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# समाचार पत्रों से चयित अंश Newspapers Clippings

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

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# THE ECONOMIC TIMES

Tue, 01 Nov 2022

## Giridhar Aramane Takes Charge as New Defence Secretary

Seasoned bureaucrat Giridhar Aramane on Tuesday assumed charge as the new defence secretary at a time the government has been focusing on modernising the three services. Aramane, a 1988-batch Indian Administrative Service (IAS) officer, was serving as secretary of the ministry of road transport and highways prior to his new assignment. Before taking charge, Aramane laid a wreath at the National War Memorial and paid homage to the fallen heroes.



*In his 32-year career as an IAS officer, Aramane has held various important positions in the central government as well as the Andhra Pradesh government.*

officer, Aramane has held various important positions in the central government as well as the Andhra Pradesh government. He also served as an additional secretary in the cabinet secretariat. Aramane looked after the exploration division in the ministry of petroleum and natural gas and was executive director in-charge of inspections in the Insurance Regulatory and Development Authority (IRDA). He is a B Tech in Civil Engineering from Jawaharlal Nehru Technological University, Hyderabad, and M Tech from IIT, Madras. He also did MA (Economics) from Kakatiya University, Warangal.

"We draw inspiration from these bravehearts and promise to work towards fulfilling their dream of making India a safe and prosperous country," he said. Aramane succeeded Ajay Kumar, who retired from service on Monday. In his 32-year career as an IAS

<https://economictimes.indiatimes.com/news/defence/giridhar-aramane-takes-charge-as-new-defence-secretary/articleshow/95233404.cms?from=mdr>

Tue, 01 Nov 2022

## Ejection Seats in Military Aircraft: India Seeks to Develop Indigenous Capability

HAL is exploring the possibility of setting up a Joint Venture for manufacture of seats in India. Certain advancements have collectively propelled an industry towards the future. Such is the stature of the ejection seat in aerospace. The innovation of ejection seats continues, yet the global market remains dominated by the British manufacturer Martin Baker. While Russia has developed an alternative, and there are other American manufacturers, Martin Baker continues to capture more than 75 percent of the market. Now, India seeks to develop an indigenous capability for building ejection seats.

### The Zero-Zero Hero

“The fighter aircraft travel at tremendous speeds. In case of an ejection, there will be enough momentum for the pilot to shatter their spine. Engineers have worked on a system to counteract the forces partially. However, an optimal speed and altitude for ejection were required. Hence, the zero-zero problems came to be. It referred to a pilot’s ejection at zero altitudes with zero wind speed,” explains Girish Linganna, Aerospace and Defence Analyst. Adding, “Martin Baker pioneered the zero-zero ejection seat. Its MK16 US16E ejection seat is part of the F-35. It is the only Neck Injury Criteria (NIC) qualified ejection. The Indian Air Force (IAF) also procured the MK16 ejection seats for its Hindustan Aeronautics Limited (HAL) Hindustan Turbo Trainer (HTT) 40. There are over one thousand Martin Baker ejection seats in service with the Indian Navy and the IAF. The HTT 40 deal will add another 212 to the list.”

### The Politicisation of Ejection Seats

With the lion’s share of the global aircraft ejection seat market, Martin Baker has been fitted into aircraft from many countries. This has empowered the British government, through Martin Baker, to influence the sale and purchase of aircraft. Notably, the UK exercises control over its industries when enforcing the arms embargo against Argentina. With none of the formidable fighter aircraft sans Martin Baker, anyone other than China cannot take on Argentina as a client. To do so, they must replace each component of British origin. A recent snag in a Martin-Baker ejection seat grounded hundreds of aircraft worldwide. This was only a minute percentage affected by a limited number of production lots of a subsystem.

### The Indian Bid

“HAL is exploring the possibility of setting up a Joint Venture for manufacture of seats in India,” a source confirmed to Financial Express Online on the sidelines of the recently concluded DefExpo 2022.

**Is the JV with Martin Baker?** The source neither denied nor confirmed if the talks are going on with the British company.

As has been reported earlier in Financial Express Online, HAL’s Light Combat Aircraft (LCA) Tejas also features a Martin-Baker seat.

## **Significance of indigenisation bid**

This indigenisation bid has three impacts. First, it will allow India to free itself from the influence of the UK and sell to countries like Argentina. Second, it will allow other manufacturers an alternative. According to information available in the public domain Martin Baker sells an ejection seat anywhere from USD 1, 40,000 to USD 4, and 00,000. Such capability will boost defence exports. Finally, it will reduce the cost of indigenous offerings like the LCA Tejas and make them more competitively priced.

<https://www.financialexpress.com/defence/ejection-seats-in-military-aircraft-india-seeks-to-develop-indigenous-capability/2763477/lite/>



*Tue, 01 Nov 2022*

## **India Emerges as Leading Defence Exporter to African Nations: Report**

In recent years, India has emerged as a leading defence exporter and may fulfill Africa's maritime, aerospace and defence requirements, with Mauritius, Mozambique and Seychelles becoming the major buyers of Indian arms during 2017-2021, said a report by India Exim Bank. In recent years, India has emerged as a leading defence exporter and may fulfill Africa's maritime, aerospace and defence requirements, with Mauritius, Mozambique and Seychelles becoming the major buyers of Indian arms during 2017-2021, said a report by India Exim Bank. The report suggested a shift from India's current approach to India's defence and security cooperation with Africa and other developing countries, which remains need-based and focuses on empowering through training, capacity building, and humanitarian assistance. "Increased cooperation in areas of aerospace, defence, maritime equipment and vessels can ensure security and enhance technological capacity of Africa and at the same time accelerate India's defence export target of achieving USD 5 billion by 2025," the report said.

"Indian military vehicle manufacturers such as Tata Motors and Ashok Leyland are already part of the network. Going forward, indigenously developed new age technologies in the maritime segment, including unmanned underwater systems, unmanned aerial systems and drones could also be exported to Africa," the report highlighted. The report highlighted that India and African countries are important stakeholders in ensuring a safe and secure maritime environment in the Indian Ocean Region, especially among the nine Indian Ocean littoral countries (IOLC) in Africa. These are Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa, and Tanzania. "As a major shipping link for India, the Indian Ocean remains the common factor for these countries and is pivotal in terms of both security and commerce for India and Africa. India and Africa share a robust maritime partnership, which is based on the cooperative framework of 'SAGAR' (Security and Growth for All in the Region)," it said as it highlighted some of the work done already.



“Ministry of Defence has been strengthening cooperation within the framework of Indian Ocean Rim Association (IORA) to undertake specific projects and has formalised frameworks of defence cooperation with South Africa, Kenya, Tanzania, Mauritius, Seychelles, and Madagascar,” it said, listing some figures. According to the report, within Africa, Mauritius accounted for 6.6 per cent of India's arms exports during 2017-2021, followed by Mozambique (five per cent) and Seychelles (2.3 per cent). The report also cited cyber security as another potential area for cooperation. “With exponential growth in mobile smart device ownership and increased use of social media, Africa's adoption of new technologies is expanding. India has advanced cyber security infrastructure, a dedicated National Cyber Security and a functional nodal agency, Computer Emergency Response Team (CERT-In), under the Ministry of Electronics and Information Technology (MeitY),” the report mentioned as institutions which could play a role. The report, quoting the SIPRI International Arms Transfer Database, said India was the 23rd largest defence exporter during the period 2017 to 2021.

<https://www.livemint.com/news/india/india-emerges-as-leading-defence-exporter-to-african-nations-report-11667293632242.html>

## THE ECONOMIC TIMES

*Tue, 01 Nov 2022*

### **India could Fulfill Africa's Maritime, Aerospace and Defence Requirements: Exim Bank Report**

India has emerged as a leading defence exporter in recent years and could fulfill Africa's maritime, aerospace and defence requirements, with Mauritius, Mozambique and Seychelles becoming the major buyers of Indian arms during 2017-2021, according to a research report. The report by India Exim Bank, titled 'Reinvigorating India's Economic Engagements with Southern Africa', was released at the inauguration of the CII-Exim Bank Regional Conclave on India-Southern Africa Growth Partnership, where government officials and captains of business and industry are meeting on Tuesday to discuss a wide range of areas of potential cooperation. The report also suggested a shift from India's current approach to India's defence and security cooperation with Africa and other developing countries, which remains need-based and focuses on empowering through training, capacity building, and humanitarian assistance.

