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2022**

# 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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*Tue, 09 Aug 2022*

### **DRL-DRDO, Tezpur Organized Awareness Programme on 'Har Ghar Tiranga'**

DRL-DRDO, Tezpur, organized an awareness programme on 'Har Ghar Tiranga' in Tawang (Tawang War Memorial, Tawang Monastery, Buddha Statue, Mahabodhi School, Old age home in Tili village, Seru village & Changbu village) & West Kameng (Dirang Monastery, Dalgaon Village, Sangti Valley & Nyukmadung) in Arunachal Pradesh during August 3 to 4. In this programme local people, students and monks participated with enthusiasm. DRL-DRDO team waved the Tiranga at an altitude of 10,000 ft at Tawang and its adjacent remote locations (Arunachal Pradesh) to mark 75 years of India's independence, organized under Azadi Ka Amrit Mahotsav, stated a press release by Lt Col A S Walia, PRO (Defence), Tezpur.

<https://www.sentinelassam.com/amp/north-east-india-news/assam-news/drl-drdo-tezpur-organized-awareness-programme-on-har-ghar-tiranga-606705>



पत्र सूचना कार्यालय  
भारत सरकार

रक्षा मंत्रालय

सोमवार, 08 अगस्त 2022 6:08 अपराह्न

### भारतीय सेना ने "हिम-ड्रोन-ए-थॉन" लॉन्च किया

भारतीय सेना ने भारतीय ड्रोन संघ के सहयोग से 08 अगस्त, 2022 को 'हिम ड्रोन-ए-थॉन' कार्यक्रम शुरू किया है। रक्षा विनिर्माण में आत्मनिर्भरता के अनुरूप इस पहल का उद्देश्य भारतीय ड्रोन परितंत्र को उत्प्रेरित करना और उसे केंद्रित अवसर प्रदान करना है ताकि अग्रिम पंक्ति के सैन्य-दल की आवश्यकताओं को पूरा करने के लिए अग्रणी ड्रोन क्षमताओं का विकास किया जा सके। स्वदेशी ड्रोन परितंत्र के लिए भारतीय सेना का समर्थन इस सिद्धांत पर आधारित है कि 'स्वदेश में निर्मित उपलब्ध अच्छा' 'विश्व स्तर पर उपलब्ध सर्वोत्तम' से बेहतर है। हालांकि, रक्षा बलों द्वारा मांग की गई प्रौद्योगिकी में क्रमिक वृद्धि से पहले से बेहतर और अधिक सक्षम ड्रोन उत्पादों के निर्माण को प्रोत्साहन मिलने की संभावना है।

'हिम ड्रोन-ए-थॉन' कार्यक्रम का पूरे भारत में उद्योग, शिक्षा जगत, सॉफ्टवेयर डेवलपर्स और ड्रोन उत्पाद निर्माताओं सहित सभी हितधारकों के बीच निरंतर जुड़ाव है। इसे मात्रात्मक मापदंडों (जैसे ऊंचाई, वजन, रेंज, स्थिरता आदि) के साथ कई चरणों में आयोजित किया जाएगा, जिसे प्रदर्शित क्षमताओं के आधार पर उत्तरोत्तर बढ़ाया जा रहा है। इसके लिए उपयोगकर्ताओं, विकास एजेंसियों, शिक्षाविदों आदि के बीच बातचीत और विचार को शामिल करते हुए व्यापक गतिविधियों की योजना बनाई गई है। इसमें उद्योग की प्रतिक्रिया, जमीनी परिप्रेक्ष्य और आवश्यकताओं को समझने के लिए विकास एजेंसियों द्वारा परिचालन स्थानों का दौरा, आंतरिक विकास और जमीनी परीक्षणों के लिए विकास एजेंसियों को साथ रखने, और ड्रोन उत्पादों के वास्तविक संचालन और मूल्यांकन का अनुसरण किया गया है।

प्रारंभिक बिंदु के रूप में, निम्नलिखित श्रेणियों में विकास शामिल हैं: -

- उच्च ऊंचाई वाले क्षेत्रों में लॉजिस्टिक्स / वजन ले जाने वाला ड्रोन।

- स्वायत्त निगरानी / खोज एवं बचाव ड्रोन।
- निर्मित क्षेत्रों में लड़ने के लिए माइक्रो/नैनो ड्रोन।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1850024>



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

**Ministry of Defence**

*Mon, 08 Aug 2022 6:08 PM*

## **Indian Army Launches “Him- Drone-a-Thon”**

The Indian Army in collaboration with the Drone Federation of India has launched the ‘Him Drone-a-thon’ programme on 08 August 22. This initiative in line with Atmanirbharta in defence manufacturing is aimed to catalyse and provide focused opportunities to the Indian drone ecosystem to develop path-breaking drone capabilities for meeting requirements of frontline troops. The Indian Army’s support to the indigenous drone ecosystem is based on the principle that ‘good available indigenously’ is better than the ‘best available globally’. However, gradual enhancement in technology demanded by defence forces is likely to incentivise manufacture of better and more capable drone products.

The ‘Him Drone-a-thon’ programme is pan India sustained connect between all stake holders including industry, academia, software developers and drone product manufacturers. It will be conducted in stages with quantifiable parameters (like altitude, weight, range, endurance etc) being progressively enhanced based on demonstrated capabilities. Broad activities planned include interactions & ideation between users, development agencies, academia etc, seeking of industry responses, visits by development agencies to operational locations to understand the ground perspective & requirements, handholding of development agencies for internal development & on-ground trials and actual conduct & evaluation of drone products.

As a start point, development in the following categories are included:-

- Logistics/ Load carrying Drone in High Altitude Areas.
- Autonomous Surveillance/ Search & Rescue Drone.
- Micro/ Nano Drones for Fighting in Built Up Areas.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1849961>



## पत्र सूचना कार्यालय भारत सरकार

रक्षा मंत्रालय

सोमवार, 08 अगस्त 2022 6:07 अपराह्न

### भारतीय सेना ने ड्रोन फेडरेशन ऑफ इंडिया के साथ एक समझौता जापन पर हस्ताक्षर किए

भारतीय सेना की ओर से आर्मी डिजाइन ब्यूरो ने ड्रोन, काउंटर-ड्रोन और संबद्ध तकनीकों के अनुसंधान, विकास, परीक्षण व निर्माण को बढ़ावा देने की दिशा में सहयोगात्मक रूप से काम करने के लिए ड्रोन फेडरेशन ऑफ इंडिया के साथ एक समझौता जापन (एमओयू) पर हस्ताक्षर किए हैं। इससे भारतीय सेना को इनके परिचालन में सहायता मिल सकती है। यह समझौता जापन हमारे उद्योग को सहायता देने में भारतीय सेना की प्रमाणित प्रतिबद्धता और रक्षा निर्माण में आत्मनिर्भरता प्राप्त करने की सोच के अनुरूप स्वदेशी उपकरण व हथियार प्रणालियों को विकसित करने के लिए व्यापक इकोसिस्टम को भी दिखाता है।

आर्मी डिजाइन ब्यूरो, भारतीय सेना की नोडल एजेंसी है जो उद्योग, अकादमिक, डीआरडीओ और डीपीएसयू के साथ अनुसंधान व विकास प्रयासों के लिए सुविधा प्रदाता है, जिससे वे उपयोगकर्ता की जरूरतों को गहराई से समझ सकें और उनकी सराहना कर सकें। ड्रोन फेडरेशन ऑफ इंडिया नीति में बदलाव लाकर, व्यापार के अवसर सृजित करके, एक मजबूत कौशल अवसंरचना विकसित करके, प्रौद्योगिकी व ज्ञान हस्तांतरण की सुविधा, मानकों को विकसित करके और उद्योग-अकादमिक सहयोग के साथ अनुसंधान व विकास के प्रयासों को प्रोत्साहित कर ड्रोन उद्योग को बढ़ावा देता है।

भारतीय सेना और ड्रोन फेडरेशन ऑफ इंडिया के बीच यह समझौता जापन उद्योग व अकादमिक क्षेत्र को भारतीय सेना द्वारा खरीद के लिए विशिष्ट तकनीक तथा उत्पादों को विकसित करने में सहायता करने के प्रयासों को बढ़ावा देगा। नए समझौता जापन के अनुसार दोनों पक्ष निम्नलिखित क्षेत्र में सहयोगात्मक रूप से काम करने को लेकर सहमत हुए हैं: -

- भारतीय सेना में ड्रोन, काउंटर-ड्रोन और संबद्ध तकनीकों के लिए एक रोडमैप तैयार करना।
- ड्रोन और संबंधित हिस्सों के डिजाइन, प्रोटोटाइप, परीक्षण तथा निर्माण को सक्षम करने के लिए परीक्षण स्थलों की उपलब्धता के माध्यम से ड्रोन व संबंधित तकनीकों के अनुसंधान, विकास, परीक्षण और स्वदेशी निर्माण को बढ़ावा देना।
- उद्योग, अकादमिक और सशस्त्र बलों के सदस्यों के साथ समूहों में लक्ष्य-आधारित प्रौद्योगिकी अनुसंधान कार्यक्रम विकसित करना।

- उद्योग और सशस्त्र बलों के उपयोगकर्ता समूहों की सहभागिता में क्षेत्र परीक्षणों के लिए आउटरीच को सक्षम करना।
- भारतीय उद्योग के भीतर क्षेत्र परिदृश्यों के बारे में जागरूकता उत्पन्न करने के लिए उद्योग प्रतिनिधियों व अन्य विशेषज्ञों की सेना बेस और अन्य परिचालन पदों के दौरे के साथ-साथ उद्योग की क्षमताओं तथा विकास को समझने के लिए उद्योग सदस्यों के कारखाना परिसर में सेना के प्रतिनिधियों की यात्रा की सुविधा।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1850025>



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

**Ministry of Defence**

*Mon, 08 Aug 2022 6:07 PM*

## **Indian Army Signs a MoU with Drone Federation of India**

The Army Design Bureau on behalf of the Indian Army has signed a MoU with the Drone Federation of India to collaboratively work towards promoting research, development, testing and manufacturing of drones, counter-drone and associated technologies that can assist the Indian Army in its operations. This MoU also signifies the unwavering commitment of the Indian Army in supporting our industry and the complete eco system to develop indigenous equipment and weapon systems in line with Atmanirbharta in defence manufacturing. The Army Design Bureau is the nodal agency of the Indian Army to be the facilitator for the R&D efforts with the Industry, Academia, DRDO and DPSUs to enable them to understand and appreciate user requirements in depth. The Drone Federation of India promotes the drone industry by bringing about policy change, creating business opportunities, developing a robust skilling infrastructure, facilitating technology and knowledge transfers, developing standards, and promoting R&D efforts with industry-academia collaboration.

