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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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CONTENTS

S. No.	TITLE		Page No.
	DRDO News		1-3
	DRDO Technology News		1-2
1.	NSTL celebrates 53rd Lab Raising Day in Visakhapatnam	<i>The Hindu</i>	1
2.	A Woman Led the Charge on the Indian Gun that Roared on Independence Day	<i>News Nine</i>	1
	DRDO On Twitter		3
	Defence News		4-32
	Defence Strategic: National/International		4-32
3.	Raksha Mantri Shri Rajnath Singh & his Tanzanian Counterpart Dr Stergomena Lawrence Tax hold Bilateral Talks in New Delhi	<i>Press Information Bureau</i>	4
4.	INS Sumedha Visits Port Klang	<i>Press Information Bureau</i>	5
5.	Import Ban on 780 Defence Items in Self-Reliance Push	<i>Hindustan Times</i>	5
6.	डिफेंस रिसर्च पर GDP का 1% से कम खर्च, DRDO के घटे बजट पर जताई जा रही चिंता	<i>Hindustan</i>	6
7.	Army Begins Upgrade of Mechanised Infantry	<i>Hindustan Times</i>	7
8.	भारतीय सेना के प्रोजेक्ट जोरावर से क्यों घबरा रहा ड्रैगन? जानें क्या है रणनीति और क्यों है खास	<i>ABP News</i>	9
9.	Infantry Combat Vehicles in, Soviet-Era BMP-2 Out: How Army Plans to Modernise Mechanised Infantry	<i>News 18</i>	11
10.	How Indian Army is Beefing Up Defence on Pangong Lake to Counter New Chinese Bridge	<i>India Today</i>	12
11.	There is a Lot of Indian Flavour in IAC INS Vikrant	<i>Indian Defence News</i>	13
12.	Aircraft Carrier Vikrant can Power Half of Cochin City	<i>Asianet Newsable</i>	14
13.	Vikrant to Take a Finite Time to be Fully Ready for Deployment	<i>The Hindu</i>	15
14.	Andhra Pradesh: IAC Vikrant to Call Vizag Home	<i>The Hindu</i>	16
15.	Navy needs mindset change as theatre has shifted from Karachi to Indo-Pacific	<i>Hindustan Times</i>	17
16.	In a First, Indian Navy to Use 100% Indigenous Ammunition	<i>The Economic Times</i>	18
17.	New Generation Surveillance Equipment Used to Foil Infiltration Bid in J&K's Uri: Army	<i>The Economic Times</i>	19
18.	Army Receives Swarm Drones, Eyes Light Tanks to Check PLA	<i>Hindustan Times</i>	20
19.	Army Bolsters Military Capability with Two Sets of Swarm Drones for Surveillance, Close Recce	<i>The Print</i>	22
20.	Indian Army Presses Drones in Action to Bolster National Security	<i>Indian Defence News</i>	23
21.	Indian Army Inducts Swarm Drones: How it will Impact	<i>WION</i>	24

Balance with China Along LAC

22.	Indian Coast Guard 100 Pc Indigenized, Aircraft, Ships are Made in India: DG V S Pathania	<i>The Economic Times</i>	26
23.	TEJAS - IAF will have to Start Accepting India Designed Aircraft and Handhold the Industry	<i>Indian Defence News</i>	28
24.	Argentina Shows Interest in India's Tejas Fighter Aircraft; Wants to Trade in Local Currencies Too	<i>WION</i>	30
25.	Pentagon Signs \$182mn Deal to Make Air Defence Systems for Ukraine Amid Russian Invasion	<i>Republic World.com</i>	31

Science & Technology News

32-35

26.	Union Minister Dr Jitendra Singh says, 'Waste to Wealth' is emerging as a new avenue for StartUp in India	<i>Press Information Bureau</i>	32
27.	Artemis-I to Launch on Aug 29: What is the First Biology Experiment Going to Moon?	<i>India Today</i>	33
28.	Boosting Neuron Formation to Restore Memory in Alzheimer's Disease	<i>Sci Tech Daily</i>	34

DRDO News

DRDO Technology News



Fri, 26 Aug 2022

NSTL celebrates 53rd Lab Raising Day in Visakhapatnam

Naval Science and Technological Laboratory (NSTL) celebrated its 53rd Lab Raising Day, here on Friday. Vice-Admiral Biswajit Dasgupta, Flag Officer Commanding-in-Chief (FOC-in-C), Eastern Naval Command (ENC), addressed the gathering as the chief guest.

NSTL was established on August 20, 1969, with 10 staff members, and it has today grown to have 585 personnel, including 174 scientists, and has made significant contributions to the defence R&D.

It is today recognised as one of the premier labs of Defence Research and Development Organisation (DRDO) engaged in the development of underwater weapons and systems.

Y. Sreenivas Rao, Director of NSTL, and Samir V Kamat, Distinguished Scientist, who assumed charge as Chairman DRDO and Secretary Department of Defence R&D, addressed the NSTL fraternity through a video message.

<https://www.thehindu.com/news/cities/Visakhapatnam/nstl-celebrates-53rd-lab-raising-day-in-visakhapatnam/article65814242.ece>



Sun, 28 Aug 2022

A Woman Led the Charge on the Indian Gun that Roared on Independence Day

In its four centuries of existence, Delhi's Red Fort has witnessed many historic events on the Independence Day. This August 15, for the first time, an India-made artillery gun boomed to offer the 21-gun salute to the national flag. The real and a little known fact is that leading the team, which was responsible for the interface between the user and the DRDO in building the Advanced Towed Artillery Gun System (ATAGS), is a soft-spoken woman scientist. Nari Shakti made history this Independence Day.

For the first time in 75 years a 'Made in India' gun was used to offer a salute to the National Flag and the ATAGS gun which is sometimes referred to as the 'Atal Gun' made its historic debut. Prime Minister Narendra Modi in his Independence Day address made an emotional statement,

"Today we heard a sound that we waited for 75 years to hear. For the first time, a Made in India cannon today saluted the Tricolour from the Red Fort. Is there any Indian who will not be inspired by this sound?"

The woman who played a significant role in this achievement is a Delhi University trained computer science specialist, Dr Chandrika Kaushik, 54. She is Director General at DRDO, looking after production co-ordination and services Integration, possibly one of the youngest women scientists to reach such a senior position. "The firing of the ATAGS gun was music to my ears and to the whole nation's ears," said Dr Kaushik as it sent a strong message to India's enemies, that 'India has a robust weapon system where all the know-how is indigenous and now no supply chain can ever be choked.'

A team of over 80 scientists was involved in making the ATAGS Gun along with two lead industry partners. In all, some 500 Indian industrial units contributed to making the gun's many components. The Advanced Towed Artillery Gun System (ATAGS) is a very special 18 ton beast which has been designed by the Armament Research and Development Establishment (ARDE), based in Pune, in association with other DRDO Labs. The Gun was manufactured and assembled in partnership with two private industrial partners - Bharat Forge Ltd, Pune and Tata Advanced Systems Ltd, Bengaluru, under transfer of technology from DRDO. The 155 mm Artillery gun has 'shoot and scoot' facilities and is in the final stages of being inducted in the Army.