"Increased cooperation in areas of aerospace, defence, maritime equipment and vessels can ensure security and enhance technological capacity of Africa and at the same time accelerate India's defence export target of achieving USD 5 billion by 2025," the report said. "Indian military vehicle manufacturers such as Tata Motors and Ashok Leyland are already part of the network. Going forward, indigenously developed new age technologies in the maritime segment, including unmanned underwater systems, unmanned aerial systems and drones could also be exported to Africa," the report highlighted. It also suggested a shift from India's current approach to India's defence and security cooperation with Africa and other developing countries, which remains need-based and focuses on empowering through training, capacity building, and humanitarian assistance. "The report also suggested a shift from India's current approach to India's defence and security cooperation with Africa and other developing countries," said the

report launched during the meeting where government officials and captains of business and industry are further meeting on Tuesday to discuss a wide range of areas of potential cooperation.

The report highlighted that India and African countries are important stakeholders in ensuring a safe and secure maritime environment in the Indian Ocean Region, especially among the nine Indian Ocean littoral countries (IOLC) in Africa. These are Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa, and Tanzania. "As a major shipping link for India, the Indian Ocean remains the common factor for these countries and is pivotal in terms of both security and commerce for India and Africa. India and Africa share a robust maritime partnership, which is based on the cooperative framework of 'SAGAR' (Security and Growth for All in the Region)," it said as it highlighted some of the work done already. "Ministry of Defence has been strengthening cooperation within the framework of Indian Ocean Rim Association (IORA) to undertake specific projects and has formalised frameworks of defence cooperation with South Africa, Kenya, Tanzania, Mauritius, Seychelles, and Madagascar," it said, listing some figures.

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<https://economictimes.indiatimes.com/news/defence/india-could-fulfill-africas-maritime-aerospace-and-defence-requirements-exim-bank-report/articleshow/95227618.cms?from=mdr>



*Tue, 01 Nov 2022*

## **Army Commanders to Discuss Security Situation, 'Make in India' in Defence Next Week**

The entire top brass of the Indian Army will come together next week in the national capital to review the security situation along the borders. The top brass of the Army led by General Manoj Pande would be part of the Army Commanders' Conference starting Monday where they would discuss all aspects related to security and operational preparedness, Army officials said. The conference would be taking place for the first time after the completion of disengagement between the Indian and Chinese Army from four friction points created after the May 2020 aggression by the Chinese military. The conference is also expected to look at newer ways to push Make in India in defence for developing more indigenous weapon systems for the troops.

General Pande is a strong supporter of indigenisation and has asked officers dealing with modernisation to handhold the Indian private and public sector firms to develop world-class weapons. The meeting is expected to be addressed by Defence Minister Rajnath Singh and Chief of Defence Staff General Anil Chauhan. The meeting would also see interaction with other services which would help in enhancing jointness among the forces. Steps towards the creation of theatre commands are also likely to come up for discussion at the meeting.

<https://www.aninews.in/news/national/general-news/army-commanders-to-discuss-security-situation-make-in-india-in-defence-next-week20221101203228/>



Tue, 01 Nov 2022

## **Army Fully Prepared, Ready for Action: GOC Chinar Cops on Rajnath Singh's Reclaiming PoK Comment**

Days after Defence Minister *Rajnath Singh* raked the Gilgit-Baltistan issue and stressed on reclaiming the remaining parts of Pakistan-occupied Kashmir (PoK), Chinar Corps Commander Lt Gen ADS Aujla said the *Indian Army* is fully prepared and the forces are ready for any action on orders from the government. While gracing the '*Shaurya Diwas*' celebrations in Srinagar, Jammu & Kashmir (J&K) on October 27, 2022 to commemorate the 75th year of air landed operations of Indian Army at Budgam Airport in 1947, Singh said: "Pakistan is fully responsible for inhuman incidents against innocent Indians in PoK. In the times to come, Pakistan will face the result of its atrocities. Today, the region of J&K and *Ladakh* is touching new heights of development. This is just the beginning. Our aim is to implement the resolution unanimously passed in Indian Parliament on February 22, 1994 to reclaim remaining parts, such as *Gilgit and Baltistan*."

Addressing the media on the defence minister's recent statement and current situation of Kashmir and border areas, ADS Aujla said that "whenever the central government takes such a decision, orders will come to us and in such a situation, we are fully prepared. Apart from our conventional strength, we are also strengthening ourselves modernly, so that we do not have to look back in such a situation." Gilgit-Baltistan is currently administered by Pakistan. It connects Pakistan and China through a land route. To the west of Gilgit-Baltistan lies Afghanistan and to its south is Pakistan-occupied Kashmir (PoK). Meanwhile, the Chinar Corps Commander assured that the situation along the Line of Control (LoC) is completely under control and the Army is ready with full force to protect the borders.

The Army officer stressed that there has been a significant decrease in infiltration bid from the Pakistani side. "It has been a very good year in view of the restoration of peace in the valley, showing the lowest infiltration in 32 years, in this whole year till the month of October, only eight terrorists tried to infiltrate, out of which three were eliminated," he said.

<https://www.timesnownews.com/india/army-fully-prepared-ready-for-action-goc-chinar-cops-on-rajnath-singhs-reclaiming-pok-comment-article-95217410>



*Tue, 01 Nov 2022*

## **Bhutanese Lt Gen Tshering Lays Wreath at National War Memorial; Receives Guard of Honor**

The Chief Operations Officer of the Royal Bhutan Army, Lt General BatooTshering received a Guard of Honour at South Block, Delhi on Tuesday. Lt General BatooTshering is in India for a visit after an invite by the Chief of Army Staff of the Indian Army, General ManojPande. Lt Gen Batoo's visit is scheduled to last for six days, during which he is set to meet the Chief of Defense Staff, Chief of Army Staff, Chief of Air Staff, Vice Chief of Army Staff and the Director General of Military Operations. Moreover, he will also call on the Defense Secretary of India. As part of his visit, Lt Gen Batoo attended and reviewed the passing out parade (POP) of officers at the Officers Training Academy, Chennai. The POP saw 151 gentlemen cadets, 35 women cadets, and 36 cadets from friendly foreign countries getting commissioned as officers. Furthermore, Lt Gen BatooTshering also laid a wreath at the National War Memorial prior to getting the guard of honour.

### **Bhutan's role as a buffer zone between India-China**

Bhutan is significant to India as it acts as a buffer state between India and China. The nation of Bhutan acts as a defence against China by protecting India's Chicken Neck Corridor (Aka-Siliguri Corridor) from any possible Chinese aggression. The Siliguri Corridor is a narrow stretch of land of approximately 22 Kilometers and is situated in the Indian state of West Bengal. The corridor connects India's northeastern states to the rest of the nation, with Nepal and Bangladesh lying on either side of the corridor. The strategic significance of Bhutan for India was re-established following the Doklam stand-off between the Indian Army and China's People's Liberation Army (PLA).

Bhutan and India share healthy bilateral relations, the framework of which was created by the Treaty of Friendship and Cooperation signed in 1949 between the two nations. The treaty called for peace between the two nations and advocated non-interference in each other's internal affairs. The visit by Lt Gen BatooTshering is expected to enhance and strengthen the ties between the two nations and further solidify that defence cooperation. The Treaty of Friendship was revised in 2007, and Bhutan agreed to let India guide its foreign policy. Both India and Bhutan would consult each other closely on foreign affairs and defence issues. The diplomatic relations between India and Bhutan were officially established in 1968 with the establishment of a special office of India in Thimphu.