This MoU between the Indian Army and the Drone Federation of India will promote efforts to handhold the industry and academia in order to assist them to develop niche technology and products for procurement by Indian Army. As per the new MoU, both parties have agreed to collaboratively work on the following:-

- To create a road map for drone, counter-drone and allied technologies in the Indian Army.
- To promote research, development, testing and indigenous manufacturing of drones and associated technologies by provision of testing sites to enable the designing, prototyping, testing and manufacturing of drones and associated components.
- Develop goal-based technology research programs in groups with members from industry, academia and the armed forces.
- Enabling outreach for Field Trials in collaboration with industry and user groups of the Armed Forces.



- Facilitate visit of Army Representatives to factory premises of industry members to understand industry capabilities and development progress along with visit of Industry Representatives and other Experts to army base and other operational posts for bringing awareness about field scenarios within Indian industry.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1849959>



*Tue, 09 Aug 2022*

## **Indian Army Inks MoU with Drone Federation for Research and Development**

The Army Design Bureau on behalf of the Indian Army has signed a Memorandum of Understanding (MoU) with the Drone Federation of India to collaboratively work towards promoting research, development, testing and manufacturing of drones, counter-drone and associated technologies that can assist the Indian Army in its operations. This MoU also signifies the unwavering commitment of the Indian Army in supporting the industry and the complete eco system to develop indigenous equipment and weapon systems in line with Atmanirbharta in defence manufacturing.

The Army Design Bureau is the nodal agency of the Indian Army to be the facilitator for the Research and Development (R&D) efforts with the Industry, Academia, DRDO and DPSUs to enable them to understand and appreciate user requirements in depth. The Drone Federation of India promotes the drone industry by bringing about policy change, creating business opportunities, developing a robust skilling infrastructure, facilitating technology and knowledge transfer, developing standards, and promoting R&D efforts with industry-academia collaboration. This MoU between the Indian Army and the Drone Federation of India will promote efforts to handhold the industry and academia in order to assist them to develop niche technology and products for procurement by the Indian Army. As per the new MoU, both parties have agreed to collaboratively work on the following:

-To promote research, development, testing and indigenous manufacturing of drones and associated technologies by provision of testing sites to enable the designing, prototyping, testing and manufacturing of drones and associated components. -Develop goal-based technology research programs in groups with members from industry, academia and the armed forces. -Enabling outreach for Field Trials in collaboration with industry and user groups of the Armed Forces. -Facilitate visits of Army Representatives to factory premises of industry members to understand industry capabilities and development progress along with visit of Industry Representatives and other experts to army base and other operational posts for bringing awareness about field scenarios within Indian industry.

<https://www.indiatoday.in/india/story/drone-federation-of-india-army-mou-research-development-1985458-2022-08-09>

*Tue, 09 Aug 2022*

## **Indian Army Pushes for Indigenous Combat Drones; No-Import UAVs Policy**

*By Manish Kumar Jha*

The Indian Army in collaboration with the Drone Federation of India has launched the 'Him Drone-a-thon' programme on 08 August 22. Indian Army said this initiative in line with make in India in defence manufacturing and program is aimed to catalyse and provide focused opportunities to the Indian drone ecosystem to develop path-breaking drone capabilities for meeting requirements of frontline troops. The Indian Army's support to the indigenous drone ecosystem is based on the principle that 'good available indigenously' is better than the 'best available globally'. However, gradual enhancement in technology demanded by defence forces is likely to incentivise manufacture of better and more capable drone products." The indigenous industry has adequate expertise to develop world class products in this field. Latest procurements by the IA are indicative of its efforts to further encourage the indigenous drone ecosystem," said army official.

The push comes after the recent development where the home grown company like ideaForge demonstrated capability for military grade drone aircraft to the Indian security forces, including the Indian Army. Such program is vital at this stage as India lacks capabilities in key areas in drone manufacturing: motors and electronics( the sensory elements) The 'Him Drone-a-thon' programme is pan India sustained connect between all stake holders including industry, academia, software developers and drone product manufacturers. It will be conducted in stages with quantifiable parameters (like altitude, weight, range, endurance etc) being progressively enhanced based on demonstrated capabilities. Indian Army has planned broad activities. interactions & ideation between users, development agencies, academia etc, seeking of industry responses.

Officials from Indian Army outlined that development agencies will visit various operational locations to understand the ground perspective & requirements, handholding of development agencies for internal development & on-ground trials and actual conduct & evaluation of drone products. As a start point, various categories are defined for the development, including the Logistics/ Load carrying Drone in High Altitude Areas and Autonomous Surveillance/ Search & Rescue Drone. Beside, Government has also announced the design and develop drones micro nd nano drones for fighting in built up areas.

### **No- Import Drones**

India has largely prohibited import of drones and import of drone components are exempted to encourage domestic drone manufacturing. It is to incentivise domestic drone manufacturers and boost investments Drone imports allowed only for limited activities upon obtaining import authorizations which is for the research and development by Government entities, educational institutions, government recognized R&D entities, and drone manufacturers. For Defense and security, such policies do not directly impact but it clearly mandates that military drones with ISR functionalities must be procured from the domestic sources. On February 9, 2022, the

Directorate General of Foreign Trade (DGFT) under the Ministry of Commerce and Industry (Ministry) issued a notification prohibiting the import of drones in India in Completely Built Up (CBU), Completely Knocked Down (CKD) and Semi Knocked Down (SKD) forms, with immediate effect. The Notification exempts the import of drones in CBU, SKD or CKD form only for specific purposes and by specific entities subject to an import authorisation issued by the DGFT.

Official from the Ministry of Defence said this is an opportunity for the domestic drone industry to compete with international manufacturers. Our regulation is clearly directed to support and encourage domestic defence industry, especially focused on startups to realize the potentials.

### **Military Drones**

India's tryst with military drones resulted in procuring smaller drones for specific purposes in reconnaissance activities from overseas. While we took it as early during the 1990s when DRDO developed the Nishant Unmanned Aerial Vehicle (UAV) for reconnaissance and surveillance. But it failed to take off after the three of the four systems it built crashed. India ended up importing a wide range of Israeli drones, including the medium-altitude long-endurance Heron I, the Searcher MK II, and the Harop loitering munition. Last year, Indian Army procured a set of new surveillance drones— advanced version of the Heron that allow the ground controller to communicate through a satellite. These have been deployed along the Line of Actual Control (LAC) in Eastern Ladakh. Where are we now? Currently, the Indian Drone ecosystem is at threshold where various domestic entities are in process of fully expanding their scope across industries, leveraging emerging technologies like AI, AR/ VR, IoT and 3D modelling.

While the global military drones market is projected to grow USD 30 billion by 2025, India remains at the fringe. It called for a policy direction that pushes the drone manufacturing in India. The very concept of drones are largely built on the software which integrates the sensory elements for the data extraction and analysis. Ironically, for India, this defeats the purpose as country prides itself in leading on this front of information technology (IT). The call for no-import of drones was realized in framing policies in civilian space and mandates such direction for military drones. Time has come that our industrial ecosystem must embrace and demonstrate capability to design and develop advanced unmanned and autonomous systems.

Right after, Government postponed the very expansive American predator drone deal which was coming out to be around USD 4.5 billion for 30 drones. A committee was also set up which is headed by a Lieutenant General. While the report is not in public domain, it is understood that government is not considering such proposal. In fact, the committee lauded the thrust towards making military drone in India as government already has declared it through announcement. "The amount of money if that is put into the research and development in India will make tremendous difference. This will not only serve the military but the technology will demonstrate the capabilities of Indian private industry/startups in UAVs space," said a senior officer from Indian navy.

"The idea that India does not possess the expertise of manufacturing key component for drones does not hold anymore," he added. The outcome is always the result of such policy as government has rightly laid down for procuring such military drones designed and developed in India. Officials from The Indian Army points out: "The gradual enhancement in technology demanded by defence forces is likely to incentivize manufacture of better & more capable drone products." Meanwhile the Central government is also considering the acquisition of an

indigenous long-range unmanned aerial vehicle — Heron TP — with strike capabilities being developed by a private Indian firm in partnership with an Israeli defence manufacturer. This is no aberration. “It will be a under the make in India direction if government [Indian] approves,” said Israeli ambassador to India, Noar Glion in an interaction with author.

Other indigenous effort towards building the A medium-altitude long-endurance UAV (MALE UAV) is underway at DRDO. What about having such capability which could do credible ISR activities? Rustom II is in making but delays pose questions and uncertainty hints of capabilities gap. That is not the case now. There are breakthroughs in several areas, points out *G Satheesh Reddy, Secretary DDR&D and Chairman DRDO*. “Firstly, I would like to share a good news with you about the test we have done a day before. We have touched above 27500 feet altitude. So we have almost reached the target altitude.” he said.

<https://www.financialexpress.com/defence/indian-army-pushes-for-indigenous-combat-drones-no-import-uavs-policy/2622867/>



*Mon, 08 Aug 2022*

## **Defence Ministry Notifies Fourth Positive Indigenisation List to Achieve Self-Reliance**

As part of the efforts to achieve self-reliance in defence manufacturing and minimize imports by the Defence Public Sector Undertakings (DPSUs), a positive indigenisation list has been notified by the Department. The list includes 2,500 imported items which have already been indigenized and 351 high-value imported items which will be indigenised in the next three years. Out of 351 items, 147 items have already been indigenised. The Government has introduced a comprehensive revamped ‘Make and Innovation’ procedure to reduce dependency on arms and promote indigenous manufacturing of defence equipment. The ‘Make and Innovation’ procedure has been introduced in DAP-20 to facilitate indigenous design and development of defence equipment through private participation with both government funding and industry funding.

A series of Positive Indigenisation Lists of defence weapons and equipment which would not be imported from abroad have been promulgated. The first Positive Indigenisation list comprising of 101 items was promulgated in August 2020, the second Positive Indigenisation List comprising of 108 items was promulgated in May 2021 and the third Indigenisation list comprising of 101 items was promulgated in April 2022.

This information was given by Junior Defence Minister Ajay Bhatt in a written reply to Sandosh Kumar P in Rajya Sabha on Monday. A separate procedure for the ‘Make-II’ category (Industry funded) has been notified to encourage indigenous development and manufacture of defence equipment. A number of industry friendly provisions such as relaxation of eligibility criterion, minimal documentation, provision for considering proposals suggested by industry/ individuals etc. have been introduced in this procedure. So far, 72 projects relating to the Army, Navy & Air Force, have been accorded ‘Approval in Principle’. 38 Acceptance of Necessity (AONs), 05 prototypes developed and 2 procurement contracts have been signed by the Services.

