Seminar (IPAMS), the 9th Senior Enlisted Forum at the Manekshaw Center in the national capital from September 25-27.

The gathering is notably the largest conference for land forces (army, marines, etc.) in the region.

The objective of these meetings is to promote peace and stability in the Indo-Pacific region through mutual understanding, dialogue, and friendship. Senior land commanders will have a venue to share opinions and ideas as well as grow and deepen their connections through this, the official release of the US embassy said.

This year's conference's theme is "Together for Peace: Sustaining Peace and Stability in the Indo-Pacific Region."

There will be both larger plenary sessions and more intimate break-out sessions at the conference. Participants will take part in vibrant conversations on subjects including peacekeeping operations, humanitarian aid/disaster relief, leadership development, and women's emancipation as well as hear from eminent guest speakers.

Participation in IPAMS has grown from nine nations at the first conference held in Honolulu, Hawaii in 1977, to 31 nations in Seoul, Korea in 2017.

IPACC is now held every two years and is co-hosted by the United States Army and the hosting country. IPAMS is the longest-running land forces conference held every year. In 2014, the SELF was added allowing senior enlisted members to experience the same fellowship, discussion and sharing opportunities, but from a different perspective, the US Embassy release read.

An opening ceremony will kickstart at 9:30 am on September 26 at the Manekshaw Center, preceded by a joint press conference at 9 am with the Indian Army Chief, General Manoj Pande, and General Randy George, US Army Vice Chief of Staff.

<https://www.thestatesman.com/india/army-chief-gen-manoj-pande-interacts-with-ipacc-counterparts-discusses-ways-to-enhance-defence-cooperation-1503225743.html>



*Mon, 25 Sep 2023*

## **We Wanted to Create an Indigenous System that Overwhelms Enemies: Former Air Chief Dhanoa**

In Christopher Nolan's dystopic sci-fi thriller *Interstellar*, the protagonist downs an Indian Air Force drone flying above his farm in Colorado and scavenges solar cells from it. An IAF drone soaring over the US great plains might have sounded like an unusual nod when the film was released in 2014. India has been a drone laggard — Chinese drones have a stranglehold on the commercial market, nearly all its military drones are of Israeli origin even as the DRDO struggles to deliver indigenous options. Recent government interventions have done much to boost indigenous drone manufacture. But nowhere is this effort as pronounced as it is with the IAF bootstrapping a group of drone entrepreneurs to create swarm drones. IAF's Mehar Baba Swarm Drone Competition has created an entire indigenous ecosystem of drone swarms in the country. In an exclusive interview with News9 Plus, Air Chief Marshal BS Dhanoa (Retd), in whose tenure the competition was launched, says the idea is to create an indigenous system that overwhelms enemies. Edited excerpts:

**Question: It was during your tenure that Mehar Baba Swarm Drone Competition came into being and a whole ecosystem emerged from it. So, how exactly does the competition work?**



In 2018, when we announced the competition, the purpose was to develop an ecosystem within the country so that we can utilise swarm drones. We had started it as humanitarian assistance and disaster relief. Of course, it was also the purpose but once we have the algorithm and we have the system going, we will also be weaponising it. So the purpose was to have an indigenous system which could overwhelm enemies, air defences and carry out a strike on something which is of very high value. The purpose was in this country to kick start this environment, I think for which it has been quite successful.

**Question : How did the idea crop up for this kind of a competition that has created a whole ecosystem for drone swarms?**

Answer: The idea germinated from a youngster, Wing Commander Aditya Kiran. He was in the 'Air War Strategy Cell' which is actually the think tank of the air force. He moved the whole thing. The idea was to have a competition and in that competition we select the person (start-up), give the person more money to develop the system and then assure a contract to the winners. Then only a private company will put in money. Why else will people put money into the system and I think that has been a resounding success. Now, the people who competed and the five finalists who won, all of them have got very big orders.

**Question : How much was the investment?**

Answer : Hardly Rs 16 crore is what we had invested initially and now more than Rs 800 crore of orders have been issued from the government and military distribution.

**Question : Did you expect a success of this scale?**

Answer : No, I never expected it to take off in such a manner. I think partly also it is because of the war that is going on in Ukraine and the success of drones in that.