<https://www.republicworld.com/world-news/rest-of-the-world-news/bhutans-strategic-significance-for-india-as-lt-gen-batoo-tshering-receives-guard-of-honor-articleshow.html>

# Business Standard

*Tue, 01 Nov 2022*

## **UP Defence Corridor Set to Realise 50,000 cr Investment Potential**

The Uttar Pradesh Defence Corridor is on track to realise its estimated investment potential of Rs 50,000 crore, former Air Chief Marshal R K S Bhadauria has said. Bhadauria, who is now the Chief Nodal Officer of the UP Defence Industrial Corridor, said the state government has taken a slew of policy measures to actualise the potential of the mega project of national importance. He said memoranda of understanding (MoU) for investment worth nearly Rs 12,000 crore had already been signed with private companies and institutional entities. “Apart from the MoUs already signed, fruitful discussions are underway with other companies looking to invest in the Corridor,” he told Business Standard.

Bhadauria said efforts were being made to rope in anchor players and innovative startups to foster defence manufacturing ecosystem and a robust supply chain for maximising the benefits of the Corridor project. The UP Corridor comprises six nodes, namely, Lucknow, Kanpur, Jhansi, Aligarh, Chitrakoot and Agra. So far, nodal agency UP Expressway Industrial Development Authority (UPEIDA) has acquired about 1,600 hectares of land for allotment to the private companies. Besides, the state has suitably amended the UP Defence and Aerospace Employment Promotion Policy to woo the private sector defence players. In fact, the Corridor is positioned as an important component for India to achieve desired self-reliance in defence and military ware production, and to become a net defence exporter through indigenous production, import substitution and tapping the lucrative export markets.

Meanwhile, among the prominent UP Defence Corridor projects, which have already been launched, include the Indo-Russian joint venture of BrahMos missile project in Lucknow. BrahMos is a joint venture between India’s Defence Research and Development Organisation (DRDO) Russia’s NPOM to develop next generation supersonic missiles for the Indian forces. Moreover, the Adani Group had announced plans to develop South Asia’s largest integrated ammunition manufacturing facility spread over 250 acres. For the estimated Rs 1,500 crore project, Adani Defence & Aerospace has already signed an MoU with UPEIDA. “Any defence corridor is a complex project and requires mutually supportive industries and linkages with segments such as training, skilling, education, human resources, warehousing etc. The private companies also need active support of the central and state governments,” Bhadauria opined. However, he claimed the UP Corridor has been successful in attracting a number of startups working on innovative and novel technologies in the defence sector.

Meanwhile, the Yogi Adityanath government is planning to showcase the state defence manufacturing capability at the proposed UP global investor summit 2023, wherein the state has set the target of attracting investment of Rs 10 trillion. “The defence spectrum will play a vital role in the summit and we are tentatively targeting to net fresh investment of Rs 30,000 crore in the defence manufacturing sector,” Bhadauria added. Leading defence manufactures from the US, Europe and Russia are expected to participate in the summit to be held on February 10-12, 2023 in Lucknow. Some top companies include US missile company Northrop Grumman; UK’s

missile launch systems and ammunition maker BAE Systems; German rifle company Umarex; Swedish firm SAAB, which makes Carl Gustaf M4 rifles; Russia's Almaz-Antey, which is among the top military hardware exporters; France's Dassault Aviation which manufactures Rafale jets; and Israel Weapon Industries (IWI) which makes unmanned aerial vehicle helicopter systems.

[https://www.business-standard.com/article/economy-policy/up-defence-corridor-on-track-of-potential-investment-of-rs-50-000-crore-122110101247\\_1.html](https://www.business-standard.com/article/economy-policy/up-defence-corridor-on-track-of-potential-investment-of-rs-50-000-crore-122110101247_1.html)

## नवभारत टाइम्स

बुधवार, 02 नवंबर 2022

### कैसे डिफेंस सेक्टर की सूरत बदलेगा सी-295

भारत में लगभग 125 एमएसएमई सी-295 की सप्लाई चेन में शामिल होंगे। 40 विमानों का शुरुआती ऑर्डर देश में उत्पादन का एक ढांचा खड़ा कर देगा



आरकेएस भदौरिया

प्रधानमंत्री नरेंद्र मोदी ने रविवार को गुजरात के वडोदरा में टाटा कंसॉर्टियम के सी-295 एयरक्राफ्ट मैनुफैक्चरिंग प्लांट की नींव रखी। यह कदम कई वजहों से खास है। पहली बार इतने बड़े स्तर का प्रॉजेक्ट सीधे प्राइवेट सेक्टर को दिया गया है और पहली ही बार इस ट्रांसपोर्ट विमान को बनाने का प्लांट देश में लगाया जा रहा है।

- एयरबस डिफेंस एंड स्पेस का सी-295 विमान एयरक्राफ्ट दो ग्रैंट एंड विटनी इंजन से लैस, पूरी तरह सक्षम है और अपनी क्षमता साबित कर चुका है। 12 देशों में यह व्यापक इस्तेमाल में है।
- नौ टन क्षमता वाला यह विमान 71 पैसेंजर्स या 44 पैराट्रूपर्स या 24 मेडिकल स्ट्रेचर्स को ले जा सकता है।
- एयरबोर्न रडार सिस्टम, इलेक्ट्रॉनिक इंटीलिजेंस, समुद्री निगरानी आदि से जुड़ी अपनी क्षमता यह साबित कर चुका है।

- सिविल एप्लिकेशंस के लिए भी यह विमान सर्टिफाइ किया जा चुका है।

इस विमान की बहुपयोगिता भारतीय वायुसेना की सामरिक ट्रांसपोर्ट क्षमता में जबर्दस्त इजाफा करने वाली है। अगले दशक तक यह बेड़ा भारतीय वायुसेना के संपूर्ण टैक्टिकल ट्रांसपोर्ट ऑपरेशन की रीढ़ बन चुका होगा।

**सप्लाई चेन को मिलेगी मजबूती:** प्रॉजेक्ट में एयरबस से टेक्नॉलजी ट्रांसफर के जरिए प्रोडक्शन इन्फ्रास्ट्रक्चर का निर्माण भी शामिल है। परिणामस्वरूप मैनुफैक्चरिंग का सप्लाई चेन टाटा से कई सारे एमएसएमई तक फैल जाएगा। मौजूदा समझौते के मुताबिक होने वाले 40 विमानों के निर्माण से 4600 सब-असेंबली, 13,400 छोटे पार्ट पुर्जों और आउटर विंग्स, सेंटर विंग बॉक्स जैसी सात चीजों की मैनुफैक्चरिंग शुरू होने का अनुमान है। फाइनल असेंबली टाटा के प्लांट में की जाएगी। इस प्रॉजेक्ट का एक मुख्य पहलू इन विमानों में भारतीय इलेक्ट्रॉनिक्स लिमिटेड और भारत डायनामिक्स लिमिटेड का पूर्ण स्वदेशी इलेक्ट्रॉनिक वॉरफेयर सूट का लगना भी है। आंकड़ों के अनुसार भारत में लगभग 125 एमएसएमई इस सप्लाई चेन में शामिल होंगे। मोटे तौर पर यह शुरुआती ऑर्डर देश में उत्पादन का एक संतोषजनक ढांचा खड़ा कर देगा।

'मेक इन इंडिया' के लिहाज से बात की जाए तो आने वाले दशकों में इस प्रॉजेक्ट का असर देश





### कॉमन रूम

में 40 विमानों के निर्माण से कहीं आगे तक जाने वाला है। इसलिए जरूरी है कि दोनों स्तरों पर संभावनाओं का दोहन करने की दृष्टि से सोचना शुरू कर दिया जाए- एक तो उन क्षेत्रों में जहां विकास अभी से दिखाई देने लगा है और दूसरा उन क्षेत्रों में जहां कुछ काम करने की जरूरत है।