## **Impact Of Aatmanirbhar Bharat In Defence Manufacturing**

In line with the budget announcement for the financial year 2022-2023 of allocating 25% of the Defence Research and Development (R&D) budget for industry led R&D, 18 major platforms have been approved by the government for industry led Design and Development under Make I, Make II, SPV Model and iDEX routes. An innovation ecosystem for Defence titled Innovations for Defence Excellence (iDEX) has been launched in April, 2018 to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, start-ups, individual innovators, R&D institutes and Academia.

iDEX route of procurement has been simplified and timelines have been compressed from 2 years earlier to just five months by reforming the trial process. The Government has approved a Scheme with an outlay of Rs 498.78 crore (2021-22 to 2025-26) to push innovation and support start-ups in the defence and aerospace sectors. This will enable more than 300 start-ups to participate in the new design and development projects and also support 20 partner incubators. Another list of DPSUs for indigenization of 107 Line Replaceable Units (LRUs)/Sub-systems of high value platform was notified on 28.03.2022. As on date, 4 LRUs have been indigenised; 5 LRUs are at trial stage and 31 LRUs are at design and development stage. An indigenisation portal, namely SRIJAN, has been launched in August, 2020 for DPSUs/OFB/Services with an industry interface to provide development support to MSMEs/Start-ups/Industry for import substitution.

## **Promote Indigenous Manufacturing**

So far, more than 21,000 defence items, which were earlier imported, have been displayed on the portal. 388 private vendors have expressed interest in indigenising more than 4,700 items and so far 410 items have been indigenised. Further, the Make-II route of procurement has been simplified and timelines have been compressed from 2 years earlier to just 5 months by reforming the trial process. As part of the ease of doing business, the export procedure has been simplified and made completely online. This has resulted in an exponential increase in the number of Export Authorizations issued.

The Defence Testing Infrastructure Scheme (DTIS) has been formulated to create 6 to 8 Greenfield Defence Testing Infrastructures in the country and attain 'Aatmanirbharta' in the Defence Testing Infrastructure for the domestic industry. As part of the 'Azadi Ka Amrit Mahotsav', the Government organised an event 'AiDef' on July 11, 2022 where, for the first time, 75 defence specific Artificial Intelligence (AI) products were launched by Defence Minister Rajnath Singh. During the event, three AI products of DPSUs were also launched for the market.

<https://www.indiatoday.in/india/story/defence-ministry-notifies-fourth-positive-indigenisation-list-reduce-arms-dependence-1985409-2022-08-08>



## पत्र सूचना कार्यालय भारत सरकार

रक्षा मंत्रालय

सोमवार, 08 अगस्त 2022 6:40 अपराह्न

### डेफ-एक्सपो का 12वां संस्करण 18-22 अक्टूबर, 2022 के बीच गांधीनगर, गुजरात में आयोजित किया जाएगा

भू-आधारित, नौसेनिक और होमलैंड सुरक्षा प्रणालियों पर भारत की प्रमुख प्रदर्शनी डेफएक्सपो का 12वां संस्करण दिनांक 18-22 अक्टूबर, 2022 के बीच गुजरात के गांधीनगर में आयोजित किया जाएगा। पांच दिवसीय कार्यक्रम में तीन व्यावसायिक दिनों के बाद दो दिन आम जनता के लिए होंगे। इन सभी पांच दिनों के दौरान साबरमती रिवर फ्रंट में सशस्त्र बलों, डीपीएसयू और उद्योग जगत के उपकरणों एवं कौशल सेट का प्रदर्शन सभी स्तरों पर सक्रिय भागीदारी और समेकित प्रयासों के माध्यम से किया जाएगा।

डेफएक्सपो 2022 का आयोजन हेलीपैड प्रदर्शनी केंद्र में एक लाख वर्ग मीटर से अधिक के क्षेत्र में तीन-स्थलों के प्रारूप में किया जाएगा; महात्मा मंदिर कन्वेंशन और एक्सिबिशन सेंटर में उद्घाटन कार्यक्रम एवं सेमिनार तथा साबरमती रिवर फ्रंट में लाइव डेमो का आयोजन होगा। कंपनियों के बीच साझेदारी बनाने के लिए बंधन जैसे आयोजनों के साथ प्रदर्शनी की योजना बनाई जा रही है। इसके अलावा भविष्य के युद्धक्षेत्र के लिए अत्याधुनिक प्रौद्योगिकी समाधानों सहित स्टार्ट-अप्स/एमएसएमई का प्रदर्शन करने वाले सेमिनार व वेबिनार; रक्षा क्षेत्र में आर्टिफिशियल इंटेलिजेंस; छात्रों के दौरे तथा गुजरात को एयरोस्पेस और रक्षा क्षेत्र इत्यादि के लिए एक निवेश गंतव्य के रूप में प्रदर्शित कर प्रदर्शनी आयोजित की जाएगी।

डेफएक्सपो 2022 रक्षा क्षेत्र में आत्मनिर्भरता हासिल करने और 2025 तक 5 अरब डॉलर का निर्यात हासिल करने के प्रधानमंत्री श्री नरेन्द्र मोदी के दृष्टिकोण के अनुरूप है। भारत ने सफलतापूर्वक खुद को एक उभरते रक्षा विनिर्माण केंद्र के रूप में स्थापित किया है, जिसमें हाल के वर्षों में भारतीय कंपनियों को कई अंतरराष्ट्रीय ऑर्डर मिले हैं। भारतीय रक्षा उद्योग डेफएक्सपो-2022 का बेसब्री से इंतजार कर रहा है जो रक्षा क्षेत्र में एशिया का सबसे बड़ा आयोजन है। प्रतिभागियों के समक्ष पेश आ रही रसद संबंधी समस्याओं के कारण इसे मार्च 2022 में स्थगित कर दिया गया था जैसा हम सभी जानते हैं कि भारत अपना 'आजादी का अमृत महोत्सव' मना रहा है, डेफएक्सपो 2022 प्रदर्शनी अपने थीम 'पाथ टू प्राइड' के साथ राष्ट्रवादी गौरव का आह्वान करती है एवं एक सक्षम स्वदेशी रक्षा उद्योग की स्थापना के माध्यम से नागरिकों को राष्ट्र निर्माण में भाग लेने के लिए प्रोत्साहित करती है।



रक्षा मंत्रालय ने हाल के वर्षों में कई नीतिगत सुधार किए हैं जैसे औद्योगिक लाइसेंसिंग प्रक्रिया को सरल बनाना; स्वचालित मार्ग से 74 प्रतिशत प्रत्यक्ष विदेशी निवेश (एफडीआई) की अनुमति; केवल भारतीय निर्माताओं से खरीदी जाने वाली वस्तुओं की सकारात्मक सूची जारी करना; सात नई रक्षा कंपनियों का शुभारंभ; रक्षा उत्कृष्टता के लिए नवाचार (आई-डेक्स); डिफेंस इनोवेशन स्टार्ट-अप चैलेंज (डीआईएससी); डेफकनेक्ट; रक्षा में आर्टिफिशियल इंटेलिजेंस (एआईडीईएफ) आदि। रक्षा निर्माण में सुधार से भारतीय रक्षा निर्माताओं की अधिक रुचि पैदा हो रही है और इसलिए यह अनुमान है कि डेफएक्सपो-2022 भारतीय कंपनियों की सक्रिय भागीदारी को प्रोत्साहन देगा। डेफएक्सपो-2022 में प्रतिभागियों को अपने उपकरणों और प्लेटफार्मों को प्रदर्शित करने का अवसर मिलेगा और व्यावसायिक साझेदारी बनाने के लिए भारतीय रक्षा उद्योग के विस्तार की ताकत और क्षमताओं का पता लगाने में भी वे सक्षम होंगे। यह आयोजन निवेश को बढ़ावा देने, विनिर्माण क्षमताओं का विस्तार करने एवं प्रौद्योगिकी का अवशोषण करने के रास्ते खोजने में मदद करेगा।

डेफएक्सपो-2022 वेबसाइट ([www.defexpo.gov.in](http://www.defexpo.gov.in)) विभिन्न स्वदेशी रक्षा उत्पादों के बारे में सूचनात्मक सामग्री की मेजबानी करने और गुजरात में विरासत को बढ़ावा देने के अलावा, प्रदर्शकों को ऑनलाइन सेवाएं प्रदान करने के लिए उपलब्ध है। प्रदर्शक बुकिंग भारतीय कंपनियों के लिए उपलब्ध होगी जिसमें विदेशी ओईएम की भारतीय सहायक कंपनियां, भारतीय और विदेशी कंपनियों के बीच संयुक्त उद्यम, रक्षा सार्वजनिक क्षेत्र के उपक्रम, राज्य पैवेलियन, डीआरडीओ और भारतीय कंपनियां शामिल होंगी। वेबसाइट प्रदर्शकों के लिए पहले आओ-पहले पाओ के आधार पर ऑनलाइन स्थान बुक करने, ऑनलाइन भुगतान करने, बुक कॉन्फ्रेंस हॉल और बिजनेस-टू-बिजनेस (बी2बी) बैठकों के लिए जगह बनाने की सुविधा प्रदान करेगी।

वेबसाइट वो पहली इंटरफेस होगी जो बुकिंग की प्रक्रिया और सूचना तक पहुंच को आसान बनाएगी। प्रतिभागियों की एक बड़ी संख्या ने पहला आयोजन स्थगित होने के बाद अब इस आयोजन में अपनी उपस्थिति बरकरार रखी है, उन्हें उनके स्थान का पुनः आवंटन किया जाएगा। नए प्रदर्शकों के लिए जगह की बुकिंग दिनांक 15 अगस्त, 2022 से शुरू होगी। व्यापार से जुड़ी ज़रूरतों के लिए आने वाले आगंतुक व्यावसायिक दिनों यानी 18, 19 और 20 अक्टूबर के दौरान शो में आने के लिए वेबसाइट पर अपने टिकट खरीद सकेंगे और 21 तथा 22 अक्टूबर को आम जनता के लिए निः शुल्क प्रवेश की सुविधा की जाएगी। रक्षा प्रकाशनों और मीडिया को भी वेबसाइट के माध्यम से ऑनलाइन पंजीकरण करना होगा। भारतीय कंपनियों की व्यापक उपस्थिति को प्रोत्साहित करने के लिए डेफएक्सपो-2022 के लिए पहले के स्थान और टिकट दरों पर 25% की छूट की पेशकश की जाएगी। भारतीय स्टार्ट-अप और एमएसएमई को विशेष बढ़ावा देने के साथ-साथ राज्य पैवेलियन की स्थापना पर भी उनकी ए एंड डी नीतियों को आगे बढ़ाने के लिए विशेष ध्यान दिया जाएगा।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1850067>

## रूस-यूक्रेन युद्ध के चलते रद्द की गई थी डिफेंस एक्सपो, अब इस तारीख से होगा आयोजन

रूस-यूक्रेन युद्ध (Russia-Ukraine War) के चलते स्थगित किए गए डिफेंस एक्सपो (Defence Expo) की नई तारीख की घोषणा कर दी गई है. एशिया (Asia) की सबसे बड़ी रक्षा-प्रदर्शनी (Biggest Defence Exhibition), गुजरात की राजधानी गांधीनगर (Gandhinagar) में 18-22 अक्टूबर को आयोजित की जाएगी. दुनिया को अपने हथियार और सैन्य-साजो सामान प्रदर्शित करने वाले भारत के इस डिफेंस एक्सपो यानि रक्षा-प्रदर्शनी को लेकर रक्षा मंत्रालय ने सोमवार को जगह और तारीख जारी की. दो साल में एक बार होने वाला डिफेंस-एक्सपो इससे पहले गांधीनगर में ही 11-13 मार्च में आयोजित किया जाना था.