Standing at the Red Fort, totally drenched after a downpour, a chuffed Dr Kaushik explained that the ATAGS gun has the longest range in the world as it can fire a shell more than 48 kilometres away. She concurred, 'if stationed in Amritsar it can fire a shell all the way to Lahore', and this makes it a very-very special weapon. A unique feature is its all electric servo drives, which makes it silent and not prone to oil leaks like the hydraulic systems used in the Bofors Gun. The all electric drives need minimum maintenance and ensure full reliability, said another scientist. ATAGS' over 8- meter long barrel gives the gun great accuracy and aiming characteristics. The entire command and control systems are also fully incorporated in the single unit of the gun which gives it agility. DRDO says 10 guns have been built and tested rigorously, including at high altitude locations and deserts. In 2018, The Hindu newspaper reported that "the Defence Acquisition Council or DAC gave approval for procurement of 150 indigenously developed 155 mm Advanced Towed Artillery Gun Systems (ATAGS) at an approximate cost of Rs 3,364.78 crore." Incidentally, for the last 75 years India has used the British made 'Ordinance QF 25-pounder Guns' made in the 1940's to offer the 21-gun salute on both Republic Day and Independence Day. The Brits left the country in 1947 but apparently, it never struck anyone that it was an embarrassment to salute the national flag with a 'firangi tope'. Dr Kaushik says the ATAGS are meant to fire real shells. A few weeks ago when it was decided that an Indian made gun will do the honours, only then did the team at ARDE Pune hurriedly make suitable blank charges that successfully fired the last shot heralding the start of the 'Amrit Kal'. ATAGS constitute a sound beginning for India's quest to become 'Atmanirbhar' or self-reliant in defence systems as the country marches towards becoming a 'developed nation' in 2047, when it would celebrate the centenary of India's independence.

<https://www.news9live.com/india/a-woman-led-the-charge-on-the-indian-gun-that-roared-on-independence-day-192280>

DRDO on Twitter

[#DRDOUpdates](#) | Dr Samir V Kamat assumed the charge as Secretary, Department of Defence Research & Development (DDR&D) and Chairman, Defence Research & Development Organisation ([#DRDO](#)) today.
[@PMOIndia](#)
[@DefenceMinIndia](#)
[@SpokespersonMoD](#)



12:05 PM · Aug 26, 2022 · Twitter for iPhone



[#DRDOUpdates](#) | Parliamentary Standing Committee on Defence visited DRDO labs and reviewed various ongoing projects progressing at ARDE, HEMRL, R&DE (E) and GTRE. The committee witnessed live demo of multiple technologies.
[@DefenceMinIndia](#)
[@SpokespersonMoD](#)



Jual Oram and 5 others

8:06 AM · Aug 28, 2022 · Twitter for iPhone

Defence News

Defence Strategic : National/International



पत्र सूचना कार्यालय
भारत सरकार

Ministry of Defence

Fri, 26 Aug 2022 6:15PM

Raksha Mantri Shri Rajnath Singh & his Tanzanian Counterpart Dr Stergomena Lawrence Tax hold Bilateral Talks in New Delhi

Agree to set up a Task Force to prepare a Five Year Future Roadmap for enhancing bilateral defence cooperation

Raksha Mantri invites his Tanzanian counterpart for DefExpo 2022 to be held in October.

Raksha Mantri Shri Rajnath Singh held bilateral talks with Tanzanian Minister of Defence and National Service Dr Stergomena Lawrence Tax in New Delhi on August 26, 2022. A wide range of issues concerning bilateral, regional and defence industrial cooperation were discussed during the meeting. The two Ministers reviewed the existing military-to-military activities and discussed ways to enhance cooperation in all domains with a focus on defence industry cooperation.

Both the Ministers agreed to the formation of a Task Force to prepare a Five Year Future Road map for enhancing defence cooperation between both the countries and to hold the next Joint Defence Cooperation meeting in Tanzania at an early date. The Raksha Mantri also invited his Tanzanian counterpart to the India-Africa Defence Dialogue and DefExpo which is scheduled to be held in Gandhinagar, Gujarat between 18-22 October, 2022.

Earlier in the day, the Tanzanian Minister of Defence and National Service visited the National War Memorial and paid homage to the fallen heroes by laying wreath at the monument. She was accorded a Ceremonial Guard of Honour before her bilateral meeting with Shri Rajnath Singh.

Dr Tax would be visiting Wargaming Development Centre and Information Fusion Centre – Indian Ocean Region before departing for Hyderabad for interaction with the Indian Defence Industries.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1854697>



पत्र सूचना कार्यालय
भारत सरकार

Ministry of Defence

Sat, 27 Aug 2022 7:48PM

INS Sumedha Visits Port Klang

As part of the Indian Navy's long-range operational deployment, INS Sumedha deployed to South East Asia, visited Port Klang, Malaysia on 27 August 2022. The ship is on her return passage from Perth, Australia where she participated in the Azadi Ka Amrit Mahotsav celebrations.

INS Sumedha's visit to Port Klang is aimed at strengthening bilateral ties, enhancing maritime cooperation and interoperability between Indian Navy and Royal Malaysian Navy (RMN). Both navies have been collaborating on various fronts and are playing a critical role in ensuring Maritime Security and Safety of global commons. The bilateral engagements between both navies are on an upswing with the participation of KD Lekiu in MILAN 2022 at Visakhapatnam followed by the conduct of the IN-RMN bilateral maritime exercise Samudra Lakshmana at Kota Kinabalu in May 2022.

During the port call at Port Klang, the crew of INS Sumedha would engage in professional interactions, Subject Matter Expert Exchanges (SMEE), cross deck visits and sports fixtures with personnel from the Royal Malaysian Navy. The ship will also be open for the visit of school children. INS Sumedha is also scheduled to participate in a Maritime Partnership Exercise (MPX) with RMN Ships.

INS Sumedha is an indigenously built Naval Offshore Patrol Vessel deployed for multiple roles independently and in support of Fleet Operations. She is part of the Indian Navy's Eastern Fleet based at Visakhapatnam and functions under the operational command of the Flag Officer Commanding-in-Chief, Eastern Naval Command.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1854878>



Mon, 29 Aug 2022

Import Ban on 780 Defence Items in Self-Reliance Push

India on Sunday published a new list of 780 components and sub-systems that will come under a phased import ban between December 2023 and December 2028, with the latest indigenisation push covering items used in fighter planes, trainer aircraft, helicopters, submarines and tanks. Defence minister Rajnath Singh approved the latest list to cut down imports by defence public sector undertakings and achieve Aatmanirbharta (self-reliance) in the defence manufacturing sector, the ministry said in a statement. This is the third list of "important line replacement units (LRUs)/sub-systems/components" placed under an import ban. It comes on the back of two similar lists published by the government in December 2021 and March 2022.