- जहां तक इसके असैन्य इस्तेमाल की संभावनाओं का सवाल है तो सबसे पहले तो गौर करने की बात यह है कि 40 विमानों के मौजूदा ऑर्डर के अतिरिक्त नौसेना और तटरक्षक दल भी अपनी अपनी जरूरतों के मद्देनजर इसमें दिलचस्पी दिखाने लगे हैं।
- भारतीय वायुसेना की ओर से भी अतिरिक्त ऑर्डर की संभावना बनी हुई है।

- फिर भी सिविल एप्लिकेशंस में संभावनाएं तलाशने पर भी जरूर विचार होना चाहिए।
- ध्यान रहे, टाटा के पास भी सिविल एयरलाइंस है। इसलिए उसे कुछ विमान लेने पर तो सोचना ही चाहिए।
- यात्री सेवा के साथ ही माल ढुलाई सेवा के लिए भी सी-295 विमान पर विचार होना चाहिए, खासकर दुर्गम क्षेत्रों में और अधबने रनवे पर भी ऑपरेट करने की इस विमान की क्षमता को देखते हुए।

साफ है कि उभरते इकोसिस्टम के लिए यह प्रॉजेक्ट जबर्दस्त संभावनाएं मुहैया करा रहा है। पहला लक्ष्य टाटा और एमएसएमई की उत्पादन क्षमता को 40 विमानों से कहीं आगे तक पहुंचा देना है ताकि यह बड़ी हुई क्षमता और सप्लाय चैन भारतीय ऑर्डर तक सीमित न रहते हुए निर्यात संभावनाओं पर भी निगाहें टिका सके।

संक्षेप में, सी-295 प्राइवेट सेक्टर में विमान निर्माण के एक नए दौर की शुरुआत साबित होने वाला है। देश में बनने वाले इस बहुपयोगी विमानों की संख्या बढ़कर करीब 200 तक तो पहुंच ही जाएगी। जाहिर है, देश भर में एविएशन इकोसिस्टम पर वास्तविक असर जो आज दिख रहा है वह गुणात्मक रूप से बढ़ने वाला है। इसलिए प्राइवेट सेक्टर इकोसिस्टम को बड़े लेवल पर सोचना शुरू कर देना चाहिए।

(लेखक पूर्व वायुसेना प्रमुख हैं)

**HT Hindustan Times**

Tue, 01 Nov 2022

## Why is the Tata-Airbus C-295 Project Important for Indian Defence Manufacturing?

The Airbus-Tata joint venture to manufacture C-295 medium-lift transport aircraft in Vadodara in Gujarat through the strategic partnership route is the first among many steps that India needs to take before “Atamanirbhar Bharat” campaign of Prime Minister Narendra Modi becomes a serious catalyst for military-industrialisation of the country. The C-295 project is a far cry from the 1990s when decision was taken to assemble Su-30 MKI fighters by defence PSU Hindustan Aeronautics Limited (HAL) after purchasing the initial lot from Russia post clearance of the Cabinet Committee on Security (CCS) by the then United Front government. The C-295 project has also been cleared by the CCS of the NDA government but for the first time a private partner

has been chosen by the original equipment supplier for manufacturing two-thirds of the contracted order in India not a defence PSU.

While 40 C-295 aircraft will be assembled in India, the remaining 16 of the total Rs. 22,000 crore order will be flown from Spain. The Gujarat manufacturing will also create domestic supply chain of MSMEs to provide key parts for making the C-295 aircraft. But this is only the first important step towards true “Atamanirbhar Bharat.” PM Modi will be able to develop large scale military-industrial complex in the country provided steps are taken to indigenously set up design, development, testing and certification facilities for capital platforms like armed drones, fighters, tanks, and submarines by involving the key players in private defence sector. This accompanied by industrial units manufacturing critical parts like infra-red seekers (needed for anti-tank missiles), inertial navigation system (for missiles and fighters) and hot engine technologies, will ensure that India does not have to depend on any third country for its military requirements.

While to date India depends on the Defence Research and Development Organization (DRDO) to design, develop, test, and certify any hardware platform, it is time that independent facilities are build where military products design and developed by the private sector are tested and certified to meet global requirements. It is most important to involve private sector in hardware development as neither the defence PSUs nor the DRDO have been able to meet required deadlines or accountability. Fact is that the Su-30 MKI assembled/ manufactured by the HAL is more expensive than the one directly imported from Russia due to inherent inefficiencies in the PSU with long man hours and comparative low productivity. The delays in the design and development of the shoulder fired anti-tank guided missile (ATGM) system and the medium altitude long endurance unmanned aerial vehicle by the DRDO makes a fit case for private sector involvement in weapons manufacturing in India.

While the proposed India-US venture to manufacture Javelin ATGM fell through in the past decade due to American license restrictions to transfer heat seeker technology to India, the decision to domestically manufacture Israeli Spike ATGM fell through as the DRDO told the government in writing that it already had the technology. Fact is that the DRDO still not has fully developed the shoulder fired version of ATGM and India had to rush to Israel to buy Spike ATGM from Israel at hiked rates when Chinese PLA transgressed into East Ladakh in May 2020 with tanks, missiles and rocket regiments deployed in occupied Aksai Chin areas. Rather than go for outright purchase of hardware in critical areas like submarines and fighters, India needs to go into joint development with the original equipment manufacturer so that it acquires the specialized skills for weapons design and development.

If India had jointly designed and developed Scorpene submarines with French Naval Systems as was offered in past decades, it would now have the talent, capability, and machine tooling skills to produce more such platforms and save precious foreign exchange spent on direct acquisition. With the global supply chains still to recover from Covid pandemic and uncertainty further compounded by Russia’s Ukraine war and Chinese belligerence in Indo-Pacific and East Ladakh, India needs a military-industrial complex to bolster its strategic autonomy. Despite both Russia and US both selling to Pakistan, India has no options but to purchase platforms, common with the adversary, from these two countries. The C-295 project is the right beginning.

<https://www.hindustantimes.com/india-news/why-tata-airbus-c-295-project-important-for-indian-defence-manufacturing-101667281504583-amp.html>



## The C-295 and India's Aircraft Industry

By Dinakar Peri

**The story so far:** On October 30, Prime Minister Narendra Modi laid the foundation stone for the C-295 transport aircraft manufacturing facility in Vadodara to be set up by Airbus Defence and Space and Tata Advanced Systems Limited (TASL). This is the first time a private sector company would be manufacturing a full aircraft in the country. This is a huge step forward for India in the global aircraft manufacturing domain.

### What is the C-295MW transporter?

The C-295MW is a transport aircraft of 5-10 tonne capacity which will replace the legacy Avro aircraft in the Indian Air Force (IAF) procured in the 1960s. The Request For Proposal (RFP) was issued to global firms in May 2013 and the sole bid by Airbus and TASL was approved by the Defence Acquisition Council in May 2015. On September 24, 2021 the Ministry of Defence (MoD) signed a Rs. 21,935 crore contract with Airbus Defence and Space for the acquisition of 56 C-295MW aircraft along with associated equipment. In the words of N. Chandrasekaran, Chairman of Tata Sons, with the set-up of the final assembly line in Vadodara, the Tata Group will now be able to take aluminium ingots at one end of the value stream and turn it into an Airbus C-295 aircraft for the IAF.

Of the 56 aircraft contracted, 16 will come in fly-away condition from Spain between September 2023 and August 2025. The remaining 40 will be manufactured here to be delivered between September 2026 and 2031 at the rate of eight aircraft per year. Nearly 240 engineers will be trained at the Airbus facility in Spain for the project, the MoD said. The C-295 has very good fuel efficiency and can take off and land from short as well as unprepared runways, according to Air Marshal Sandeep Singh, Vice Chief of IAF. The IAF will base its first C-295 squadron in Vadodara by converting the Avro squadron located there, as the fly-away aircraft start coming in, he stated.