देश-विदेश की करीब 1000 कंपनियों ने डिफेंस एक्सपो में शामिल होने के लिए रजिस्ट्रेशन भी करा दिया था लेकिन रूस-यूक्रेन युद्ध के चलते बड़ी संख्या में विदेशी कंपनियों ने लॉजिस्टिक-दिवक्तों के चलते बाद में हिस्सा लेने से इंकार कर दिया था. यही वजह है कि रक्षा मंत्रालय ने डिफेंस एक्सपो को स्थगित कर दिया था. रक्षा मंत्रालय के मुताबिक, पांच दिवसीय कार्यक्रम में तीन व्यावसायिक दिन और उसके बाद दो सार्वजनिक दिन होंगे. डेफएक्सपो-2022, हेलीपैड प्रदर्शनी केंद्र में एक लाख वर्ग मीटर से ज्यादा क्षेत्र में तीन-स्थल; महात्मा मंदिर कन्वेंशन और प्रदर्शनी केंद्र में उद्घाटन कार्यक्रम और सेमिनार एवं साबरमती रिवर फ्रंट में लाइव डेमो आयोजित किया जाएंगे.

### 5 बिलियन डॉलर का निर्यात के लक्ष्य की ओर कदम

प्रदर्शनी की योजना कंपनियों के बीच साझेदारी बनाने के लिए बंधन जैसे कार्यक्रम, भविष्य के युद्ध के मैदान के लिए अत्याधुनिक प्रौद्योगिकी समाधानों सहित स्टार्ट-अप/एमएसएमई के प्रदर्शन वाले सेमिनार और वेबिनार, रक्षा में आर्टिफिशियल इंटेलिजेंस, छात्रों के दौरे, गुजरात को एयरोस्पेस एवं रक्षा क्षेत्र आदि के लिए एक निवेश गंतव्य के रूप में प्रदर्शन करना के साथ बनाई जा रही है. डेफएक्सपो-2022 रक्षा में आत्मनिर्भरता प्राप्त करने और 2025 तक 5 बिलियन डॉलर का निर्यात प्राप्त करने के प्रधानमंत्री श्री नरेन्द्र मोदी की परिकल्पना के अनुरूप है.

### रक्षा क्षेत्र में एशिया का सबसे बड़ा आयोजन

भारत ने हाल के वर्षों में भारतीय कंपनियों द्वारा प्राप्त किए गए कई अंतर्राष्ट्रीय ऑर्डर के साथ खुद को एक उभरते हुए रक्षा विनिर्माण केंद्र के रूप में सफलतापूर्वक स्थापित किया है. भारतीय रक्षा उद्योग



डेफएक्सपो-2022 की उत्सुकता से उम्मीद कर रहा है जो रक्षा क्षेत्र में एशिया का सबसे बड़ा आयोजन है. रक्षा मंत्रालय के मुताबिक, 'आजादी के अमृत महोत्सव' के चलते डेफएक्सपो 2022 अपने विषय 'पाथ टू प्राइड' के साथ राष्ट्रवादी गौरव का आह्वान करता है और नागरिकों को एक सक्षम स्वदेशी रक्षा उद्योग की स्थापना के माध्यम से राष्ट्र निर्माण में भाग लेने के लिए प्रोत्साहित करता है.

### आयोजन से निवेश को मिलेगा बढ़ावा

डेफएक्सपो-2022 में, प्रतिभागियों को अपने उपकरणों और प्लेटफार्मों को प्रदर्शित करने का अवसर मिलेगा और व्यावसायिक साझेदारी बनाने के लिए भारतीय रक्षा उद्योग के विस्तार की ताकत और क्षमताओं का पता लगाने में भी सक्षम होंगे. यह आयोजन निवेश को बढ़ावा देने, विनिर्माण क्षमताओं और सामर्थ्य का विस्तार करने, प्रौद्योगिकी समावेश के लिए अवसरों की खोज करने में मदद करेगा. भारत फिलहाल दुनिया का दूसरा सबसे बड़ा हथियारों का आयातक देश है.

### भारत की 'डिफेंस हब' के तौर पर पहचान बनाने की कोशिश

पिछले कुछ सालों से भारत (India) हथियारों की उत्पादन (Wepon Production) और निर्यात करने पर भी जोर दे रहा है. यही वजह है कि इस बार के डिफेंस एक्सपो (Defence Expo) के जरिए भारत खुद को 'डिफेंस-हब' के तौर पर अपनी पहचान बनाने की कोशिश कर रहा है. अक्टूबर के महीने में गांधीनगर (Gandhinagar) में होने जा रहे डिफेंस एक्सपो का ये 12वां संस्करण है. पिछला डिफेंस एक्सपो उत्तर प्रदेश की राजधानी लखनऊ (Lucknow) में हुआ था, जबकि नौवां संस्करण चेन्नई और आठवां गोवा में हुआ था. उससे पहले तक डिफेंस-एक्सपो राजधानी दिल्ली में ही होता आया था. लखनऊ में हुए डिफेंस एक्सपो में एक हजार से ज्यादा आर्म्स कंपनियों ने हिस्सा लिया था. इनमें से करीब 170 विदेशी कंपनियां थीं. लखनऊ में करीब 40 देशों के रक्षा मंत्री, सेना प्रमुख और दूसरे गणमान्य व्यक्तियों ने हिस्सा लिया था.

<https://www.abplive.com/news/india/defense-expo-was-canceled-due-to-the-russia-ukraine-war-now-it-will-be-organized-on-this-date-ann-2187610>



मंगलवार, 09 अगस्त 2022

## दुनियाभर के आसमान में 'तेजस' का बजेगा डंका, आखिर अमेरिका और दूसर देश क्यों दिखा रहे खरीदने में दिलचस्पी?

### India to Sell Tejas Fighter Jet:

भारत का स्वदेशी फाइटर जेट तेजस दुनिया की नजरों में छा गया है. स्वदेशी लड़ाकू विमान 'तेजस' (Tejas) दुनियाभर के आसमान में दहाड़ने के लिए बेताब है. सबसे बड़ी बात है कि सैन्य हथियारों और

उपकरणों का निर्यात करने वाला अमेरिका (America) भी इसमें दिलचस्पी ले रहा है। इसका अलावा अमेरिका समेत दुनिया के कई और देश भी इस लड़ाकू विमान (Fighter Jet) को खरीदने को लेकर दिलचस्पी दिखा रहे हैं। भारत ने मलेशिया को 18 तेजस बेचने की पहले ही पेशकश की है। हिंदुस्तान एयरोनॉटिक्स लिमिटेड (HAL) एक इंजन वाले इस फाइटर जेट का निर्माण करती है। अमेरिका के अलावा अर्जेंटीना, ऑस्ट्रेलिया, मिस्र, इंडोनेशिया और फिलिपींस ने भी इसे खरीदने को लेकर दिलचस्पी दिखाई है।

### **दुनिया के आसमान में दहाड़ेगा तेजस**

भारत की सरकार विदेशी रक्षा उपकरणों पर भारत की निर्भरता को कम करने के लिए प्रयासरत है। वहीं, अब लड़ाकू विमान से लेकर कई सैन्य हथियार भी बेचने की स्थिति में है। भारत ने मलेशिया को 18 हल्के लड़ाकू विमान (LCA) "तेजस" बेचने की पेशकश की है। रक्षा मंत्रालय ने अभी हाल में बताया था कि अर्जेंटीना, ऑस्ट्रेलिया, मिस्र, अमेरिका, इंडोनेशिया (Indonesia) और फिलीपींस (Philippines) की भी सिंगल इंजन वाले जेट में रुचि है। सरकार ने पिछले साल हिंदुस्तान एयरोनॉटिक्स लिमिटेड को स्थानीय रूप से उत्पादित 83 तेजस जेट्स के लिए 2023 के आसपास डिलीवरी के लिए अनुबंध दिया था।

### **तेजस की खासियत और ताकत?**

भारत के हल्के लड़ाकू विमान 'तेजस' के करीब 50 फीसदी कलपुर्जे भारत में ही तैयार हुए हैं। इस फाइटर जेट में आधुनिक तकनीक से लैस इजरायल की EL/M-2052 रडार को लगाया गया है। ये लड़ाकू विमान एक साथ 10 टारगेट को ट्रैक करने और उसपर हमला करने में सक्षम है। ये विमान बेहद ही कम क्षेत्र वाले रनवे पर टेकऑफ कर सकता है। इस फाइटर जेट का वजन 6500 किलोग्राम है। इसमें 6 प्रकार की मिसाइलें तैनात की जा सकती हैं। लेजर गाइडेड बम और कलस्टर हथियार भी लगाए जा सकते हैं।

### **3000 किमी तक एक बार में उड़ान**

तेजस (Tejas) में एक सेल्फ प्रोटेक्शन जैमर भी दिया गया है, जो हमले से जेट को बचाने में मदद करता है। ये फाइटर जेट 3000 किलोमीटर तक एक बार में उड़ान भर सकता है। इस विमान का एडवांस्ड वर्जन 'तेजस मार्क-2' 56 हजार से अधिक फीट की ऊंचाई तक उड़ान भरने में सक्षम है। भारतीय एयरफोर्स के बेड़े में हल्के लड़ाकू विमान (LCA) को शामिल करने की तैयारी 1983 में ही शुरूआत हो गई थी। इसे रूसी फाइटर मिग-21 (MiG-21) के बेहतर विकल्प के तौर पर माना गया। साल 2001 में पहली बार तेजस ने आसमान में उड़ान भरकर भारत का सीना गर्व से चौड़ा कर दिया था। ये उपलब्धि उस समय और बड़ी हो गई है, जब भारत इस विमान को दूसरे देशों को बेचने की स्थिति में है।

<https://www.abplive.com/news/india/defence-news-india-to-sell-lca-tejas-fighter-jet-to-malaysia-why-america-indonesia-philippines-interested-2187864>

## Everyone wants a Tejas: Why USA, Australia, Malaysia and other Countries are vying to Procure India's Tejas Aircraft?

Demand for India's *Tejas* fighter jets seems to be soaring in the global market. According to the government's statement in the Lok Sabha on Friday, six countries — the USA, Australia, Argentina, Egypt, Indonesia and the Philippines — have expressed interest in procuring light combat aircraft (LCA), whereas *Malaysia* has already placed an order for procuring 18 India's indigenously-made fighter jets. Manufactured by state-owned *Hindustan Aeronautics Limited* (HAL), Tejas is a single-engine multi-role fighter aircraft, which is capable of operating in high-risk air environments. HAL developed its first supersonic fighter – HAL HF-24 Marut – in the 1960s and phased them out in 1990. After that, it developed its supersonic fighter — Tejas — which is by far the smallest and lightest in its class of contemporary supersonic combat aircraft. The light combat aircraft made its maiden flight in January 2001 and was inducted into the squadron of the *Indian Air Force* in 2016. Tejas – meaning 'radiant' – has many USPs. For starters, it has active electronically-scanned radar for critical operation capability. Second, it can refuel in the air and be ready for war again. Third, it can target enemy aircraft from a distance, and also has the ability to dodge the enemy's radar. Thanks to its features, Tejas has competed with, surpassed and overshadowed the developed aircraft of China, Russia and South Korea.