“These lists contain 2,500 items which are already indigenised and 458 items which will be indigenised within the given timelines. Out of 458, 167 items have been indigenised so far,” the defence ministry said. The indigenous development of these sub-systems and components will bolster the economy, reduce the import dependence of DPSUs, help harness design capabilities of the domestic defence industry and position India as a leader in these technologies, it added.

The components and sub-systems sought to be produced locally include several items for Sukhoi-30 and Jaguar fighters, light combat aircraft and Dornier-228 planes; multiple systems for submarines, and equipment for T-90 and Arjun tanks. To be sure, India has published three other lists imposing a phased import ban on 310 different types of weapons and platforms, including lightweight tanks, naval utility helicopters, artillery guns, missiles, destroyers, ship-borne cruise missiles, light combat aircraft, light transport aircraft, long-range land-attack cruise missiles, basic trainer aircraft and multi-barrel rocket launchers. The latest list has been put out by the defence ministry at a time when the global backlash against Russia over its Ukraine invasion has raised questions about the fate of new projects with that country, procurement of spares for existing Russian-origin weapons, and maintenance and servicing of legacy equipment operated by the three services.

The earlier list, published in March, included sub-systems that India imports from Russia for weapons and platforms, including T-90 and T-72 tanks, BMP-II infantry combat vehicles, warships and submarines, and anti-tank missiles. Russian-origin equipment forms the bedrock of India’s military capabilities and includes fighter jets, transport planes, helicopters, warships, submarines, tanks, infantry combat vehicles, multi-rocket systems, rifles, and even shoulder-fired missiles.

The government has taken several steps in recent years to boost self-reliance, including raising foreign direct investment (FDI) in defence manufacturing, creating a separate budget for buying locally made military hardware and notifying lists of weapons, equipment and sub-systems that cannot be imported.

India is making planned, steady and focused progress to achieve Aatmanirbharta in the defence sector and several projects have been sanctioned for the local industry, former director general of military operations Lieutenant General Vinod Bhatia (retd) earlier said.

<https://www.hindustantimes.com/india-news/import-ban-on-780-defence-items-in-self-reliance-push-101661710157211.html>

हिन्दुस्तान

Mon, 29 Aug 2022

डिफेंस रिसर्च पर GDP का 1% से कम खर्च, DRDO के घटे बजट पर जताई जा रही चिंता

रक्षा क्षेत्र में देश को आत्मनिर्भर बनाने की कोशिशों के बीच रक्षा अनुसंधान के लिए डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन यानी DRDO को मिलने वाला बजट जीडीपी के अनुपात में

घटा है। मौजूदा समय में रक्षा अनुसंधान पर जीडीपी का एक फीसदी से भी कम खर्च होता है। इसमें भी पिछले कुछ वर्षों के दौरान कमी आई है। रक्षा मंत्रालय की स्थाई संसदीय समिति ने हाल में संसद में पेश अपनी रिपोर्ट में इस बात पर गहरी चिंता प्रकट की और सरकार से कहा है कि यह सुनिश्चित किया जाए कि जीडीपी की कम से एक फीसदी राशि रक्षा अनुसंधान पर खर्च की जानी चाहिए। समिति ने इस बात पर भी चिंता जताई है कि जीडीपी के अनुपात में डीआरडीओ को दी जाने वाली अनुसंधान राशि घट रही है।

समिति ने पाया कि 2016-17 के दौरान डीआरडीओ ने जीडीपी का 0.088 फीसदी बजट रक्षा अनुसंधान पर खर्च किया था। इसमें अगले कुछ सालों के दौरान बढ़ोतरी दिखी। लेकिन 2021-22 के दौरान इस मद के आवंटन में 0.084 फीसदी रह गया है। कमी का रुझान चिंताजनक है। देखना यह भी होगा कि वास्तव में कितनी राशि इसमें से खर्च होती है।

रिपोर्ट में डीआरडीओ के समिति के समक्ष दिए प्रजेंटेशन में कहा कि जितना बजट सरकार से मांगा जाता है, उतना कभी नहीं मिलता है। संस्थान ने कहा कि 2021-22 के दौरान 23,460 करोड़ रुपये की जरूरत बताई गई थी लेकिन 20,457 करोड़ रुपये की राशि ही बजट में स्वीकृत हुई है। इसके बाद इस राशि के हिसाब से योजनाओं का नए सिरे से निर्धारण करना पड़ता है। डीआरडीओ ने कहा कि इससे प्राथमिकताओं को फिर से तय करना पड़ता है। यह एक समस्या है। दूसरे, भावी रक्षा परियोजनाओं के लिए भी अलग से बजट की जरूरत है जो इस आवंटन से संभव नहीं है।

<https://www.livehindustan.com/national/story-defence-research-drdo-budget-gdp-defence-ministry-7002930.html>



Mon, 29 Aug 2022

Army Begins Upgrade of Mechanised Infantry

India's mechanised infantry is on the threshold of a critical transformation, with the army setting a brisk pace to equip its vital combat arm with a range of new indigenous capabilities ranging from futuristic vehicles, missile systems and night-fighting gear to loitering munitions, anti-drone weapons, and intelligence, surveillance and reconnaissance (ISR) platforms, officials tracking the army's modernisation said on Sunday. The comprehensive road map for its modernisation seeks to transform the mechanised infantry into a more lethal, agile and integrated force capable of delivering a swift and effective response in battle, said one of the officials cited above, asking not to be named.

The army's mechanised infantry units, equipped with the hardy Soviet-era BMP-II amphibious combat vehicles, have played a crucial role in strengthening the Indian Army's combat posture

against the Chinese People's Liberation Army during the ongoing, tense standoff along the Line of Actual Control in eastern Ladakh.

The versatile combat arm brings to battle a protected infantry component directly supported by the firepower of its integral combat vehicles.

Forming the core of the overarching capability enhancement plan — dovetailed with the Aatmanirbhar Bharat (self-reliant India) strategy — is the replacement of the BMP-IIIs with 480 locally developed futuristic infantry combat vehicles (FICVs) for which government approval will be sought shortly, said a second official, who also asked not to be identified.

“The army will seek the defence acquisition council's acceptance of necessity (AoN) for the FICVs at the earliest. We are simultaneously pursuing modernisation plans for tracked and wheeled vehicles. A few approvals have already come,” the second official added.

The defence acquisition council (DAC), chaired by the defence minister, is India's apex weapons procurement body, and under the country's defence procurement rules, its AoN is the first step towards buying or developing military hardware.

The army has already secured approvals for the Nag missile system (NAMIS) for reconnaissance and support battalions (13 Nag missile carriers and 293 missiles), 177 infantry combat vehicles (command), and 105 wheeled armoured fighting vehicles to replace Soviet-origin BRDM reconnaissance vehicles and 1080 anti-tank guided missiles, said a third official on the condition of anonymity.

Also on the mechanised infantry's wish list are wheeled infantry combat vehicles for standard battalions and light armoured multi-purpose vehicles with enhanced mobility and protection for reconnaissance platoons that currently use the Maruti Gypsy.