There have been efforts from the government as well but I think this particular competition has generated enough business and it is all to indigenous private sector companies in India. We also look into the future, then we do our force structure planning. So, we realised that this capability is required and that's why we kickstarted the 'Meher Baba competition'. Like I told you, the Indian Air force has been operating killer drones for the last over 20 years, but they were not in the swarm.

**Question : How did you find the traction to rope in private sector players?**

See, after all the manufacturers are all in the private sector. They will put their money only if they know they are successful, their developmental costs will be covered. Here, we paid them after we selected the winners. We also pay their developmental costs followed by orders which have come across to all the winners. 10 lakhs was the prize and 10 crore was the developmental cost.

**Question : What is the strategic and economic importance of such a contest?**

Strategic it is because it has established India as a player in this game and that depends on the government, how much government policy permits. I'm sure they'll be able to find an export market for it because the demand is there from all over the globe. So we are also a player. Earlier there were only three or four players in this. The Chinese were there big time. And economically for us it is a low cost indigenous alternative. Compared to China, we have started late, but we have started and we are going to get equipment that meets that requirement.

<https://www.news9live.com/india/we-wanted-to-create-an-indigenous-system-that-overwhelms-enemies-former-air-chief-dhanoa-2299312>

## Hope Floats for Augmentation of Navy's Underwater Assets

By Rahul Bedi

The prospects of France assisting India in developing and constructing six nuclear-powered general-purpose attack submarines or SSNs for the Indian Navy (IN) are believed to have brightened following a meeting between PM Narendra Modi and President Emmanuel Macron in New Delhi on the sidelines of the recently concluded G20 summit.

Discussions between the two leaders — who were meeting for the second time in two months following Modi's July visit to Paris as the chief guest at France's Bastille Day parade — were centred on the "joint development, manufacture and testing of advanced military platforms and technologies", said officials in Delhi. French assistance for the IN's continuingly deferred SSN programme has long been on the anvil, with hush-hush discussions over it at an advanced stage.

Earlier, the joint Horizon 2047 document agreed upon during Modi's Paris visit to mark 25 years of the bilateral strategic partnership between Delhi and Paris referred to both sides agreeing to "explore more ambitious projects to develop the Indian submarine fleet and its performance". Mazagon Dock Shipbuilders Limited in Mumbai had already licence-built six Kalvari (Scorpene)-class conventional diesel-electric 'killer-hunter' submarines under transfer of technology from France's Naval Group, and is poised to begin constructing three more to further boost collaboration in more advanced underwater platform production.

India had approached France for assistance with its then putative and floundering nuclear-powered missile submarine (SSBN) programme after Paris had robustly backed New Delhi's 1998 'Shakti' nuclear tests. And though this support, when India was globally isolated and under US-led sanctions, had led to the two inking the bilateral strategic partnership, France had declined to be involved in India's SSBN programme as, at the time, such assistance contravened prevailing global nuclear protocols. This negation had left India no choice but to turn to Russia as a default option, but senior industry officials conceded that the impending SSN project in the overall transformed security environment presented Paris and Delhi yet another collaborative opportunity to be exploited productively.

SSNs are employed for sundry missions such as anti-submarine and anti-surface warfare, while SSBNs perform specialised strategic nuclear deterrence missions. The latter's principal operational objectives are to safeguard a nuclear force's second-strike capability by offering a safe and undetected location from where missiles can be launched when required.

Earlier this year, France reportedly offered to jointly develop SSNs with India, under the aegis of Delhi's Atmanirbharta initiative designed to enhance self-sufficiency in materiel requirements, by transferring technology based on its Barracuda-class SSNs, the first of which — Suffren — was commissioned into the French Navy in mid-2022. Designed by the Naval Group, the 4,765-tonne and 99m-long Suffren was the first of the six SSNs scheduled to join France's Marine Nationale by 2030 at an estimated cost of over \$2 billion each.

France was eager to clinch this prospective SSN deal with India to compensate for Australia summarily scrapping in late 2021 the multi-million-dollar deal with the Naval Group to supply the Royal Australian Navy 12 conventional submarines, for which the latter paid \$585 million as compensation. Instead, Australia entered into a \$268-368-billion deal with the US and the UK for eight SSNs between now and around 2050 under the AUKUS strategic pact.