What's more, is that Tejas is as indigenous as it could get for an Indian-made aircraft. According to a statement by Defence Minister Rajnath Singh last year, "LCA-Tejas incorporates a large number of new technologies, many of which were never attempted in India. The indigenous content of LCA-Tejas is 50 per cent in the Mk1A variant which will be enhanced to 60 per cent." Since then, Tejas has caught the fancy of leading air forces in the world. Malaysia, for instance, has expressed its interest in procuring the aircraft for many years now. The Royal Malaysian Air Force (RMAF) intends to procure Tejas to supplement its MiG-29 fleet. Tejas marked its international debut at the Langkawi International Maritime and Aerospace Exhibition (LIMA) in March 2019 amidst great fanfare amongst the RMAF and then-Malaysian Prime Minister Mahathir bin Mohamad. HAL announced last month that Malaysia has opted for the Tejas to potentially replace its MiG-29s.

An IANS report quotes defence expert Qamar Agha saying that if compared to Sukhoi, Tejas is much lighter. "Tejas is fully capable of carrying a load of eight to nine tonnes. It can fly with as many weapons and missiles as Sukhoi, which weighs more. Its biggest advantage is its speed. Despite being light, its speed is unmatched. These aircraft can fly as fast as the speed of sound, i.e., Mach 1.6 to 1.8, up at an altitude of 52,000 feet," he said. He goes on to add that "The Tejas Mark-1A is also costlier than the Sukhoi-30MKI fighter aircraft because many latest types of equipment have been added to it. For example, it has radar developed in Israel. Apart from this, the aircraft also has an indigenously developed radar. It is very light and its fighter power is also better. It is a multifunctional fighter aircraft."

Not just from outside, there is a huge demand for Tejas by the Indian forces as well. According to reports, just last year, the Indian government awarded a contract worth Rs 48,000 crore to Hindustan Aeronautics Limited for manufacturing 83 Tejas jets to be delivered by 2023. HAL

has already doubled the production capacity of Tejas from eight to 16 aircraft per year. The contract is a massive boost to the government's push for Aatmanirbhar Bharat. "About 500 Indian companies including MSMEs in the design and manufacturing sectors will be working with HAL in this procurement. The programme would act as a catalyst for transforming the Indian aerospace manufacturing ecosystem into a vibrant Aatmanirbhar-self-sustaining ecosystem," Defence Ministry had said while approving the much-awaited deal last year.

<https://www.timesnownews.com/exclusive/india-tejas-aircraft-why-usa-australia-malaysia-and-other-countries-are-interested-in-news-analysis-article-93427553>

## DefenseNews

Mon, 08 Aug 2022

# India's Private Defense Firms Seek Level Playing Field as MoD Preps New Arms Embargo

*By Vivek Raghuvanshi*

India is preparing a new list of additional banned foreign-made defense materiel, according to the Society of Indian Defence Manufacturers, with the industry association providing its own input to the government. The effort follows three other lists released by the Defence Ministry, which have banned a total of 310 foreign-made weapons and platforms. The import embargoes are part of an effort to bolster the domestic defense industry under the economic initiative Make in India. But analysts and industry experts tell Defense News the private sector — which has long faced adverse conditions competing against foreign and state-run companies — is yet to see a significant change, with few exceptions. Neither SIDM nor the ministry would provide specifics about the forthcoming list, and it's unclear when it will be released to the public.

### Government action

It's also unclear exactly how the embargo lists have affected the bottom line of Indian defense contractors. Certainly, there are cases where orders of banned items were made with local companies, but those were related to deals already in the works before the respective embargo. For its part, the Ministry of Defence announced April 9 that 25% of the \$12 billion budget meant for the procurement of new weapons and associated equipment would go toward private sector orders during fiscal 2022-2023. The ministry also announced it reserved \$214.28 million for buying products developed through the iDEX initiative — or Innovations For Defence Excellence, a government effort meant to foster innovation and technological development in the defense and aerospace sectors by engaging startups, individual innovators, academia, research and development institutes, and micro, small and medium enterprises. Additionally, the government is encouraging private sector participation by simplifying the procurement process, raising companies' hopes that they'll see more contract awards in shorter time frames. Under the new changes, acquisition tenders that fall under the Make-II procurement project and involve domestic private companies will now progress to contract awards within four months after successful prototype testing. Previously, the decision-making process for awarding contracts took about two years following the completion of prototype trials.

Make-II is an industry-funded procurement initiative that receives no government funding and through which the prototype development cost must be borne by private companies. The government also reserved 25% of its \$800 million defense research and development budget for new R&D proposals by private industry, startups and academia for the FY22-23 time period. The ministry issued new rules — which took effect April 6 — requiring any imported defense materiel, irrespective of value, to receive the approval of the Defence Acquisitions Council before entering the country. In other words, weapons systems that cannot be locally made may be procured from foreign firms only under exceptional circumstances.

However, the ministry noted, the military “will be encouraged to explore the procurement of these through indigenous sources.” The MoD also said, going forward, the military must receive approval from the defense minister if an armed service wants to import defense equipment under capital procurements, which also can only take place if the materiel is unavailable domestically. MoD officials said these efforts of the ruling National Democratic Alliance government are meant to enhance the role of private companies, small businesses and startups in manufacturing defense products and building a robust supply chain to reduce the country’s dependence on arms imports.

### **Embargo impact**

Last year, the Indian military purchased \$3.5 billion in weapons from overseas through emergency and fast-track procurement authorities. India spent \$10.73 billion of its \$16.41 billion capital procurement fund last year on weapons from domestic defense companies. “To promote indigenization, the Defence Ministry has brought out three positive indigenization lists. With the first and second list, we have been able to award [defense] contracts worth \$7.1 billion ... to Indian companies,” Defence Minister Rajnath Singh said at a May 9 industry event. “We hope that over the next five [to] seven years, the indigenous acquisition will provide \$64.28 billion worth of orders for the industry.”

The ministry refers to the three arms embargo lists as positive indigenization lists. But Vivek Rae, a former chief of acquisitions for the MoD, told Defense News India must adopt more nuanced strategies if the key objective is to bolster the private sector. He suggested the ministry reserve some competitions for contract awards solely for the private sector, as both state-run and private companies are allowed to participate in Make-II competitions. The chief executive of a small private defense enterprise agreed. “While deciding the production order, the Indian government has to look away from state-run companies; otherwise there will be no confidence instilled in the private sector,” the executive told Defense News, speaking on the condition of anonymity out of fear of economic reprisal. The executive added that a significant number of new procurement projects fall under Make-II.

“What the [private] industry has developed — and has capabilities for — is only partially included in the lists released as yet and await inclusion in subsequent lists,” Jayant Patil, senior executive vice president of defense contractor Larsen & Toubro, told Defense News. The government, he argued, needs to make fair and quick decisions on contract awards and avoid bureaucratic red tape to lessen the cost of acquisition. Patil, a former president of SIDM, also called for new economic models and processes that would benefit India’s defense export market.

The government opened defense business to private companies in May 2001. Since then, about 333 private companies were issued a total of 539 industrial licenses, according to an MoD news release in July 2021. Out of those companies, 110 supply arms to the Indian military, the release

stated. India's private sector has supplied to the military over the last 15 years guns, rocket systems, ships, underwater platforms, sonars, drones, vehicles, radar systems, electro-optical systems, naval weapon systems, bridging systems, integrated platform management systems, and air defense missiles and launchers. The sector has also upgraded multiple types of weapon systems. However, with the government continuing to prioritize state-run defense companies and its own Defence Research and Development Organisation, private sector contribution to overall defense production suffers. A few major orders have been placed with a handful of large private firms, but the private sector mostly serves as a supplier to state-run defense companies.

The Central Vigilance Commission, which serves as the government's anti-corruption watchdog, released a memo in April 2021 calling for additional transparency in how contracts are awarded, particularly when they're done so on a nomination basis — or where contracts are awarded to a state-run company without a competition, similar to sole-source contracts in the United States. "The award of contracts/projects/procurements on nomination basis without adequate justification amounts to restrictive practice eliminating competition, fairness and equity," the document read. "Hence, award of contracts through open competitive bids should remain the most preferred mode of tendering." And if an award is made on a nomination basis, the commission stated, details of the contract and justification for the decision should be posted online in the public domain.

**But Rae said this should go further.**

"The only way private manufacturing companies can grow is through the steady flow of orders," he said. "To establish a level playing field, orders on a nomination basis to state-run companies should be stopped completely, especially where the private sector has the infrastructure and capability to compete." Ashok Baweja, who leads a defense unit at Quest Global Engineering and previously served as chairman of the state-run company Hindustan Aeronautics Limited, took a more positive view of the arms embargoes, saying they have provided opportunities to both the private and public defense sectors. (HAL ranked 42 in this year's Top 100 list, alongside one other Indian company, Bharat Electronics Limited, which ranked 56.)

Still, Baweja added, India's private sector lacks access to defense projects that are based on realistic technical parameters, backed by government funding for prototype development and the support of manufacturing facilities, and involve timely orders. But it's not all bad. Private companies have access to several technologies — gyros, gimbals, image intensifiers, sensors, metallurgy techniques — through their relationships with foreign businesses, who are more reluctant to share with state-run organizations than private entities. Additionally, the private sector has built up its capabilities in the design and development of defense electronics, software and artificial intelligence in recent years.

The head of SIDM, Satya Prakash Shukla, said India's defense industry has welcomed the embargo lists. Shukla, who also leads Mahindra Group's defense, aerospace and agriculture unit, said creating these lists is complicated, as the Defence Ministry wants to focus on items it might need going forward but can also be locally produced.

<https://www.defensenews.com/top-100/2022/08/08/indias-private-defense-firms-seek-level-playing-field-as-mod-preps-new-arms-embargo/>



*Mon, 08 Aug 2022*

## **Ambiguity Continues Over Status of Navy's Third Aircraft Carrier**

The ambiguity over Indian Navy's third aircraft carrier continues even as China is adding to its maritime might. The Navy has been strongly pushing for a third aircraft carrier. The proposed indigenous aircraft carrier-2 (IAC-2, expected to be 65-70,000 tons) will supplement INS Vikramaditya (46,000 tons), and INS Vikrant, the 44,500-tonne IAC-1 that is expected to join service this month after almost a six-year delay. The Navy has been maintaining the three carriers-based force structure so that it can operate two of them in maritime zones on each side of the Indian coastline — eastern and western coasts. This can only happen when the Navy has three carriers as one can be used as a substitute when either of the first two undergoes maintenance.