The modernisation drive will enhance the mechanised infantry's mobility and effectiveness, and also boost India's capabilities along the northern borders with China, said former Western Army commander Lieutenant General RP Singh (retd).

“Injecting contemporary technologies at a swift pace will help exploit the capabilities of this man-machine combination... otherwise the arm is just a battle taxi. Even Pakistan is upgrading its mechanised forces. We can't be left behind,” Singh added.

“A threat cum capability-based modernisation approach is being pursued with the acquisition of contemporary, adaptable and niche technology, which is interoperable with other combat arms. The modernisation drive is completely in sync with the Aatmanirbhar Bharat initiative,” the third official said.

Capability enhancement of existing military hardware with upgrades for night fighting, lethality and ISR systems forms an important element of the modernisation effort.

“Enhanced night fighting capability is a top priority. The focus is on a comprehensive solution for the gunner main sight, commander panoramic sight, fire control system, automatic target tracker and laser range finder. The new gear will enhance the night vision capability of the driver and commander too,” said a fourth official.

Enhancing fire power of mechanised infantry units is covered under the plan, and is a work in progress.

This is being done through third generation fire-and-forget anti-tank guided missiles, canister-launched loiter munition systems integrated on the BMP-II chassis, anti-drone capability, and integrated surveillance and targeting systems, the officials said.

“ISR capability is being strengthened with mini-unmanned aerial vehicles, see through armour for better situational awareness, autonomous combat vehicles and artificial intelligence-based integrated surveillance, detection and engagement systems,” said the first official.

India’s mechanised forces — the mechanised infantry and armoured corps — are also inducting swarm drone systems capable of carrying out offensive missions in enemy territory with scores of drones working in formations to identify, encircle and strike targets.

<https://www.hindustantimes.com/india-news/army-begins-upgrade-of-mechanised-infantry-101661711656250.html>



Sun, 28 Aug 2022

भारतीय सेना के प्रोजेक्ट जोरावर से क्यों घबरा रहा ड्रैगन? जानें क्या है रणनीति और क्यों है खास

भारत के पड़ोसी देश चीन और पाकिस्तान अक्सर उकसावे वाली गतिविधियों को अंजाम देते रहे हैं. ऐसे में सुरक्षा को लेकर भारतीय सेना (Indian Army) भी मुंहतोड़ जवाब देने के साथ काफी सतर्क रहती है. समंदर से लेकर अधिक ऊंचाई वाले इलाकों में सुरक्षा को और मजबूत बनाने की दिशा में भारत लगातार काम कर रहा है. आधुनिक मिसाइलों से लेकर टैंक, ड्रोन, हेलीकॉप्टर और पोत तैनात किए जा रहे हैं. पूर्वी लद्दाख (Eastern Ladakh) में बढ़े हुए चीनी (China) खतरों के बीच भारत ने प्रोजेक्ट जोरावर (Project Zorawar) को शुरू किया है.

प्रोजेक्ट जोरावर के तहत पूर्वी लद्दाख में खतरों वाले इलाके में तैनात करने के लिए हल्के टैंकों (Light Tanks) का निर्माण किया जाएगा. मेक इन इंडिया अभियान के तहत इन टैंकों का निर्माण पूरी तरह से स्वदेश में ही किए जाने की योजना है.

क्या है प्रोजेक्ट जोरावर?

प्रोजेक्ट जोरावर के तहत स्वदेशी लाइटवेट टैंक खरीदने की तैयारी है. पूर्वी लद्दाख में खतरों वाले इलाके में हल्के टैंकों को तैनात करने की योजना है. प्रोजेक्ट का नाम जम्मू कश्मीर रिसायत के पूर्व कमांडर, जोरावर सिंह (Zorawar Singh) के नाम रखा गया है, जिन्होंने 19वीं सदी में चीनी सेना (Chinese Army) को हराकर तिब्बत में अपना परचम लहराया था. प्रोजेक्ट जोरावर के तहत भारतीय सेना में 350 लाइट टैंक शामिल किए जाएंगे. ये हल्के टैंक आर्टिफिशियल इंटेलिजेंस ड्रोन सिस्टम से लैस होंगे.

प्रोजेक्ट जोरावर से क्यों घबरा रहा ड्रैगन?

चीनी सेना को मुंहतोड़ जवाब देने के लिए प्रोजेक्ट जोरावर को शुरू किया गया है. भारतीय सेना बेहद ही आधुनिक टेक्नोलॉजी से लैस टैंक 'जोरावर' खरीदने जा रही है, जो कई हजार किमी की ऊंचाई पर दुर्गम पहाड़ी इलाकों में दुश्मनों के छक्के छुड़ाने में सक्षम होंगे. ये लाइट टैंक हर मौसम और हर जगह पर बेहतर काम करेंगे. ड्रैगन की सेना इस तरह के हल्के टैंकों से पहले से लैस है, जिन्हें पहाड़ों पर आसानी से एक जगह से दूसरी जगह पर ले जाया जा सकता है. चीन के साथ उत्तरी सीमा पर सैन्य गतिरोध और चुनौतियों को देखते हुए हल्के टैंक तैनात करने को लेकर कदम उठाया गया है. हालांकि भारत ने मौजूदा टैंकों से भी चीन को करारा जवाब दिया है, लेकिन जब ये हल्के टैंक सेना में शामिल हो जाएंगे तो चीन को और मजबूती के साथ करारा जवाब दिया जा सकेगा.

क्या है भारतीय सेना की रणनीति?

दुनिया के कई हिस्सों में चल रहे सैन्य संघर्षों का भारतीय सेना बारिकी से अध्ययन करने में जुटी है. साल 2020 में ड्रैगन की सेना के साथ भारत की झड़प के दौरान हल्के टैंकों की जरूरत महसूस की गई थी, ताकि दुर्गम इलाकों में इसकी तैनाती करके दुश्मन देश के सैनिकों को मात दिया जा सके. भारत ने लाइट टैंक को अपने सीमावर्ती क्षेत्र के सभी इलाकों में तैनाती के लिहाज से डिजाइन किया है. भविष्य में सुरक्षा की चुनौतियों और खतरों से पूरी तरह से निपटने के लिए दूरगामी रणनीति के तहत हल्के टैंकों को तैयार करने की योजना है. जोरावर टैंक के साथ-साथ भारतीय सेना का स्वार्म ड्रोन, आधुनिक मिसाइल और उपकरण विकसित करने पर भी खास ध्यान है. स्वदेश निर्मित हथियारों की तैनाती पर भी खास जोर है.

क्यों खास है लाइटवेट टैंक?

भारतीय सेना (Indian Army) के पास फिलहाल जो टैंक उपलब्ध हैं, वो मैदानी या फिर रेगिस्तान क्षेत्रों के लिहाज से बनाए गए हैं. T-90S और T-72 टैंक मुख्य रूप से मैदानी और रेगिस्तान में संचालन के लिए डिजाइन किए गए थे. इनका वजन भी 45-70 टन के बीच है. प्रोजेक्ट जोरावर के तहत लाइट टैंक (Light Tanks) करीब 25 टन वजन वाले होंगे. अधिक ऊंचाई वाले इलाकों से लेकर दर्रा तक से भी ये निकलने में सक्षम हैं. भारी टैंक की तरह ही इसमें भी फायर करने की क्षमता होगी. सबसे खास बात ये है कि ये हल्के टैंक आर्टिफिशियल इंटेलिजेंस ड्रोन से लैस रहेंगे.