With the procurement of these aircraft, India has become the 35th C-295 operator worldwide. With 285 aircraft ordered and 38 operators in 34 different countries, the aircraft has achieved more than 5,00,000 flight hours. The Navy and the Coast Guard have also expressed interest in the C-295 and it can be used in civilian roles as well as exported in the future. The C-295 is also a potential replacement for the AN-32 aircraft, the workhorse of the IAF with over 100 of them in service. To questions on this Air Marshal Singh said that the AN-32s will be in service upto 2032 and beyond and that they would make a decision on its replacement in five years or so from now.

### How will this affect the domestic aircraft manufacturing ecosystem?

Over the last two decades, Indian companies, both public and private, have steadily expanded their footprint in the global supply chains of major defence and aerospace manufacturers supplying a range of components, systems and sub-systems. For instance, Boeing's sourcing from India stands at \$1 billion annually, of which over 60% is in manufacturing, through a growing network of 300+ supplier partners of which over 25% are micro, small and medium

enterprises (MSME). “Boeing has the broadest and most capable engineering teams in the country with over 3,000 employees, and we’re investing in a 43-acre, \$200 million centre of excellence to further grow in the years to come,” a company statement said. Tata in a joint venture (JV) with Boeing, manufactures aero-structures for its AH-64 Apache helicopter, including fuselages, secondary structures, vertical spar boxes fuselages and vertical fin structures for the 737 family of aircraft. It also makes Crown and Tail-cones for Boeing’s CH-47 Chinook helicopters.

Similarly, Lockheed Martin has joint ventures with TASL in Hyderabad which has manufactured more than 180 empennages for the C-130J Super Hercules transport aircraft and delivered 157 S-92 helicopter cabins. The latter facility manufactures aerospace components for commercial helicopters and aircraft and has expanded to include aircraft engine components for aerospace industry companies as well. One of the JV’s also began manufacturing complex fighter wings with over 70% of detail parts produced indigenously. The JVs till date have clocked \$600 million worth of exports and produced over \$200 million in Indian industry revenue. The U.S. simplifying its export regulations for India through a series of measures has added further impetus to this, experts noted. As U.S. and India pursue the Indo-Pacific strategy, India’s strengths coupled with U.S. and European technology prowess can be a force for good in the world, noted Kriti Upadhyaya, Founder IndUS Tech Council who works closely with companies in both countries.

The domestic defence manufacturing ecosystem will get a boost with the C-295 project as it will lead to the development of a strong private industrial aerospace ecosystem not only in and around Vadorara but across the country. Bengaluru and Hyderabad already have developed such aerospace and defence domains over the years. The C-295 project is expected to create more than 15,000 skilled direct and indirect jobs across the aerospace ecosystem, with more than 125 suppliers qualified on global quality standards across India. Manufacturing of over 13,400 detail parts, 4,600 sub-assemblies and all the seven major component assemblies will be undertaken in India, along with tools, jigs and testers, Tata said.

### **Is India’s civil aviation sector growing?**

India has a much bigger footprint in civil aviation manufacturing than defence, in addition to being a major market itself. Both Airbus and Boeing do significant sourcing from India for their civil programmes. According to Airbus every commercial aircraft manufactured by them today is partly designed and made in India. “We buy manufactured parts and engineering services worth \$650 million every year from more than 45 Indian suppliers”, the company said. Stating that India, which is moving ahead with the mantra of ‘Make in India’ and ‘Make for the Globe’, continues to enhance its potential by becoming a major manufacturer of transport planes, Mr. Modi said, “And I can visualise the day when the world’s biggest passenger planes will also be manufactured in India and will also carry the tag of ‘Make in India’.

Since 2007, Airbus has had a wholly domestic-owned design centre here which has more than 650 engineers who specialise in high-tech aeronautical engineering and work across both fixed- and rotary-wing Airbus aircraft programmes. Airbus which has design, management and training centres in India, added, “Our centres have the capacity to skill more than 8,000 pilots and 2,000 engineers over the next 10 years with plans for further expansion.” Today in India, we have the world’s fastest growing aviation sector and we are about to reach the top three countries in the world in terms of air traffic, Mr. Modi said. “Crores of new passengers are going to be air

passengers in the next 4-5 years... It is estimated that in the coming 10-15 years, India will need about 2000 more passenger and cargo aircraft.”

Another major growing area is Maintenance, Repair and Overhaul (MRO) for which India can emerge as the regional hub, Ms. Upadhyaya remarked adding, “However, the private defence sector is still nascent and a conducive and stable regulatory and policy environment will be an important enabler.” This moment is akin to the automobile clusters that have emerged in the country turning India into a major exporter of cars to the world. With the right momentum, a realistic roadmap and enabling policy framework, a similar story can be scripted to make the country a hub for aircraft manufacturing.

- On October 30, Prime Minister Narendra Modi laid the foundation stone for the C-295 transport aircraft manufacturing facility in Vadodara to be set up by Airbus Defence and Space and Tata Advanced Systems Limited (TASL)
- Indian companies, both public and private, have steadily expanded their footprint in the global supply chains of major defense and aerospace manufacturers supplying a range of components, systems, and subsystems
- India has a much bigger footprint in civil aviation manufacturing than defense, in addition to being a market itself. Both Airbus and Boeing do significant sourcing from India for their civil programmes

<https://www.thehindu.com/news/national/explained-the-c-295-and-indias-aircraft-industry/article66083246.ece>

## Outlook

*Tue, 01 Nov 2022*

### **Indian and Israeli Companies to Jointly Produce Electronic Warfare System**

India’s Centum Electronics Ltd. and Israel’s Rafael Advanced Systems Ltd. signed a Memorandum of Understanding (MoU) on October 29 to jointly develop an electronic warfare (EW) system for the Indian Navy and the Indian Coast Guard. At present, the Indian Navy is using ‘Shakti’, an advanced indigenous system designed by India’s Defence Research and Development Organisation (DRDO). The MoU was signed between Mr. Nikhil Mallavarapu, Executive Director of Centum Electronics Ltd. and Mr. Oded Fisher, Naval Warfare System of Rafael Advanced Systems Ltd. It was signed in the presence of Centum’s president Mr. Vinod Chippalkatti, their Director of Business Development Mr. Subhash Ahlawat and Mr. Shardul Rauthela, the Naval Systems Director for Rafael.

Commenting on the deal, Mallavarapu said, “Through this partnership, we look forward to augmenting our indigenous Electronic Warfare offerings with a range of high performance, mission critical products in the domain. This MoU encompasses knowledge sharing and manufacturing in India, and will help us in our endeavour to build a self-reliant India.” As per the MoU, the aim is to operate the EW platform in the lower frequency bands. Additionally, life cycle support of the existing EW systems is also included within the scope of this deal.

Now, it remains to be seen whether the Centum-Rafael EW system will eventually replace the indigenously developed 'Shakti' that was formally handed over to the Indian Navy just last year.

<https://www.outlookindia.com/business/indian-and-israeli-companies-to-jointly-produce-electronic-warfare-system-news-233996>

# The Tribune

*Wed, 02 Nov 2022*

## **India, US Must Bridge the Gulf on Indo-Pacific**

The formation of AUKUS to defend Pacific Asia came as an unpleasant surprise to India. New Delhi views it as an alliance irrelevant to a non-aligned India, as distinct from Quad. The US decision to help Australia develop a nuclear submarine dismayed India, not least because Washington had rejected New Delhi's request for one. AUKUS prioritises the US' contest with China over the control of international ocean lanes — and which strategic partner would help defend them. With President Xi Jinping telling the 20th Chinese Communist Party Congress that China will continue to practice a more assertive foreign policy, it is good that the latest US National Security Strategy (NSS, October 12) hails India as a major defence partner. Washington, like New Delhi, wants to maintain the rules-based order in the Indo-Pacific, where China is the common threat to India's territorial integrity, and the US' only competitor.