Aircraft carriers are known to have lengthy maintenance schedules. The cycle of maintenance can lead to an absence of a carrier for years, as has been the case with the refit of India's lone Aircraft Carrier INS Vikramaditya which started in the beginning of 2021 and still continues. It has been delayed due to a fire onboard in July. With one aircraft carrier still under maintenance and one yet to be inducted, the Indian Navy will be operating without one for some more time. This is the state of affairs when China has been successful beating deadlines in adding to its military might. It started manufacturing its first aircraft carrier in 2012 and commissioned its third indigenous one, Fujian, in June this year. China has become the biggest Navy with 355 warships and submarines while India's total fleet strength is 130. "Keeping in mind our pace, even if we take a decision on the carrier today, it will take over a year to begin the process of manufacturing," said a defence source.

<http://www.indiandefensenews.in/2022/08/ambiguity-continues-over-status-of.html>

## **Business Standard**

*Tue, 09 Aug 2022*

## **Conference on Classification Regulations, Advanced Naval Tech Held in Delhi**

A two-day conference on classification regulation and advanced technologies for naval ships and auxiliaries was organized in the national capital from August 4 to 5 with the aim of promoting indigenous warship building. The conference was organised by the Directorate of Naval Architecture, Integrated Headquarters- Ministry of Defence (Navy) at Manohar Parrikar Institute for Defence Studies and Analysis in New Delhi, the Ministry of Defence said. The theme of the conference was future naval ships- technologically transformative, economically viable and environmentally sustainable, the Ministry said. The conference was aimed to provide a platform for the Indian Navy to achieve synergy between classification societies, various branches of the Indian Navy and Coast Guard, Indian Shipyards, DRDO Labs, academia etc, in the field of

research and development as well as quality assurance and survey/ certification of naval ships and auxiliaries.

Senior delegates/ subject experts from seven major International Classification Societies such as ABS, BV, Class-NK, DNV-GL, IRS, LR and RINA participated in the conference, wherein 16 papers were presented by the class societies, ranging from the classification process for Naval Ships, Military Class Notations, Maritime Cyber Security, Advanced Digital Technologies, Naval Ship Signatures, Rules for Autonomous Vessels, Bio-safety on Naval Ships, Technology Qualification, Hybrid Powering and Decarbonization of Naval Ships. In addition, various other technical aspects relevant to the design, construction and maintenance of Naval and other Government Ships were discussed by the delegates during QA sessions and on the sidelines of the conference. The conference was inaugurated by Vice Admiral Sandeep Naithani, Chief of Material, Indian Navy on August 4 and its various sessions were keenly participated by more than 120 delegates, including Senior Officers of Naval Headquarters, Naval Command, Field Units, Coast Guards Headquarters.

Delegates from six DPSU Shipyards, DRDO Scientists and academia were also present at the Conference, the release stated. The closing session was presided over by VAdm Kiran Deshmukh, Controller of Warship Production and Acquisition, Indian Navy on August 5.

[https://www.business-standard.com/article/current-affairs/conference-on-classification-regulations-advanced-naval-tech-held-in-delhi-122080900470\\_1.html](https://www.business-standard.com/article/current-affairs/conference-on-classification-regulations-advanced-naval-tech-held-in-delhi-122080900470_1.html)



*Tue, 09 Aug 2022*

## **Pakistan Drone Pushed Back By BSF in Punjab; Threat Continues To Loom Over Jammu & Kashmir**

The Border Security Force (BSF) on August 9 thwarted an attempt of a Pakistani drone to enter the Indian Territory in the Ajnala sector of Punjab's Amritsar along the Indo-Pakistan International Border. The drone was inside the Indian Territory for over six minutes after which it was pushed back by the BSF. While in another incident, locals in the Chadwal area of Kathua's Rajbagh informed Police that they also heard the humming sound of the drone in the area during the night hours after which the Jammu and Kashmir Police alerted all the Nakas and searches were carried out.

The National Investigation Agency (NIA) has taken over the case of a Pakistani drone that was shot down by the Jammu and Kashmir Police in Marheen area of Kathua's Rajbagh on May 29 this year. The drone was carrying 07 sticky bombs and 07 UBGL grenades and it was to be handed over to carry out a major terror strike in Jammu and Kashmir. The case has been registered by the Jammu Police Station of NIA under IPC Sections 121, 121(A), 122 and 16, 18 and 20 of UAPA. It is pertinent to mention that NIA is already probing a case of another drone that was shot down by BSF in 2020.

<https://www.republicworld.com/world-news/pakistan-news/pakistan-drone-pushed-back-by-bsf-in-punjab-threat-continues-to-loom-over-jammu-and-kashmir-articleshow.html>



## India, China Air Forces Likely to Set Up Direct Link

India and China are likely to establish "direct contact" between their air forces to prevent any inadvertent escalation amid the ongoing "heightened" activity by fighter jets and drones along the unresolved Line of Actual Control (LAC). The direct contact mechanism could be through a separate hotline between the Indian Air Force (IAF) and the People's Liberation Army-Air Force (PLAAF) or by using the existing hotline between the two armies in the eastern Ladakh region, defence establishment sources said on Tuesday. The "proposal" was discussed during the special military dialogue between the two countries at the Chushul-Moldo border meeting point last week, during which India raised the recent airspace violations and breach of confidencebuilding measures (CBMs) by the Chinese air force in eastern Ladakh. Sr IAF officer was present at latest talks with China India and China have discussed the "proposal for direct contact" between two air forces during the special military talks.

"The proposal was discussed at the meeting, which was headed by a Major General but also attended by an Air Commodore of the IAF for the first time, because it is important to talk in case of confusion over an incident... Things can otherwise quickly spiral out of control," a source said. "The proposal is at an initial stage with the mechanism, structure and level yet to be decided," he said. The talks on August 2 were held against the backdrop of the "provocative behaviour" by Chinese fighters flying close to the LAC since mid-June, often violating the 10-km no-fly zone CBM, as was earlier reported by TOI. There have been at least two "confirmed" incidents of Chinese fighters even flying over the troop stand-off sites in eastern Ladakh, which led the IAF to scramble its own fighters and activate other air defence measures. India and China have held 16 rounds of the top-level corps commander talks, with the last being on July 17, without any concrete progress on disengagement and de-escalation at Patrolling Point-15, Demchok and the largest face-off at the strategically-located Depsang Bulge area in over two-yearlong military confrontation in eastern Ladakh. The Indian and Chinese armies have six hotlines - two each in eastern Ladakh, Arunachal Pradesh and Sikkim - between their ground commanders. The sixth one was set up between Kongra La in north Sikkim and Khamba Dzong in the Tibetan Autonomous Region in August last year. China, however, has been dragging its feet over establishing a top-level hotline like the DGMO one between India and Pakistan. The hotline between the two Army headquarters was first proposed in the bilateral Border Defence Cooperation Agreement (BDCA) signed in 2013 and then agreed to during PM Narendra Modi's visit to China in 2015, as was earlier reported by TOI.

<https://timesofindia.indiatimes.com/india/india-china-air-forces-likely-to-set-up-direct-link/articleshow/93465214.cms>

*Mon, 08 Aug 2022*

## Countering China

India's strong objection to the recent airspace violations and breach of confidence-building measures by China, raised during a special round of military talks last week, makes a fair summation of Beijing's disinterest in cooling off tensions on the Line of Actual Control (LAC). The heightened Chinese air activity in east Ladakh, with fighters and drones flying close to contested areas in violation of the 10-km no-fly zone agreement despite concerns being flagged, underscores its intention to keep the pot boiling. In response to what China claims is an air defence exercise, the Indian Air Force has moved several of its advanced fighters to forward bases and stepped up combat sorties, asserting both the preparedness and readiness for counter measures. The deployment of artificial intelligence-based surveillance systems by the Indian Army is proof of the resolve. There is a school of thought that links the LAC provocations to Xi Jinping's playbook of whipping up nationalist sentiments to tide over the challenges at home and distract the disgruntled public.

Another assessment is that by making destabilisation the new normal, Beijing aims to keep a rising India under check without letting the border standoff develop into a full-blown crisis. Either way, India's desire to de-escalate and disengage does not seem to fit in its framework. China's adversarial impulses should only fortify India's resolve to stand firm and dig in for the long haul, using all leverages at its disposal. A beginning was made through the ban on apps, even as Chinese investments have come under intense scrutiny. A soft decoupling from the Chinese economy would require a concerted long-term plan, while some basic shortcomings need to be tackled in the mission mode, be it infrastructure development along the borders or technological upgrade. Ascendancy as a manufacturing hub would be the ultimate counter to China's belligerence. A mighty challenge, but that ought to be the goal.

<http://www.indiandefensenews.in/2022/08/countering-china.html>

INDIA  
TODAY

*Tue, 09 Aug 2022*

## Taiwan Holds Artillery Drill Simulating Defence against China Attack

Taiwan's military held a live-fire artillery drill Tuesday simulating a defence of the island against an attack after days of massive Chinese war games, an AFP journalist at the site of the exercise said. Lou Woei-jye, spokesman for Taiwan's Eighth Army Corps, confirmed the drills started in the southern county of Pingtung shortly after 0040 GMT with the firing of target flares and artillery, ending within an hour at 0130 GMT. As the last round of cannon was fired, Taiwanese soldiers were heard shouting "mission accomplished". Taiwan lives under the constant threat of

invasion by China, which views its neighbour as part of Chinese territory to be seized one day, by force if necessary. Taipei's drills, taking place on Tuesday and Thursday, will include the deployment of hundreds of troops and about 40 howitzers, the army said.

Lou said Monday the drills had already been scheduled and were not in response to China's exercises. The island routinely stages military drills simulating defence against a Chinese invasion, and last month practised repelling attacks from the sea in a "joint interception operation" as part of its largest annual exercises.

### **'Not worried'**

The anti-landing exercises come after China extended its own joint sea and air drills around Taiwan on Monday, but Washington said it did not expect an escalation from Beijing. "I'm not worried, but I'm concerned they're moving as much as they are. But I don't think they're going to do anything more than they are," Biden told reporters at Dover Air Force Base. Ahead of Tuesday's drill, Taipei condemned Beijing for carrying on with its military exercises around the island. "China's provocation and aggression have harmed the status quo of the Taiwan Strait and raised tensions in the region," the island's foreign ministry said in a statement. Taiwan has insisted that no Chinese warplanes or ships entered its territorial waters -- within 12 nautical miles of land -- during Beijing's drills.

The Chinese military, however, released a video last week of an air force pilot filming the island's coastline and mountains from his cockpit, showing how close it had come to Taiwan's shores. Ballistic missiles were also fired over Taiwan's capital during the exercises last week, according to Chinese state media. The scale and intensity of China's drills -- as well as its withdrawal from key talks on climate and defence -- have triggered outrage in the United States and other democracies. But Beijing on Monday defended its behaviour as "firm, forceful and appropriate" to American provocation. "(We) are only issuing a warning to the perpetrators," foreign ministry spokesman Wang Wenbin told a regular briefing, promising China would "firmly smash the Taiwan authorities' illusion of gaining independence through the US".