<https://www.abplive.com/news/india/defence-news-indian-army-project-zoravar-light-tanks-with-ai-drones-why-china-scared-of-project-zoravar-know-about-strategy-2202280>



Sat, 27 Aug 2022

Infantry Combat Vehicles in, Soviet-Era BMP-2 Out: How Army Plans to Modernise Mechanised Infantry

The Army is in the process of acquiring a range of niche technologies developed indigenously as part of modernising its Mechanised Infantry arm, defence sources familiar with the development said on Thursday.

As per sources, the Army is looking to procure around 480 Futuristic Infantry Combat Vehicles (FICV) to replace its traditional BMP-2 — the Soviet-era amphibious infantry fighting vehicle acquired by the Army in the 1980s. An Acceptance of Necessity (AoN) for the platform is expected to be accorded in the next Defence Acquisition Council (DAC) meeting.

Sources further said that the modalities for procuring Nag Missile Systems (NAMIS) for the Recce & Support (Tracked) Battalions and Infantry Combat Vehicle, Command (ICV Comd), as the Command & Control platform are being drawn up. Last month, the DAC accorded amendment to AoN for 13 NAMICA and 293 Nag missiles. The DAC then had also granted AoN for 177 ICV Comd.

As part of the modernisation plans, the Army is also planning to procure 105 new Wheeled Armoured Fighting Vehicles (Wh AFV) to replace BRDMs, which are combat reconnaissance patrol vehicles. In June, the AoN for 105 Wh AFV and 1,080 ATGMs was granted by the DAC.

Other procurement plans include getting new Wheeled Infantry Combat Vehicle (Wh ICV) for Standard Mechanised Infantry Battalions (Wheeled) and Light Armoured Multi-Purpose Vehicle (LAMV) with greater mobility and protection for Recce Platoon which will replace the existing modified Maruti Gypsy. The RFI for this was floated last month.

Additionally, existing equipment with the Mechanised Infantry are also being heavily upgraded with contemporary technologies. For instance, the BMP-2 is being upgraded for enhanced night-fighting capability, which will include Thermal Imager based Driver Night Sight and Commander Thermal Imaging (TI) Sight for the driver and the commander of the BMP-2.

The Army is also looking at various indigenous options as it plans to buy a range of contemporary third generation Fire and Forget ATGMs for enhanced firepower, and is in the process of acquiring Canister Launched Loiter Munition System to be integrated on BMP-2/Carrier Mortar Tracked (CMT) chassis so that they can take out targets beyond visual range.

Other planned upgrades include acquiring anti-drone capability to engage aerial targets, mini UAVs, See Through Armour, Autonomous Combat Vehicle, and Artificial Intelligence-based Integrated Surveillance for enhancing its ISR capabilities.

The Mechanised Infantry and the Armoured Corps are working on a joint project for getting Integrated Surveillance & Targeting System (ISAT-S) on BMP & Tank chassis.

Sources said multiple projects are also in the pipeline for “better survivability, modern navigation aids, effective communication and critical operational logistic requirements of Mechanised Infantry in the battlefield”.

“A twin approach has been adopted for the Mechanised Infantry, which includes replacing vintage equipment with futuristic platforms and capability enhancement of existing equipment through upgrades,” a defence source said.

<https://www.news18.com/news/india/infantry-combat-vehicles-in-soviet-era-bmp-2-out-how-army-plans-to-modernise-mechanised-infantry-5832541.html>



Sun, 28 Aug 2022

How Indian Army is Beefing Up Defence on Pangong Lake to Counter New Chinese Bridge

The Indian Army is busy strengthening its defences along the disputed Pangong Tso in eastern Ladakh in the wake of China constructing a new bridge—thought to be capable of moving heavy military machinery—on the lake. The Indian Army is deploying six new assault boats, along with 12 additional patrolling boats, for swifter movement of troops to counter potential aggression by the People’s Liberation Army (PLA). The bridge is near completion and will soon be operationally available for the PLA.

In May, satellite images had revealed that the Chinese military was building a second bridge—bigger and wider than its first one—on the 134-km-long scenic lake, which is located close to the Line of Actual Control (LAC). The 3,400-km-long LAC is the poorly-demarcated and disputed border between India and China. In Ladakh, it extends for about 1,600 km.

The satellite images suggested that the under-construction bridge was being primed for faster movement of not just troops and military vehicles but even tanks. The bridge, 10 metres wide and about 450 metres long, is coming up despite concerns raised by the Indian government with China. Analysts believe the Chinese military will be aiming to complete the bridge before the onset of winter this year.

The Pangong Tso and its surroundings are part of the region that sparked the military stand-off between India and China in May 2020. A month later, a violent clash in the Galwan Valley—located only a few kilometers from the Pangong lake—had claimed the lives of at least 20 Indian soldiers and an unspecified number of PLA troopers. Both sides have stationed thousands of troops, artillery, tanks and other heavy weaponry in the region since the stand-off began.

Indian military observers believe the new bridge will cut down the distance between China’s Rudok—the PLA’s main base servicing its deployments in the Pangong Tso area—and Khurnak in eastern Ladakh to 40-50 km. Otherwise, the road distance between Rudok and Khurnak is over 200 km. Military observers say construction of the bridge points to China’s strategic intent vis-à-vis the Pangong Tso.

Indian military planners have emphasised on the need to build a similar bridge on the lake, but with official approval awaited, the Army is working to beef up its presence in the area with new equipment. The boats being deployed include the indigenous Landing Craft Assault (LCA). These can carry 35 troopers at a time and reach any area of the lake in a short span of time. Built by Goa's Aquarius Shipyard, the LCAs are maintained by the Indian Army Corps of Engineers. The Army plans to deploy similar boats in the Sir Creek area on the western frontier with Pakistan. Besides LCA, the army is also getting 12 new and bigger patrolling boats for its duties on the Pangong Tso. These boats, built by Goa Shipyard Limited, can carry about 30 men.

The boomerang-shaped Pangong Tso extends between India and China, and over two-thirds of it lies in China. The lake has a sprawl of over 604 sq km and is 6 km wide at its broadest point. India has made the Pangong lake accessible to tourists over the last decade, but the ongoing military stand-off with China has turned this area into a fraught zone. A brawl in the lake area in 2020 left soldiers on both sides with serious injuries. In the ninth round of military commanders' meeting last year—a total of 16 have been held so far to try and resolve the stand-off—India and China had agreed to pull back some of their frontline troops and weaponry from the lake area. But since then, both sides are back to a build-up around the lake.