The NSS perceives China having the “the intent to reshape the international order and, increasingly, the economic, diplomatic, military and technological power to do it.” The strategy paper warns that Beijing has ambitions to enhance its clout in the Indo-Pacific and to become the world's leading power. The shared aim of the US and India to preserve security in the Indo-Pacific does not hide the frequent tension between them at bilateral and international levels, especially when it comes to Russia and Pakistan. On the global plane, the NSS sees the US involved in a struggle between the world's autocracies and democracies. Russia's invasion of Ukraine threatens the free and open international system by recklessly flouting international law and the UN Charter.

India's neutrality on the Russian assault on Ukraine is merely one piece of an emerging, intertwined, bilateral and international political jigsaw puzzle, partly because both China and India-friendly Russia oppose the Quadrilateral Security Dialogue, of which India is a member. Additionally, both Beijing and Moscow have condemned the rules-based order, to which Quad subscribes, as a tool used by the US to help it to dominate the world. Two more pieces of puzzle have been created — India's decision to buy Russian oil and the US' annoyance at India's choice. The US has offered to replace Russian oil, which costs India \$15-20 a barrel, while the US crude costs (at the time of writing this article) more than \$86 a barrel. Currently, Russian oil accounts for 21 per cent of the country's total oil purchase, against 2.2 per cent before the Ukraine war. Oil imports from the US have fallen from more than 9.2 per cent last year to 5.4 per cent now.

Both India and the US perceive China as the primary threat to their security. To strengthen the interoperability of their armed forces with the intent of containing China, the US and India held

YudhAbhyas — joint military drills (October 14-31) — in a high-altitude area less than 100 km from the Sino-Indian frontier. Beijing opposed the exercise as meddling by a third party in its border dispute with India. All Quad countries plan to carry out more military exercises before the end of the year. Although the NSS does not mention Pakistan, the Biden administration, in Washington's first major security assistance to Islamabad in four years, will allot \$450 million to help Pakistan modernise its fleet of F-16 military aircraft to combat terrorism. This military largesse will be bestowed on Pakistan despite the fact that since the Cold War, Islamabad has used US arms against India rather than fight America's enemies in the Middle East or extremists in South Asia.

Meanwhile, the US Ambassador to Pakistan, Donald Blome, outraged New Delhi when he visited the Pakistani-held part of Kashmir on October 5 and called it by its Pakistani name — “Azad Jammu and Kashmir” — instead of “Pakistan-administered Kashmir”, as the UN calls it. Indeed, Pakistan represents a longstanding ‘down’ in the India-US relationship. For instance, India had assumed that the US would stay the course against the Afghan Taliban. So, in August 2021, Biden's decision to withdraw US troops from Afghanistan and the consequential recapture of the country by the Pakistani-trained Taliban after two decades shocked India and increased its fears of extremism spreading across South Asia. A month later, the subsequent formation of AUKUS, comprising old allies Australia, the UK and the US, to defend Pacific Asia also came as an unpleasant surprise to India.

New Delhi views AUKUS as an alliance irrelevant to a non-aligned India, as distinct from Quad, a loose arrangement comprising India, the US, Japan and Australia. The US decision to help Australia develop a nuclear submarine dismayed India, not least because Washington had rejected New Delhi's request for one. AUKUS prioritises the US' contest with China over the control of international ocean lanes — and which strategic partner would help defend them. Evidently, Washington wants to rely on a nuclear-propelled Australian underwater fleet to secure the Indo-Pacific. India is the only Quad country to have a land dispute with China; the US favours a bilateral solution to their conflict. Currently, the US' attention is focused on defending Taiwan against an aggressive China. More generally, the question arises whether the Indo-Pacific will remain the US' top priority as Biden increases commitments to Europe. There are more than 1,00,000 US troops in Europe today, compared to around 70,000 around the start of the Russian invasion of Ukraine in February.

At another level, the NSS refers to India as the world's largest democracy. But domestic human rights issues have also become a bone of contention between the US and India. For instance, last April, US Secretary of State Antony Blinken alleged a rise in human rights abuses in India. New Delhi riposted that India was concerned about the state of human rights in the US. But tit-for-tat diplomacy, while common, is not the hallmark of a good relationship. India's simultaneous efforts to cultivate good relations with the US and Russia highlight conceptual differences between New Delhi and Washington on the Indo-Pacific and on how best to contain China in Asia, and to counter Russia's transgression of international law in Ukraine. India and the US remain friendly partners, but separated by some distance. Narrowing that gap and strengthening their ties will enhance the Indo-Pacific security and serve the interests of both countries.

<https://www.tribuneindia.com/news/comment/india-us-must-bridge-the-gulf-on-indo-pacific-446654>



## चीन को सीख, देशों की संप्रभुता का सम्मान हो



**SCO** की बैठक में विदेश मंत्री ने कहा, चाबहार से कारोबार बढ़ेगा।

■ पीटीआई, नई दिल्ली: विदेश मंत्री एस जयशंकर ने मंगलवार को शंघाई सहयोग संगठन के देशों में बेहतर कनेक्टिविटी पर जोर दिया। संगठन की बैठक में जयशंकर ने यह भी कहा कि कनेक्टिविटी की इन परियोजनाओं में सदस्य देशों की संप्रभुता और क्षेत्रीय अखंडता का भी सम्मान किया जाना चाहिए। विदेश मंत्री की इस टिप्पणी को चीन के बेल्ट ऐंड रोड इनिशिएटिव प्रोजेक्ट के संदर्भ में देखा गया।

संगठन से जुड़े शासनाध्यक्षों की परिषद की बैठक में विडियो कॉन्फ्रेंस से शामिल हुए जयशंकर ने कहा कि (ईरान में) चाबहार बंदरगाह और 'इंटरनेशनल नॉर्थ-साउथ ट्रांसपोर्ट कॉरिडोर' इस क्षेत्र में आर्थिक क्षमता की संभावनाएं के नए रास्ते खोलेगा। ये प्रोजेक्ट मध्य एशियाई देशों में सुगम संपर्क का जरिया बन सकते हैं। बैठक के बाद जयशंकर ने ट्वीट कर कहा कि हमें मध्य एशियाई देशों के हितों का ध्यान रखते हुए एससीओ क्षेत्र में बेहतर संपर्क स्थापित करने की जरूरत है। एससीओ सदस्य देशों के साथ हमारा कुल व्यापार 141 अरब डॉलर का है। इसमें कई गुना वृद्धि की संभावना है।

एससीओ में रूस, चीन, किर्गिज गणराज्य, कजाखस्तान, ताजिकिस्तान और उज्बेकिस्तान हैं। भारत और पाकिस्तान 2017 में सदस्य बने।

## पूर्वी चीन सागर के पास जंग का अभ्यास करेंगे क्वॉड समूह के देश

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■ नई दिल्ली: इस बार जब भारत की नौसेना अमेरिका, जापान और ऑस्ट्रेलिया की नेवी के साथ जंग का अभ्यास करेगी तो चीन की बेचैनी बढ़ सकती है। क्वॉड समूह में शामिल ये चारों देश इस बार पूर्वी चीन सागर के नजदीक जापान के योकोसुका तट के पास मालाबार युद्धाभ्यास करेंगे। यह सैनिक अभ्यास 8 से 18 नवंबर के बीच होगा।

जापान के योकोसुका तट के पास होगा मालाबार युद्धाभ्यास

● **मुद्दा क्यों है अहम?** चीन पर आरोप लगते रहे हैं कि वह दक्षिण और पूर्वी चीन सागर में कई कृत्रिम द्वीप बनाकर इलाके में अपनी दादागिरी बढ़ा रहा है। समुद्र में चीन के बढ़ते दबदबे को काबू करने और मुक्त आवाजाही के लिए क्वॉड का गठन हुआ और अमेरिका, भारत, जापान और ऑस्ट्रेलिया साथ आए। चीन क्वॉड को अपने खिलाफ गठित समूह बताता रहा है।

● **मालाबार की शुरुआत कब से?** मालाबार युद्धाभ्यास की शुरुआत 1992 में हुई थी। नवंबर में यह 26वां अभ्यास है। पहले भारत, अमेरिका और जापान ही इसका हिस्सा थे। दो साल पहले ऑस्ट्रेलिया भी इसका हिस्सा बन गया। अब क्वॉड