The IN, for its part, is keen on partnering the Naval Group for its SSN needs as the technology it offered is more advanced compared to that of Russia, the only P5 country amenable to such sensitive cooperation with India. Industry officials and analysts are of the view that French involvement in India's SSN programme would, in all likelihood, be 'endorsed' by the US, whose strategic, defence and military technology ties with India are proliferating in a bid to challenge Chinese hegemony in the strategic Indian Ocean Region.

The IN's SSN project, worth an estimated Rs 60,000 crore, was approved by the Ministry of Defence in early 2015, with the first of the 6,000-tonne boats scheduled for completion by 2032-33. These platforms comprised part of the Navy's revised 30-year Project for the Series Construction of Submarines (till 2030) that envisaged the induction of 24 submarines, including six SSNs. These SSNs would supplement and operationally support the four or five 6,000-7,000-tonne Arihant-class SSBNs built with Russian knowhow and technical assistance, particularly with regard to miniaturising their 82.5MW pressurised light water reactors.

Meanwhile, India's SSBN programme, undertaken jointly by the Defence Research and Development Organisation, the Department of Atomic Energy and the IN, is proceeding apace at the secretive Ship Building Centre (SCB) in Visakhapatnam. The third such platform — simply designated as S4 — was launched in late 2021 after INS Arighat, the second SSBN, was undergoing further fitment. These SSBNs comprise a vital component of India's nuclear triad, aimed at sustaining its nuclear deterrence and no-first-use posture.

INS Arihant, the lead SSBN boat, was constructed at the SCB, drawing upon design elements of Soviet-era and Russian submarines from the Project 670A Skat-series ('Charlie I') and Project 667 ('Delta I') to the more recent Project 885 Yasen-class nuclear-powered cruise missile submarines (SSGNs). It was launched in July 2009; four years later, its on-board nuclear reactor attained criticality, enabling sea trials to begin in 2014 and weapon tests before its unannounced and low-key commissioning in August 2016. Two years later, Arihant completed its first deterrence patrol, confirming India's three-tier retaliatory nuclear deterrent capability by adding maritime strike competence to its existing land and air-based capacity for delivering strategic weapons.

The IN, however, which acknowledged the SSBN programme's existence only in December 2007, continues to claim that the Prime Minister's Office (PMO) had 'exclusive' management of the confidential programme. Funding for it was also confidential, supervised by the PMO via the National Security Adviser, it claimed. But having taken ownership of the SSN programme, it now behoves the Navy to imminently kickstart the project and stall the severe drawdown in its underwater assets.

<https://www.tribuneindia.com/news/comment/hope-floats-for-augmentation-of-navys-underwater-assets-547720>



*Mon, 25 Sep 2023*

## **Private Sector may Get Rs 60,000 Crore Defence Contracts in 2024-2025**

Private sector firms are likely to get defence contracts worth Rs 60,000 crore in the financial year 2024-2025, which will be around 22 per cent of the overall size of the industry, a private research

report showed. According to a report by ICRA, defence production by private companies is estimated to register compound annual growth of around 20 per cent in the next three years to reach Rs. 34,000 crore by FY2026.

In order to reduce dependence on imports of defence equipment, the government has introduced a number of measures to promote private investments in the sector.

“While the land and information & communications technology (ICT)-based segments are expected to witness increased private sector participation, the Defence public sector undertakings would continue their dominance in the naval, aerospace and armaments segments,” said Ashish Modani, Vice President and Co Group Head, ICRA.

Despite a healthy 20 per cent projected annual growth in defence production by the private sector over the next three years, the government is likely to fall short of the Rs 1.75 lakh crore annual defence production target by FY2025. It is estimated to reach Rs 1.6 lakh crore by FY2026.

The initiatives taken by the government include allowing 74 per cent foreign direct investment (FDI) in the sector through automatic route. It will encourage foreign original equipment manufacturer to set up manufacturing facilities in India.

The other initiatives include establishment of two Defence industrial corridors, one each in Uttar Pradesh and Tamil Nadu; launch of the indigenisation portal (SRIJAN), enabling all stakeholders and private vendors to interact with each other and the Indian vendors to identify the items which are within their capabilities, thus reducing the need for import.