<https://www.indiatoday.in/india-today-insight/story/how-indian-army-is-beefing-up-defence-on-pangong-lake-to-counter-new-chinese-bridge-1993584-2022-08-28>



Mon, 29 Aug 2022

There is a Lot of Indian Flavour in IAC INS Vikrant

As India prepares to commission Indigenous Aircraft Carrier Vikrant, Cochin Shipyard Limited MD shared valuable insights about the construction of the IAC Vikrant and the evolution of India's shipbuilding prowess.

There is a major thrust on indigenisation and 'Atmanirbharta' when it comes to construction of the Indigenous Aircraft Carrier Vikrant is concerned, said Cochin Shipyard Limited Chairman and Managing Director Madhu S Nair.

Talking about the level of indigenisation as far as equipment and systems are concerned, the CSL MD said: "Today we have coined the term 'Atmanirbharta' (Self-Reliant) -- which was always there -- the 'Aatmanirbhar Bharat' cuts very strongly with us. We can say, with confidence, that this vessel -- from a value point of view -- is 76 per cent 'Aatmanirbhar'. And the confidence going forward is that this figure can rise further."

"The Aviation Flight Complex (AFC) will have planes that are still not Indian. The Indian planes will also fly from this. Light Combat Aircraft will fly from this. There are gas turbines with foreign components that have been implemented in India by Hindustan Aeronautics Limited. So when I talk of 'Aatmanirbhar', it gives me pride as Cochin Shipyard. But it gives me even more pride talking as an Indian," he said.

"Just look at the companies that are involved. Bharat Electronics Limited, BHEL, Tata Advanced Systems, Larsen and Tubro, Kirloskar Oil Engines, Kirloskar Pneumatics, Steel Authority of

India Limited, the DRDO labs and about 100-odd Micro, Small and Medium Enterprises are directly on this (IAC Vikrant). So there is a lot of Indian flavour that has come into it."

<http://www.indiandefensenews.in/2022/08/there-is-lot-of-indian-flavour-in-iac.html?m=1>



Sun, 28 Aug 2022

Aircraft Carrier Vikrant can Power Half of Cochin City

As India prepares to commission Indigenous Aircraft Carrier Vikrant, Asianet News Network has an in-depth conversation with Madhu S Nair, Chairman and Managing Director of the Cochin Shipyard Limited, as part of its special series named 'Samvad'. The CSL MD shared valuable insights about the construction of the IAC Vikrant and evolution of India's shipbuilding prowess.

The amount of power generated by the turbines of the Indigenous Aircraft Carrier Vikrant can technically meet the electricity requirements of half of Kerala's Cochin city, said Cochin Shipyard Limited Chairman and Managing Director Madhu S Nair while taking part in Asianet News Network's special series named 'Samvad'.

India will commission Indigenous Aircraft Carrier Vikrant on September 2 in Kochi in the presence of Prime Minister Narendra Modi.

Giving the scale of the capabilities of the Indigenous Aircraft Carrier, the CSL CMD told Asianet News Network's Abhilash G Nair, "The vessel is about 260 metres long. It displaces slightly upwards of 40000 tonnes. From a power point of view, it is propelled by four gas turbines, each of which is 24000 KW each. Then there is an electrical power plant on the ship: eight diesel alternators, each generating around 3000 KW. That is about 24 MW. Technically, it can power half the city of Cochin."

Talking about the opportunities presented by the Indigenous Aircraft Carrier, Cochin Shipyard Chairman and Managing Director Madhu S Nair said the project had elevated the thinking and capabilities of the shipyard to another level.

"For example, the design and engineering capabilities have been stepped up significantly. In fact, one of the core areas for any high-tech vessel is design and engineering -- this is not visible outside. But only if you have these capabilities can you move forward," Nair said.

"All the figures on the ship -- kilometres of piping, 2400 KM of electrical cables. It is almost an 18-storey building. About 1600 people can live comfortably. There is a full-fledged hospital on board with an operation theatre, scan systems and other equipment. So when you take up such a large project, you can build ships but when you integrate systems -- and these systems must talk to each other -- that's what we call network-centric system," he added.

The confidence in handling large-scale network-centric systems is now extremely high, Nair said, adding, "We can make sure that any complicated system, which needs large-scale integration -- on this vessel, we have an integrated platform management system, what is otherwise called a fly-by-wire system, it can all be controlled from consoles and remote

locations. These skills have been acquired and can be taken across. This is what the world needs for new-generation vessels."

<https://newsable.asianetnews.com/video/india-defence/asianet-news-samvad-with-cochin-shipyard-cmd-madhu-s-nair-on-iac-vikrant-rhbh2s>



Sun, 28 Aug 2022

Vikrant to Take a Finite Time to be Fully Ready for Deployment

It's going to take a 'finite time' for the maiden indigenous aircraft carrier, set to be inducted into the Navy as Vikrant on September 2, to be fully ready for deployment, according to the ship's commanding officer (designate) Commodore Vidhyadhar Harke.

Talking to The Hindu on the flight deck of the spanking new vessel, which carries the crest and the pennant number (R11) of India's first aircraft carrier Vikrant inducted in 1961, Cmde Harke said that the vessel had done exceedingly well in the series of sea trials that were undertaken from August, 2021.

"Its progress has been very encouraging. We achieved full power on the first sortie itself which is a record of sorts for any ship constructed in India or abroad. We followed it up with four more sorties, altogether for over 35 days at sea, to prove the ship's systems, maneuvering capabilities, engine performance, various machines, sensors, and the like. The ship has been put through the paces to prove herself at sea. And nearly all the systems have matured to such a level that we can confidently operate at sea. So, it's ready for commissioning and to be put to the sea," he said.

While helicopter operations were carried out from the deck of the carrier during the trials, integration of the fighter aircraft --MiG 29K, for now -- and the carrier's integration with the fleet, the Carrier Battle Group (CBG), would be undertaken soon after its induction. "So far, we have been proving our internal machineries. Now, we will see how this behemoth, a potent fighting platform, integrates with the fleet as we do our training, hone our warfighting skills, do drills and conduct aircraft operations. Deployment follows all that," said Cmde Harke.

"It does take a finite time for the complete realisation of the potential of a carrier. If you take the example of HMS Queen Elizabeth, after commissioning, it was only last year that it undertook a deployment of about six months to the South China Sea," he added.

Asked about the survivability of carriers in times of carrier killer missiles, Cmde Harke said several countries, China, Japan, South Korea and many others, were building carriers which indicated that "carriers have a future and that's why countries are investing in it".

The IAC-1, Vikrant, has self-defence capabilities, with its escorts part of the CBG providing a layered defence and the integral fighter fleet providing the long vector offensive. The ship, he said, would have a large 'surveillance bubble' around it and shouldn't ideally face any trouble from missiles. Meanwhile, Madhu S. Nair, chairman and managing director of the Cochin Shipyard, said that the long-range surface to air missile (LR-SAM) -- Barak 8, jointly developed

by IAI and DRDO—and the track and guidance radar MFSTAR, would be fitted on the carrier as per a schedule drawn up for the same. The close-in weapon system (CIWS) is already up and operational.