समूह के ये चारों देश इसका हिस्सा हैं। इस अभ्यास में चारों देशों की नौसेनाओं की सर्वश्रेष्ठ जंगी क्षमता एक-दूसरे से साझा की जाएगी।

मालाबार युद्धाभ्यास में भारत की तरफ से INS कमोर्टा, INS शिवालिक और लंबी दूरी तक निगरानी करने वाले पी-8आई विमान शामिल होंगे। ये विमान गहरे पानी में दुश्मन की सबमरीन को ढूंढकर उसे नष्ट करने में सक्षम हैं। चीन से तनातनी

के बीच भारत ने हिंद महासागर में इन विमानों को तैनात किया है।

● **अभ्यास का फोकस?** इस युद्धाभ्यास का मकसद क्वॉड देशों की नौसेनाओं के बीच समन्वय मजबूत करना है। जंग की स्थिति में जंगी जहाज की तैनाती और एंटी सबमरीन वॉरफेयर पर भी फोकस रहेगा।

अमेरिका की नेवी अपने कैरियर बैटल ग्रुप USS रोनाल्ड रीगन के साथ मालाबार एक्सरसाइज में हिस्सा ले रही है। यह दो चरणों में होगी। पहला हार्बर फेज और दूसरा सी फेज। हार्बर फेज में एक्सरसाइज के लिए रणनीति बनाई जाएगी और सी फेज में इस रणनीति को समंदर पर उतारा जाएगा। जिस बेस पर एक्सरसाइज होनी है, उसी बेस पर जापान 2 से 7 नवंबर तक इंटरनेशनल फ्लीट रिव्यू भी कर रहा है।

## **Australia keen to Crank up Military Ties with India as China Flexes Muscle in Indo-Pacific Region**

Amid muscle-flexing by China in the IndoPacific, Australia is keen to further crank up military ties with India in terms of maritime domain awareness, combat exercises, classified information exchange, interoperability, humanitarian assistance and disaster relief. There is “a lot of stress and strain” underway in the IndoPacific with a number of challenges like climate change and “big power muscle movement”, which includes India facing “live borders”, visiting Australian Fleet commander Rear Admiral Jonathan Earley said on Tuesday. With India and Australia “guarding the two flanks of the Indian Ocean”, the two countries can “certainly” enhance cooperation in maritime domain awareness through classified exchanges and exploitation of common platforms like P-8I maritime patrol aircraft and MH-60 ‘Romeo’ helicopters, he added.

The two countries will also increase the complexity of their bilateral and multilateral combat exercises. India, the US, Japan and Australia will kick off the top-notch Malabar exercise off Yokosuka in Japan next week, with the “Quad” countries having earlier declared their intent to deter any ‘coercion’ in the Indo-Pacific. Rear Admiral Earley said Australia has also invited India to participate in its largest biennial ‘Talisman Sabre’ exercise with the US and other countries next year. After India’s recent participation in the major multi-nation ‘Pitch Black’ air combat exercise at in Australia, the armies from the two countries will also conduct the first-ever ‘AustraHind’ infantry combat exercise at Darwin the Mahajan field firing ranges in Rajasthan from November 28 to December 11, as was first reported by TOI. Under Australia’s flagship regional engagement activity, the Indo-Pacific Endeavour (IPE22), two Australian warships with embarked helicopters and around 1,300 personnel are also currently at Visakhapatnam. “IPE22 supports the Australian government’s commitment to an open, inclusive and resilient Indo-Pacific region. The activity will strengthen Australia’s engagement and partnerships with regional nations,” said Australian high commissioner Barry O’Farrell. “India is an important strategic partner for Australia and has a critical role to play in the security and stability of the wider Indo-Pacific. IPE22 will pave the way for deeper and more sophisticated operational cooperation between our defence forces,” he added.

<https://timesofindia.indiatimes.com/india/australia-keen-to-crank-up-military-ties-with-india-as-china-flexes-muscle-in-indo-pacific-region/articleshow/95236836.cms>



## **North Korea Demands U.S., South Korea Halt Joint Military Drills, Threatens 'Powerful Follow-Up Measures'**

North Korea on Monday demanded that the United States and South Korea stop large-scale military exercises, calling them a provocation that may draw "more powerful follow-up measures" from Pyongyang. "The situation in the Korean Peninsula and its vicinity has entered the serious confrontation phase of power for power again due to the ceaseless and reckless military moves of the U.S. and south Korea," North Korea's foreign ministry said in a statement carried on the country's official KCNA news agency. The United States and South Korea began one of their largest combined military air drills on Monday, with hundreds of warplanes from both sides staging mock attacks 24 hours a day for the better part of a week. The operation, called Vigilant Storm, will run until Friday, and will feature about 240 warplanes conducting about 1,600 sorties, the U.S. Air Force said.

Washington and Seoul believe Pyongyang may be about to resume testing of nuclear bombs for the first time since 2017 and have embraced a strategy of "detering" Pyongyang through major military drills that some current and former officials say may exacerbate tensions. The foreign ministry statement said North Korea was "ready to take all necessary measures for defending its sovereignty, people's security and territorial integrity from outside military threats." "If the U.S. continuously persists in the grave military provocations, the DPRK will take into account more powerful follow-up measures," it said, using the initials of North Korea's official name. "If the U.S. does not want any serious developments not suited to its security interests, it should stop the useless and ineffective war exercises at once. If not, it will have to totally take the blame for all the consequences."

On Friday, South Korean troops finished the 12-day Hoguk 22 field exercises, which featured mock amphibious landings and river crossings, including some drills with U.S. forces. North Korea condemns the joint drills as a rehearsal for invasion and proof of hostile policies by Washington and Seoul. It has launched missiles, conducted air drills, and fired artillery into the sea in response to the exercises. It has ignored repeated U.S. calls to resume talks over its nuclear and missile programs and has instead embarked on an unprecedented spate of missile testing this year. U.S. State Department spokesperson Ned Price on Monday reiterated calls for North Korea to return to talks, while adding that U.S. Policy of seeking the complete denuclearization of the Korean peninsula had not changed. He was asked at a news briefing about comments last week by a senior U.S. official responsible for nuclear policy who raised some eyebrows by saying Washington would be willing to engage in arms-control talks with North Korea, something some experts say would require recognizing North Korea as a nuclear-armed state. Asked if the United States would eventually recognize North Korea as such, Price replied: "That is not our policy. I do not foresee that ever becoming our policy."

<https://economictimes.indiatimes.com/news/defence/north-korea-demands-u-s-south-korea-halt-joint-military-drills-threatens-powerful-follow-up-measures/articleshow/95219966.cms>

*Tue, 01 Nov 2022*

## **Big Investment in Quantum Tech will have a Lasting Impact in Space Tech and Economy**

India is becoming a Space Power in Designing, Developing and Manufacturing abilities and is set to become global leader in Space Technology. With the opening of SpaceTech to private players, participation by startups and private organisations have brought transformative changes, says G. Satheesh Reddy – Scientific Advisor to the Defence Minister. He was addressing the opening session on the India Space Congress organised by Satcom Industry Association (SIA-India). The era of space technology is unfolding at a fast pace. The idea is to raise our stakes in new opportunities in space exploration and mining, Space Debris Tracking and Management(SSA), miniaturized-LEO satellites, reusable launch vehicles, AI, smart propulsion, satellite broadband, satellite IOT and other industries.

This is in sheer scale that Indian industry steps in addressing the massive demand for satellite technologies. More so, when the India has taken reasonable good lead in civilian space technology. As Reddy said on space technology, “Secure communication is vital for national security. With space becoming the fourth frontier of warfare, it is critical to have secure communication using quantum technology.” Quantum satellites and optical fibres are the key elements of such secured transmission. While India has succeeded in quantum test conducted by ISRO, China launched the world’s first quantum satellite (named Quantum Experiments at Space Scale (QUESS), nicknamed Micius) in August 2016. This is the era of quantum innovation that needs substantial investment.