The policy initiatives have led to reduction in procurement from foreign vendors to 32 per cent in FY2023 from 61 per cent in FY2008. India defence exports jumped to Rs 15,920 crore in FY 2022-23 from a low Rs 1,521 crore in FY 2016-17, registering an average annual growth of 48 per cent, Modani said.

<https://www.deccanherald.com/business/companies/private-sector-may-get-rs-60-000-crore-defence-contracts-in-2024-2025-2700573>



*Mon, 25 Sep 2023*

## **NATO to Adopt SAPIENT as C-UAS Standard**

NATO will adopt the Sensing for Asset Protection with Integrated Electronic Networked Technology (SAPIENT) protocol developed by the UK Ministry of Defence (MoD) as a C-UAS (counter-unmanned aircraft system) standard, Janes learnt at NATO's Exercise 'C-UAS Technical Interoperability' 2023 (TIE23) in Vredepeel, Netherlands, held from 12 to 22 September.

A year-long ratification process will begin in 2024 with 14 countries required to approve it before it is formally adopted as a NATO Standardisation Agreement (STANAG), Cristian Coman, chief scientist for the Joint Intelligence, Surveillance, and Reconnaissance division at NATO Communications and Information Agency (NCI Agency), told Janes and other media representatives at the exercise.

SAPIENT was developed by the UK's Defence Science and Technology Laboratory (Dstl) as an open standard that allows the fusion and integration of autonomous sensory information into a single integrated picture. The MoD has already adopted it as a standard for C-UAS.

For the TIE23 trial, the purpose was to enhance the interoperability of C-UASs through the use of SAPIENT, as countering these systems requires a “toolbox” of integrated solutions, Principal Scientist at the Joint Intelligence, Surveillance, and Reconnaissance division, Mario Behn, said.

<https://www.janes.com/defence-news/news-detail/nato-to-adopt-sapient-as-c-uas-standard>

## Science & Technology News



Mon, 25 Sep 2023

### Gaganyaan Mission: ISRO Completes Key Engine Test

The Indian Space Research Organisation (ISRO) has successfully completed the CE20 E13 engine hot test for the Gaganyaan qualification and 22-tonne thrust qualification.

The engine was tested at ISRO Propulsion Complex (IPRC), Mahendragiri on September 22.

The CE20 engine is a vital component, serving as the powerhouse of the Cryogenic Upper Stage (CUS) responsible for propelling the upper stage (C25) of the LVM3 vehicle. It has demonstrated its capability by successfully operating at a thrust level of 19 tonnes in six successive LVM3 missions, including the Chandrayaan-2, Chandrayaan-3, and two commercial OneWeb missions.

“To enhance the payload capacity of the LVM3 vehicle, ISRO is upgrading the CE20 engine. The upper cryogenic stage is being transformed into the C32 stage with increased propellant loading capacity, and the engine is being modified to operate at a higher thrust level of 22 tonnes. To ensure the engine’s readiness for critical missions, a series of ground hot tests were deemed necessary. The CE20 engine hardware referred to as E13 was selected for both Gaganyaan qualification and 22-tonne thrust level operations,” the space agency said.

The journey to achieving a 22-tonne thrust capability began with E13 HT-01, a test focused on engine tuning, successfully conducted for a 50-second duration. This initial test set the stage for the upcoming trials. E13 HT-02 marked a significant milestone, conducted on August 3, with the engine operating flawlessly for an impressive 720 seconds. This test demonstrated the engine’s reliability and stability.

“The third hot test, E13 HT-03, was the pivotal moment in completing the CE20 engine qualification for the Gaganyaan program. On September 22, this test was conducted at the state-of-the-art test facility located at IPRC, Mahendragiri. During this test, the CE20 engine operated at the coveted 22-tonne thrust level for a duration of 670 seconds. Both the engine and the testing facility performed flawlessly, meeting all the performance parameters,” ISRO said.

It added that the successful completion of E13 HT-03 signifies the culmination of rigorous testing and the readiness of the CE20 engine for the Gaganyaan program. “With all the necessary tests completed, the CE20 engine is now poised for the demanding requirements of the Gaganyaan mission and future endeavours,” it added. The Test Vehicle D-1/Crew Escape System mission of the Gaganyaan mission is likely to be conducted in the last week of October.

<https://www.thehindu.com/sci-tech/science/gaganyaan-mission-isro-completes-key-engine-test/article67345225.ece>