<https://www.indiatoday.in/world/story/taiwan-artillery-drill-defence-china-attack-nancy-pelosi-us-1985495-2022-08-09>

# Science & Technology News



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

**Ministry of Science & Technology**

*Tue, 09 Aug 2022 4:52 PM*

## **Experts Discussed Best Plans for Indo-US Joint Research Projects to be Implemented through TIHs**

Experts from the India and United States interacted to bring out the best plans for joint research projects that would be implemented through the Technology Innovation Hubs (TIH), at DST-NSF Joint Research and Development Projects Kick-off Workshop. The workshop was organised by IIT Delhi in association with DST to discuss how the projects to be implemented by the six TIHs identified under NM-ICPS for collaborative research and development with NSF-supported institutions would leverage unique resources, such as testbeds and datasets available in India and in the US, expand collaborations on critical technologies like AI and advanced wireless, and encourage student and researcher exchange programs. Dr Akhilesh Gupta, Senior Adviser, DST informed that a total of 35 joint projects have been identified which will be implemented by the Technology Innovation Hubs (TIHs) and research institutions from USA. “This endeavor will further help us to achieve collaborative research and development between the two countries in the area of CPS,” he added.

US is our natural partner. Especially in science we have traditionally partnered and through collaborative projects the engagement will more deeper at the institution level, government level and even people level,” Dr Gupta pointed out. Six TIHs under NM-ICPS have been identified for collaborative research and development with NSF-supported institutions. These projects aim at adding the component of international collaboration to existing research projects in both countries. The Hubs are part of a five-year, nearly \$430 million investment by DST under the National Mission on Interdisciplinary Cyber-Physical Systems and comprise academic researchers and industry partners. “US is committed and proud to partner with India for prosperity and opportunity for all. These projects shall be aspirational and should be able to solve the societal problems,” NSF Director Dr. Sethuraman Panchanathan.

Prof. Rangan Banerjee, Director, Indian Institute of Delhi (IIT Delhi) said that this workshop will enable linkages and build up TIH to solve problems of society. Department of Science and Technology (DST), Government of India, and National Science Foundation (NSF) joined hands for collaborative research and development in Sept 2021 in thematic areas of Agriculture, Autonomous systems technologies and applications, Health and Environment, Rehabilitation and assistive robotics, and Smart cities covering various cyber-physical systems.

DST is implementing National Mission-Interdisciplinary Cyber-Physical Systems (NMICPS) with an outlay of Rs. 3,660.00 crore for a period of five years to encourage innovation in new age technologies. As part of the Mission implementation, 25 Technology Innovation Hubs

(TIHs) have been established in reputed institutes across the country in advanced technologies to create a strong foundation and a seamless ecosystem for Cyber-Physical Systems, leading a platform for policymakers, researchers/innovators, premier institutes, start-ups, entrepreneurs, investors, industries and global connect as well. The workshop was attended by Shri Sanjeev K Varshney, Head, International Corporation, DST; Dr. Ekta Kapoor, Head FFT Division; Dr. JBV Reddy, Scientist F, DST; Dr. Kendra Sharp, Head, Office of International Science and Engineering; Dr. Bridget Turaga, Program Director, O/o International Science & Engineering; Dr. Gurdip Singh, Director of the Division of Computer and Network Systems along with the representatives from TIHs and institutes from US.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1850267>



*Tue, 09 Aug 2022*

## **Another SSLV Flight Soon: Space Commission Member**

The failure of India's newest rocket to put small satellites in orbit was not a setback and the space agency will soon attempt another flight, Space Commission member A S Kiran Kumar has said. Kumar was commenting on the failure of the first demonstration flight of Small Satellite Launch Vehicle (SSLV) to put an earth observation satellite (EOS2) and AzaadiSat, built by girl students from across the country, into the desired orbit on Sunday. "No, no, no. It is not a setback. We were only marginally short in the end," Kumar, a former Chairman of the Indian Space Research Organisation (ISRO) told PTI on the sidelines of the Kalaari-Indian Space Association Networking Meet here.

Kumar, who was present at the Sriharikota spaceport for the Sunday launch, said all the three stages of ISRO's newest rocket performed well and the primary objectives of the launch vehicle were demonstrated well. "It is a question of tweaking certain parts, the way it is operated and the way decisions are made. Very soon they will be attempting the next flight," he said. Kumar said the SSLV was significant because satellites were now becoming smaller and the new rocket could help India get a share of the small satellite launch market. "All the stages performed well. We were only marginally short in the end. The satellites were placed in an orbit of 350 km x 70 km instead of a circular orbit of 350 km. It is a marginal fault, but then it is a lesson for understanding," Kumar said.

ISRO scientists have said that the velocity trimming module, the liquid propulsion based terminal stage of the launch vehicle, failed to ignite due to sensor failure. ISRO Chairman S Somanath had said on Sunday that an expert committee has been formed to identify the 'specific' problem and undertake a detailed evaluation in days to come. SSLV placed the 135-kg EOS-02 and the co-passenger satellite AzaadiSAT, a 8U Cubesat weighing around eight kg into an "highly unstable" elliptical orbit. Both the satellites crashed into the sea soon after being placed in orbit.

<https://indianexpress.com/article/technology/science/another-sslv-flight-soon-space-commission-member-new-delhi-8080241/lite/>

## अंतरिक्ष कबाड़ से बढ़ता खतरा

अभिषेक कुमार सिंह

पिछले करीब पचास वर्षों के दौरान अंतरिक्ष में भेजे गए संचार उपग्रहों, प्रयोगशालाओं, मानवरहित यानों, मालवाहक यानों और मानव-मिशनो के कारण पृथ्वी से बाहर एक विशाल कबाड़ घर बन गया है। इसके अलावा प्रकृति ने भी अंतरिक्ष में हमारी पृथ्वी के नजदीक ऐसे हजारों छोटे-बड़े पिंड तैनात कर रखे हैं, जो किसी भी वक्त पृथ्वी के वायुमंडल में घुस कर मानव सभ्यता के संपूर्ण विनाश का खतरा उत्पन्न कर सकते हैं। अंतरिक्ष में बढ़ता कचरा धरती के लिए गंभीर समस्या बनता जा रहा है। यह कचरा मानव निर्मित तो है ही, उससे भी ज्यादा ब्रह्मांडीय पिंडों का है। असंख्य छोटे-बड़े उल्का पिंड लगातार बनने-टूटने की स्थिति में रहते हैं। सृष्टि का यह चक्र कभी थमने वाला नहीं है। पर मानवनिर्मित अंतरिक्ष कचरे से धरतीवासियों के लिए खतरा बढ़ता जा रहा है। अमेरिकी अंतरिक्ष एजेंसी- नासा भी इससे चिंतित है। इस बारे में विज्ञान पत्रिका- साइंस में नासा के विज्ञानियों जे.सी. लियो और एन.एल. जानसन ने एक शोध रिपोर्ट में लिखा है कि हमारे करीबी अंतरिक्ष में मानव निर्मित नौ हजार से ज्यादा ऐसे टुकड़े पृथ्वी की कक्षा में तैर रहे हैं जो आने वाले वक्त में भयावह दृश्य उपस्थित कर सकते हैं। रिपोर्ट में कहा गया है कि अगर जारी अंतरिक्ष अभियानों को बिल्कुल रोक दिया जाता है (जो कि अब संभव नहीं है), तो भी अंतरिक्ष में इतने उपग्रह आदि मौजूद हैं कि उनसे वहां कबाड़ की मात्रा में इजाफा होता ही रहेगा।

इस पूरे प्रसंग में सबसे बड़ी मुश्किल यह है कि इस कबाड़ को समेट कर पृथ्वी पर वापस लाने की कोई योजना नहीं है। हालांकि कई देश अब इस अंतरिक्षीय कचरे पर नजर रखने की योजनाएं बना रहे हैं और उन्हें लागू कर रहे हैं। कुछ समय पहले भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने अंतरिक्ष स्थितिपरक जागरूकता एवं प्रबंधन निदेशालय (डीएसएसएम) की स्थापना की, जो अंतरिक्ष के कबाड़ पर नजर रखता है। इस निदेशालय से मिली सूचनाओं के आधार पर पिछले साल इसरो ने अपने उपग्रहों को कचरे की टक्कर से बचाने के लिए बीस बचाव अभियान संचालित किए।

प्रश्न यह है कि यह कचरा आखिर आता कहां से है। एक आम धारणा यह है कि यह कचरा सौरमंडल में ही क्षुद्र ग्रहों की टूट-फूट से पैदा होता है। कुछ कचरा बाहरी अंतरिक्ष से उल्काओं के रूप में भी आता है। पर यह समस्या तब ज्यादा बढ़ने लगी जबसे मानव ने अंतरिक्ष में अपने यान भेजने शुरू किए और विभिन्न उद्देश्यों से कृत्रिम उपग्रहों को अलग-अलग कक्षाओं में स्थापित करना शुरू किया। इनमें से जब कुछ उपग्रहों ने काम करना बंद कर दिया या फिर यानों से कुछ चीजें अंतरिक्ष में बाहर निकल गईं या उनमें टूट-फूट हो गई, तो ये सब कबाड़ में तब्दील होते चले गए।



इसकी ताजा मिसाल यह है कि जब से रूस ने अंतरराष्ट्रीय अंतरिक्ष केंद्र (आइएसएस) में सहयोग करने से इनकार किया है, वर्ष 2030 में इसके कबाड़ बन जाने की आशंका पैदा हो गई है। इसी वर्ष फरवरी में रूसी अंतरिक्ष एजेंसी के तत्कालीन निदेशक दिमित्री रोगोजिन ने अंतरिक्ष में अमेरिका और यूरोप के साथ सहयोग और आर्थिक प्रतिबंधों का जवाब देते हुए कहा था कि रूस के बिना यूरोप, एशिया और अमेरिका अंतरिक्ष में टिक नहीं सकते। ऐसे में आइएसएस के अनियंत्रित होकर कचरे में बदल जाने या फिर इसे भारत-चीन में कहीं भी गिर जाने से रोका नहीं जा सकता।