There are two sides of space activities– ‘Space for Defence in India’ and “Defence for Space” . Whilst ‘Space for Defence’ focuses on leveraging dual use capabilities around Intelligence, Surveillance and Reconnaissance (ISR), communication, navigation, electronic warfare, SSA etc and ‘Defence of Space’ looks at the space kinetic & non- kinetic warfare capabilities.

### **The Next Big thing in Space Tech**

India’s space sector accounts for 2% of the global space economy. Several inactivates in space now aim to touch 10% in the global space ecosystem with the participation from the private sector with hand holding from space agency ISRO. The projection of satellite technologies and applications for critical and varied solutions worldwide is estimated to surpass \$1.6 trillion. The session on “Space: The Fourth Frontier of Warfare” laid the ground for the crucial debate on the space tech and gaps . It is important that we deliberate as how space is defining modern warfare and the necessity to have a strong presence in space. How can the Indian space scale up and address the be part of global solutions?



So far, the Indian space has shown advanced capabilities to carry out end-to-end space missions and the most cost-effective space programs in the world. The policy thrust and regulatory initiatives have led to encouraging space entrepreneurship, investments, and rise in the number of foreign collaborations. According to Air Vice Marshal D.V. Khot, Director General – Defence Space Agency, “Top-down push by the government as new policies are created for the development of spacetech and warfare.” He added, “While the space is primarily a military domain, the civilian sector has made rapid stride in space in terms of objects ahead of military sector. And because of the opening up of the space sector to private entities, we are able to find new talents,” which will help India build a strong technology driven team.

As industry talks about the next generation advancement in radio engineering, ground station, payload and launch mechanism will unfold the immense opportunities in huge scale. And how will it unfold? As Space Congress aimed to address is the areas not just for payloads, space vehicles and launch services but also for cloud-based data processing capabilities with AI/ML. There are already exponential rise in orbital deployment of thousands of satellites for monitoring, tracking and risk management in case of orbital debris. As there is a large dependency on space-based platform for communication, surveillance system should be there in space, Lt. Gen MU Nair, SO-in-C talked about the challenges faced by ground personnel in radio communication in mountain terrains. A robust ecosystem on ground has to be prepared. Lt. Gen PJS Pannu (Retd.), Distinguished Fellow – USI, pointed out: “It is imperative that we dress-up the space for warfare. Quantum technology will play a vital role in the days and that investment on quantum technology will have a lasting impact.”

The report ‘Space for Defence in India’ which was published by PwC & SIA-India does point out the futuristic challenges. The quest remains for the constant thrust on innovation and developing cutting-edge technologies in space for defence on the supply side across all three vectors of manufacturing in upstream, operations in midstream and delivery of services in the downstream whilst ensuring that adequate resilience is built in. The ‘Space for Defence in India’ report addresses the future in two segments, whilst ‘Space for Defence’ focuses on leveraging dual use capabilities around Intelligence, Surveillance and Reconnaissance (ISR), communication, navigation, electronic warfare, SSA etc and ‘Defence of Space’ looks at the space kinetic & non- kinetic warfare capabilities.

Indeed, there are some of challenges that concern the military applications in resolving the imaging range under difficult situations and difficult terrains. The question extends to the satellite imaging capabilities with wider spectral range to remote sensing through advanced SAR techniques and Electromagnetic spectrum sensing. How the Indian industries break that boundaries as debate focused on payload SWAP features and revisit rates? The focus areas for building our capabilities in both segments, and the requirement of a whole of nation approach must be with the Govt, academia, public and the private sector collaborating, raising space consciousness and investing across the value chain of in R&D, manufacturing, system integration, operations and delivery of services to be a space power.

The crucial debate still remains on leveraging dual use capabilities for national security which is to focus on emerging perspectives as procurement of space capabilities for defence is gaining traction. Besides, the biggest advantage here is the lower cost. That makes a lot of senses to address and open channels for dual use which is based on the fact that space innovation does require a significant capital inatkes across the spectrum. How better we can leverage this? “Dual use of technology will be cost effective, will have ability to provide surplus utility. Transfer of

Technology (ToT) will enhance dual use technology which will have direct impact on the manufacturing industry,” KritiUpadhyay, Founder – Indus Tech Council

### **UAVs and Satellite**

The most vital link in the space tech is to develop a plan and solutions and seamless network for autonomous vehicles, Drones, IoT Sensors and satellites. The sensors, networked communications for Autonomous vehicles are bound to have generation shift in using technology across the spectrum. It is about futuristic possibilities associated with ‘quantum drones’, “internet of quantum drones”, and “constellation of quantum satellites” as the latest research puts the technological perspective which will take over. In the defence innovation, the challenges remain in such areas that address the ISR for military beyond the human sight and reach with efficacy.

In its endeavour to promote & inspire talent and create awareness about the space sector. SIA-India had invited for original research papers from students, academicians, research scholars and young entrepreneurs. 5 original papers were selected by the jury from over 40 submissions. In the first place stood two papers – ‘Ground Tracking: Novel Automation Algorithm to Maintain Frozen Orbit through ground track maintenance Maneuvers’ by Dr. Parthiban P and Uma Devi of U.R. Satellite Centre, ISRO and ‘Airships: Airships for Satellite Data Acquisition and Disaster Management’ by Dr. Parthiban P and Thameemunnisha M of U.R. Satellite Centre, ISRO.

<https://www.financialexpress.com/defence/greater-investment-on-quantum-technology-will-have-a-lasting-impact/2759710/lite/>



*Tue, 01 Nov 2022*

## **ISRO Aims to Increase Weightlifting Capacity of LVM-3 Ahead of Launch**

On Friday, the space agency successfully conducted the flight acceptance hot test of the CE-20 engine in the high-altitude test facility at Tamil Nadu’s Mahendragiri for 25 seconds to prepare for the second part of this mission. After the successful launch of its first commercial mission carrying 36 communication satellites of a private firm, the Indian Space Research Organisation (Isro) is working to add to the weightlifting capacity of its heaviest rocket — Launch Vehicle Mark-3 — for its second launch scheduled early next year, officials of the science ministry said on Tuesday. The space agency is expected to complete the qualifying tests for the semi-cryogenic stage of the LVM-3 rocket in a couple of months, they said. “We are hopeful that by February or March next year, we will be able to launch the second batch of 36 satellites of OneWeb. All preparations for it are being done,” a ministry official said, seeking anonymity.

At 12.07am on October 23, Isro successfully launched 36 communication satellites of OneWeb from the SatishDhawan Space Centre in Sriharikota, marking its entry into the global commercial launch service market. OneWeb is a private satellite communications company, which has India's Bharti Enterprises as a major investor. NewSpace India, a state-owned enterprise under the department of space, had earlier signed two launch service contracts with the London-headquartered Network Access Associated Limited that runs OneWeb to launch a total of 72 low earth orbit satellites on board the LVM3 rocket. On Friday, the space agency successfully conducted the flight acceptance hot test of the CE-20 engine in the high-altitude test facility at Tamil Nadu's Mahendragiri for 25 seconds to prepare for the second part of this mission.

Isro has redesignated the launch vehicle as LVM-3 from GSLV Mk-III, which is India's heaviest launch vehicle. LVM-3 can carry up to four tonnes to a geostationary orbit and up to six tonnes to a low earth orbit . "Induction of a high-propulsive SC120, along with an increased propellant loading of cryogenic upper stage, can increase this to up to six tonnes for GTO and 10 tonnes for LEO," an Isro scientist said, asking not to be named. Work on the semi cryo engine is on the last leg and qualification tests are in progress, scientists said. Stage and engine development stage is complete, the test stand is getting ready and the subsystem tests are going on at the testing facility at the Mahendragiri Liquid Propulsion Systems Centre.

<https://www.hindustantimes.com/india-news/isro-aims-to-increase-weightlifting-capacity-of-lvm-3-ahead-of-launch-101667327192578.html>