<https://www.thehindu.com/news/national/kerala/vikrant-to-take-a-finite-time-to-be-fully-ready-for-deployment/article65818801.ece>



Fri, 26 Aug 2022

Andhra Pradesh: IAC Vikrant to Call Vizag Home

Indigenous Aircraft Carrier (IAC) 'Vikrant', will be commissioned by Prime Minister Narendra Modi in Kochi on September 2. And if everything goes according to plan, the Eastern Naval Command in Visakhapatnam will be its main base in about a year's time.

As of now, India has two aircraft carriers—the INS Vikramaditya, which is based at Karwar on the western coast, and the other being the newly-built INS Vikrant, which will be based on the eastern coast, with Visakhapatnam being its home port.

Post launch, INS Vikrant will undergo exercises and trials to hone its capabilities and operational abilities on the western coast close to Kochi, as it was built by Cochin Shipyard Limited. Once fully ready, it will be based in Visakhapatnam, with Chennai being its second port. As of now, there is no dedicated berth to house a ship the size of Vikrant in Visakhapatnam, which is about 262 m long and 62 m wide, and displaces around 43,000 T when fully loaded. But as per sources, a berth is being built to accommodate the ship and for which a DPR is already said to be ready.

Sources say that there will be two berths—one each in Visakhapatnam and Chennai. INS Dega, the naval airfield, is already the base for the carrier-based MIG 29k, which is the primary fighter aircraft onboard both the aircraft carriers, until the deal for new fighter aircraft is finalised by the Union Government.

INS Vikrant will carry an assortment of 30 aircraft such as MiG-29K fighter jets, Kamov-31, MH-60R multi-role helicopters, in addition to the indigenously manufactured Advanced Light Helicopters (ALH) and the naval version of the Light Combat Aircraft (LCA).

Three-carrier fleet

The Indian Navy aims to have a three-carrier fleet, so that two will be operational all the time on either side of the coasts of the sub-continent, while one goes for maintenance and refits.

Keeping the threat perception in mind, sources in the Navy say that the need of the hour is to maintain and operate at least two Carrier Battle Groups (CBG), one on the eastern seaboard and the other on the western seaboard.

Arihant completes six years

Meanwhile, INS Arihant (S2) the first indigenously-built nuclear submarine, has completed six years after being commissioned by Prime Minister Narendra Modi on August 25, 2016. Arihant is the first among the three nuclear submarines to be commissioned into service, the others being

S3 and S4 which are still to be commissioned. While one is said to be undergoing extensive trials, the other is nearing completion. All three have been built at the Ship Building Centre in Visakhapatnam and will be based at ENC.

<https://www.thehindu.com/news/cities/Visakhapatnam/vizag-all-set-to-become-the-base-for-ins-vikrant/article65810773.ece>



Sun, 28 Aug 2022

Navy needs mindset change as theatre has shifted from Karachi to Indo-Pacific

By Shishir Gupta

Prime Minister Narendra Modi will commission INS Vikrant aircraft carrier into the Indian Navy on September 2 afternoon. With the commissioning, India will showcase its capability and material technology to design and build aircraft carriers after indigenously building three nuclear-powered ballistic missile submarines. After September 2, the Indian Navy will be a two-carrier Navy albeit Vikrant will take another year to become fully operational and INS Vikramaditya will be fully functional by year-end.

While the debate has already started on India having a third aircraft carrier with a bigger capacity, capability, and operational radius, there is a need for the Indian Navy to prove its worth with the existing robust force before acquiring any bigger boy toys. With two aircraft carriers and half a century of experience in naval aviation, the Indian Navy today is a force to reckon with in the Indo-Pacific with the capacity to open the seafront against any Asian power. The Indian Navy must move from a maritime diplomacy mindset and be prepared to take on the adversary on the high seas. It needs to move away from simply force projection to force application. Simply put, the Indian Navy needs to show teeth as the theatre has shifted from mere blockading of Karachi harbour to the Indo-Pacific and against an adversary who wants to be the number one power in the world and is willing to throw all rule books out of the window in pursuit of its ambition. The brazen and uncouth statement of the Chinese Ambassador to Sri Lanka, describing India as having occupied the Island nation 17 times in history is just hors d'oeuvre. The Chinese war dance around Taiwan and the Indo-Pacific cannot merely be dismissed as Kabuki for domestic audiences. Just like May 2020 in Ladakh, China is applying force and announcing its presence as a pre-eminent power on the global stage.

The Indian Navy's desire to have a third aircraft carrier only makes sense if it can take on an adversary at its doorstep and deep in the Indo-Pacific. There is no point in spending billions of dollars on having a carrier strike force to protect the Bay of Bengal or the Arabian Sea. This can be easily ensured from airbases on India's island territories and anti-ship ballistic missiles. One must remember that France with its overseas territories has just one aircraft carrier strike force and the UK, once a pre-eminent naval power with overseas territories, has two aircraft carriers. Neither Japan nor Germany has aircraft carriers with China the new kid on the block as far as

naval aviation is concerned. The only big player in this game is the US, which happens to have strategic convergence with India in the Indo-Pacific as they face a common threat, China.

The Chinese activity in the Indian Ocean region has steadily increased over the past decade with no less than 53 Satellite and Ballistic Missile tracking vessels also euphemistically called Research Vessels monitored by the Indian Navy units since 2020. While Beijing is trying to make the South China Sea its backyard, it is sending more warships to the Indian Ocean and far Pacific in the name of maritime diplomacy or anti-piracy operations. It is only a matter of time before the Chinese carrier strike force will be transiting through the Indian Ocean and putting pressure on the Indian Navy and the sea lanes emanating from the Persian Gulf. India's adversary is well defined and there is no illusion about this within the national security planners. A third aircraft carrier only makes ample sense if the Indian Navy is ready to shed its spotless white uniform and shining white shoes for battle fatigues.

<https://www.hindustantimes.com/india-news/navy-needs-mindset-change-as-theatre-has-shifted-from-karachi-to-indopacific-101661661079441.html>

THE ECONOMIC TIMES

Sat, 27 Aug 2022

In a First, Indian Navy to Use 100% Indigenous Ammunition

In a major boost for achieving indigenisation in the armed forces, the Indian Navy will use 100 per cent indigenous 30 mm high explosive AK-630 guns.

The ammunition fitted for warships has been produced by a private company Solar Group's Economic Explosives. It was manufactured, tested and delivered within 12 months with propellant sources from the Bhandara Ordnance Factory in Nagpur.

Solar Group Chairman and Managing Director Satyanarayan N. Nuwal handed over the first consignment of the ammo to Vice-Admiral S. N. Ghormade, ViceChief of Naval Staff on Friday. The defence official in the statement said, "It's the first time that the services have placed an order with an Indian private company for delivery of complete gun ammunition which was executed within a year. The Indian Navy provided technical support by way of finalising the drawings, design specifications, inspection tools, proof and testing the ammunition," With this, the Indian Navy has successfully developed an alternate source of supply for the 30 mm high explosive gun ammunition, indigenously produced as part of the Atmanirbhar Bharat policy. Founded in 1995, Solar Group is among the major players in the Industrial Explosives segment and has also ventured into the defence sector.