यह सही है कि अब अंतरिक्ष भी इंसान की दखल से नहीं बचा है। मनुष्य के अंतरिक्ष में पहुंचने के कई फायदे हैं तो नुकसान भी। नुकसान यह कि एक तो वहां कचरा पैदा हो रहा है और दूसरा यह कि अंतरिक्ष युद्ध का खतरा भी बढ़ रहा है। इस पर यकीन करना मुश्किल होगा, पर यह सच है कि मानव निर्मित सबसे पुराना कबाड़ अब भी अंतरिक्ष में है। यह अमेरिका का दूसरा उपग्रह वैनगार्ड-प्रथम है, जो 1958 में छोड़ा गया था। वर्ष 2018 में अंतरिक्षीय कचरे की भयावह आशंका ने तब सिर उठाया था, जब बताया गया कि चीनी अंतरिक्ष केंद्र थियांगोंग-1 एक कबाड़ के रूप में किसी समय पृथ्वी से टकरा सकता है। चीनी अंतरिक्ष एजेंसी से इस केंद्र का संपर्क 2016 में ही खत्म हो चुका था। बाद में पृथ्वी पर ही इसके गिरने की जानकारी मिली। हालांकि करीब नौ टन वजनी अंतरिक्ष केंद्र का वजन धरती की सतह तक पहुंचते-पहुंचते एक से चार टन ही रह जाने की खबर से कुछ राहत मिली थी। पर जब वर्ष 1979 में पचहत्तर टन से भी ज्यादा वजनी नासा का स्काईलैब धरती पर गिरा था, तब दुनिया भर में घबराहट फैल गई थी, लेकिन वह बिना कोई नुकसान पहुंचाए समुद्र में गिर कर नष्ट हो गया था।

पिछले छह-सात दशकों में जैसे-जैसे विभिन्न देशों की अंतरिक्ष संबंधी गतिविधियां बढ़ी हैं, वहां धरती से पहुंचने वाला कचरा बढ़ता ही जा रहा है। जुलाई 2016 में अमेरिकी रणनीतिक कमान ने निकट अंतरिक्ष में सत्रह हजार आठ सौ बावन कृत्रिम वस्तुएं दर्ज की थीं, जिनमें एक हजार चार सौ उन्नीस कृत्रिम उपग्रह शामिल थे। मगर यह तो सिर्फ बड़े पिंडों की बात थी। इससे पहले 2013 की एक अध्ययन में एक सेंटीमीटर से छोटे सत्रह करोड़ ऐसे टुकड़े पाए गए थे और एक से दस सेंटीमीटर के बीच आकार वाले कचरों की संख्या करीब सात करोड़ निकली थी। अंतरिक्ष में बेतरतीब घूमती ये चीजें किसी भी अंतरिक्ष अभियान का काल बन सकती हैं।

कुछ समय पहले यूनिवर्सिटी आफ साउथैपटन के शोधकर्ताओं ने गूगल और स्पेस एक्स जैसी निजी कंपनियों के भावी अंतरिक्ष कार्यक्रमों पर नजर डालते हुए अंतरिक्ष में कबाड़ पैदा होने की नई आशंकाओं का आकलन किया है। शोधकर्ताओं के मुताबिक एक तरफ गूगल और एलन मस्क की कंपनी स्पेस एक्स की ओर से दुनिया में वायरलैस इंटरनेट का तेज विस्तार करने और पर्यटकों को अंतरिक्ष की सैर कराने के सैकड़ों राकेट, यान और उपग्रह अगले कुछ सालों में अंतरिक्ष में भेजे जाने वाले हैं। इन योजनाओं के आधार पर आकलन किया गया है कि अगले कुछ वर्षों में इन उपग्रहों के अंतरिक्ष में पहुंचने से इनके बीच होने

वाली टक्करों की संख्या में पचास फीसद की बढ़ोत्तरी हो जाएगी। फिलहाल उपग्रहों और उनके टुकड़ों के बीच टकराहट की हर साल ढाई सौ से ज्यादा घटनाएं होती हैं।

कुछ समय पहले नासा ने उन देशों की एक सूची तैयार की थी, जो अंतरिक्ष में इस कबाड़ के लिए जिम्मेदार हैं। इनमें पहला नाम रूस का है। इसके बाद अमेरिका, फ्रांस, चीन, भारत, जापान और यूरोपीय अंतरिक्ष एजेंसी का नंबर आता है। सबसे ज्यादा कबाड़ पृथ्वी से ऊपर पांच सौ पचास मील से छह सौ पच्चीस मील के बीच में फैला है। अंतरिक्ष में पहली बार स्पुतनिक-1 उपग्रह भेजे जाने के बाद से मनुष्य हजारों टन कचरा पृथ्वी से बाहर अंतरिक्ष में फेंक चुका है। पिछले करीब पचास वर्षों के दौरान अंतरिक्ष में भेजे गए संचार उपग्रहों, अंतरिक्षीय प्रयोगशालाओं, मानवरहित यानों, मालवाहक यानों की के कारण पृथ्वी से बाहर एक विशाल कबाड़ घर बन गया है। इसके अलावा प्रकृति ने भी अंतरिक्ष में हमारी पृथ्वी के नजदीक ही ऐसे हजारों छोटे-बड़े पिंड तैनात कर रखे हैं, जो किसी भी वक्त पृथ्वी के वायुमंडल में घुसकर मानव सभ्यता के संपूर्ण विनाश का खतरा उत्पन्न कर सकते हैं। सवाल है कि इस समस्या का हल क्या है? वैज्ञानिकों का कहना है कि अंतरिक्ष से यह कबाड़ बटोर कर वापस पृथ्वी पर लाना ही इसका एकमात्र समाधान है।

हालांकि आज भी ऐसी कारगर तकनीक ईजाद नहीं हो पाई है, जिससे अंतरिक्ष का कबाड़ साफ किया जा सके। पर भविष्य में प्रक्षेपित होने वाले उपग्रहों और बूस्टर राकेटों के इंजनों में ऐसी तकनीक कायम की जा सकती है कि इस्तेमाल के बाद वे अंतरिक्ष में न ठहरें, बल्कि वापस पृथ्वी पर आ गिरें। एक सस्ता विकल्प यह हो सकता है कि अपना मिशन पूर्ण कर लौट रहा कोई शटल थोड़ा-बहुत कचरा भी बटोर कर अपने साथ लेता आए।

<https://www.jansatta.com/politics/the-growing-threat-of-space-junk/2317584/>

## General News



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### India Produces More Female Pilots than Anyone in the World - Here's Why

India has the greatest proportion of female pilots in the world at roughly 12.4% of all pilots, compared to 5.5% in the US, the largest aviation market in the world, and 4.7% in the UK, according to the International Society of Women Airline Pilots. In 1989, Nivedita Bhasin became the youngest commercial airline captain in the world, but the Indian pilot vividly remembers those formative years when other crew members would nudge her into the cockpit so



that passengers wouldn't feel uneasy seeing a woman piloting their aircraft. But, now, Indian female pilots are no longer a novelty three decades after Bhasin's career began, making the nation a success story in terms of diversity in the airline business.

The numbers raise the question of how a nation that came in at 135th place out of 146 on the World Economic Forum's list of countries for gender parity was able to buck the trend in this particular industry. Some of the solutions might be used as models by other countries and sectors who want to enhance the representation of women. Generally speaking, diverse organisations perform better, and some studies have even claimed that female pilots have less safety issues. Additionally, employing more women could help airlines handle the labour shortages that are causing travel delays after the world has recovered from the Covid outbreak and demand rises.

Pioneers like Bhasin claim that a number of reasons, such as outreach programmes, improved company practises, and strong family support, are motivating Indian women. A 1948-formed youth programme called the National Cadet Corps' air wing, which trains pupils to fly microlight aircraft, attracted many Indian women to aviation. Some state governments are providing financial aid for the pricey commercial pilot training, and organisations like Honda Motor Co. offer complete scholarships for an 18-month programme at an Indian flying school and support their employment to make it more affordable for women.

"India has started decades ago recruiting women into STEM positions, including pilots," Bloomberg quoted Michele Halleran, a professor and director of diversity initiatives at Embry-Riddle Aeronautical University in Florida, as saying. "In the U.S., we have only started the demand for a diversity movement in aviation because of our current drastic pilot and technician shortage." The Indian Air Force began recruiting women pilots for helicopters and transport aircraft back in the 1990s. It wasn't until this year that they were allowed to take up fighter roles. Some airlines in India are devising policies to retain female talent. IndiGo, India's largest passenger airline, said it offers flexibility to women pilots and crew to continue working safely, excluding flying duties, during pregnancy. It gives 26 weeks of paid maternity leave that is required under law and also offers creches for childcare. Women pilots can opt for a flexible contract with two weeks leave in a calendar month, until a child is 5 years old.

Vistara offers pregnant pilots and cabin crew the option of temporary jobs on the ground or administrative roles until they are ready to fly, according to a spokesperson. It also gives paid maternity leave for six months and reimburses creche fees. Some carriers also assign a driver and guard to drop and pick up women flying late at night, Hana Khan, a commercial pilot with an Indian airline, said. Many female pilots in India also have a more prosaic explanation for their successes: Family support. India's familial structure, where extended families often live together and grandparents and aunts often help raise children or manage households, is particularly helpful in an industry that demands long hours and regular travel away from home, pilots say. "It's no secret we have the support of parents and it's a norm to hire staff," said Zoya Agarwal, who got international media attention when she flew Air India's first nonstop flight from San Francisco to Bengaluru with an all-women crew last year. "Women like me can fly to San Francisco for five days and not think about what's happening at home. You have that comfort."

Because airline markets in nations like the US are significantly larger and have a larger overall personnel of both men and women, the absolute numbers of women pilots still tend to be higher there than in India. The continuous shortage of pilots and airport staff, which is causing airlines to curtail and cancel flights and endangering the aggressive traffic resurgence, can be alleviated

by hiring more women. Over the next 20 years, the globe will require more than 600,000 more pilots, according to Boeing Co. Several people think the advantages may go even farther and may even be responsible for India's aviation safety rankings, which are higher than those of some developed countries. According to the Aviation Safety Network, the US has seen nearly five times as many fatal air crashes as India since 1945, while the UK has experienced 15 more tragic events.

Some of the differences in statistics could simply be the outcome of the US being a larger aviation market than India as more flights increase the probability of accidents. Even so, many pilots believe that having a large percentage of women is at the very least helpful to safety. A study called Gender Differences In General Aviation Crashes, which assessed aeroplane and helicopter crash data between 1983 and 1997, found that crash rates for male pilots exceeded that of women. Women operate aircraft "more safely" accounting for only 3% of accidents even as they constituted 10% of all US army helicopter pilots, according to Women in Combat Arms: A Study of the Global War on Terror, which compared the accident rates of men and female pilots from 2002 to 2013. Bolstering diversity has the potential to make air travel safer because women often take a more measured approach to risk and are therefore involved in fewer accidents than men, said Halleran, the professor at Embry-Riddle Aeronautical University.

Kunjal Bhatt, chief flight instructor at Indian flight school Indira Gandhi Rashtriya Uran Akademi, said she found women trainees particularly "meticulous" and showing greater dedication to succeed because the stakes are higher for those who go against the social norms to pursue this profession. Indian women who've succeeded in the airline industry are educating girls about aviation. Harpreet A De Singh, who became the first woman to head an Indian airline when she took charge of Alliance Air Aviation Ltd. in 2020, conducts outreach programs in schools to raise awareness about jobs including pilots, technicians and air traffic controllers. "Over a period of time this consistent effort all over the country has led to large number of women choosing a profession some didn't even know it existed," Singh said.

<http://www.indiandefensenews.in/2022/08/india-produces-more-female-pilots-than.html>