<https://m.economictimes.com/news/defence/in-a-first-indian-navy-to-use-100-indigenous-ammunition/articleshow/93814164.cms>

New Generation Surveillance Equipment Used to Foil Infiltration Bid in J&K's Uri: Army

New generation surveillance equipment, including aerial and ground-based sensors, and weapons were used to track and neutralise three terrorists during an anti-infiltration operation along the Line of Control (LoC) in Jammu and Kashmir's Uri sector on Thursday, the Army has said. Talking to reporters in north Kashmir's Baramulla, General Officer Commanding of the Army's 19 Infantry Division Major General Ajay Chandpuri said the operation was launched following credible inputs from various sources, including the military intelligence, the Jammu and Kashmir Police and the Army's own sources on the ground.

"We have foiled an infiltration bid from from PoK in the area of Kamalkote in Uri sector, in which three foreign terrorists were neutralised and assault weapons and ammunition recovered," he said.

The GoC said the terrain where the operation was carried out was extremely challenging.

"It had a dense undergrowth. The weather was extremely foggy with heavy rain and the entire area was mined. So the multifarious challenges that were faced while conducting the operation could be well appreciated," he said.

Giving details of the operation, Colonel Raghav, the commanding officer of 8 Rashtriya Rifles which carried out the operation, said the troops, including those from the BSF, deployed on the LoC in the sector spotted suspicious movements in the area on Wednesday.

"Based on that, Operation Mrityunjay was launched. Small ambush parties and surveillance detachments were inducted into the area. Our teams were not picked up by the enemy surveillance devices and surveillance mechanisms. Our teams were deployed at this location for over 25 hours and at 7:55 am on August 25, the teams spotted the terrorists crossing the LoC," he said. The CO said the movement of the terrorists was ascertained by using latest aerial and ground-based sensors and surveillance equipment. At around 8:45 am on Thursday, the terrorists came to a distance of 40-50 metres from the ambush parties, which opened fire on them, and in a brief exchange of about 15 minutes, the three Pakistani terrorists were neutralised, he said.

Colonel Raghav said the search operation in the area was still going on. "The search is on because of the constraints of the minefield. Right now, mine-clearing measures are being undertaken to ensure a proper search," he added. He said two AK-series weapons, a Chinese M-16 weapon and their ammunition and other stores were recovered.

"It has also come to light that these terrorists were well treated and prepared for infiltration and also, their built and gait indicate that they had undergone formal military training," he said. The CO said the new generation surveillance equipment and weapons were put to optimal use during the course of the operation. Asked if the terrorists were identified, the GoC said according to the 19 Infantry Division, the slain ultras were not in possession of any documents from which their identity could be ascertained. "It is our assessment that before pushing these terrorists for

infiltration, their IDs were taken away from them and they were not in possession of any IDs. So we are not aware of their exact identity," he said.

<https://m.economictimes.com/news/defence/new-generation-surveillance-equipment-used-to-foil-infiltration-bid-in-jks-uri-army/articleshow/93799798.cms>



Sat, 27 Aug 2022

Army Receives Swarm Drones, Eyes Light Tanks to Check PLA

The Indian Army's mechanised forces are inducting swarm drone systems capable of carrying out offensive missions in enemy territory with scores of drones working in formations to identify, encircle and strike targets even as a proposal to develop light tanks for rapid deployment and high mobility in mountains to counter Chinese capabilities is set to come up for defence ministry approval, officials familiar with the matter said on Friday.

Drone swarms will be a force multiplier for commanders as the systems will enable better surveillance, support close reconnaissance of areas of interest and, if required, engage a raft of targets, including the enemy artillery, air defence equipment, command and control centres, tanks, infantry combat vehicles, and ammunition and fuel dumps, said one of the officials cited above, asking not to be named.

"A group of drones operating in tandem with the ground manoeuvre forces will provide a significant capability for offensive and defensive operations and sharpen the army's combat potential," he said.

The swarm drone systems have been developed and supplied by two Indian start-ups to meet a key military requirement and keep soldiers out of harm's way, HT has learnt.

The mechanised forces have been equipped with the capability on the back of drone technology delivering decisive outcomes in military operations and recent conflicts around the world, including the Armenia-Azerbaijan conflict and the ongoing Russia-Ukraine war.

The induction of drone swarm capability reflects the army's sharpened focus on emerging and disruptive technologies to transform itself from being manpower intensive to a technology-enabled force, said a second official who also spoke on the condition of anonymity.

Artificial intelligence-based algorithms enable the drones to distribute the tasks within the swarm, smoothly navigate to the target area, carry out a search, identify and strike the targets or transmit the inputs to the control station for engagement by the weapon of choice, the second official said.

The light tank is another key capability enhancement that the army is pursuing, given that increased threat persists along India's northern borders with China, and it will soon seek the government's approval for the indigenous development of the tank, said a third official who also asked not to be identified.

The future tank has already been named Zorawar after 19th century Dogra dynasty king Gulab Singh's legendary general, Zorawar Singh.

The army will seek the defence acquisition council's acceptance of necessity (AoN) for the light tank project in September, having finalised the qualitative requirements for the new 25-tonne platform that has been deemed an operational requirement, the third official said.

The council, chaired by defence minister Rajnath Singh, is India's apex weapons procurement body, and under India's defence procurement rules, its AoN is the first step towards buying or developing military hardware.

The ongoing border standoff with China in eastern Ladakh has shown that armour equipment profile is one of the most prominent factors defining the operational capability of the land forces, said the fourth official.

The Chinese People's Liberation Army (PLA) has inducted and fielded several modern tanks, including light tanks with high power-to-weight ratio, across the contested Line of Actual Control (LAC), he said, adding that the Indian Army had deployed scores of Russian-origin T-72 and T-90 tanks in the Ladakh theatre "to gain tactical surprise over the adversary and force him on the back foot."

"However, these tanks (T-72s and T-90s) were primarily designed for operations in plains and deserts and have limitations in high altitudes. They face a similar handicap when employed in the marginal terrain of Rann of Kutch. The light tank is an operational necessity," he said.

The army expects the light tank prototype development and trials in three years.

Zorawar will be packed with cutting-edge technologies, including drone integration, active protection systems and superior situational awareness, said the third official. "It will be an agile platform with a high power-to-weight ratio and superior firepower, protection, surveillance and communication capabilities. It will provide the army with the versatility to execute operations in varying terrain and counter the platforms deployed by the adversaries," he added.

The officials said the light tank project would boost the Aatmanirbhar Bharat (self-reliant India) campaign.

India has taken several measures to boost self-reliance in the defence manufacturing sector during the last two to three years, including curbing imports and allocating funds for domestic procurement.

The government has imposed a phased ban on the import of 310 different types of weapons and systems, including lightweight tanks, naval utility helicopters, artillery guns, missiles, destroyers, ship-borne cruise missiles, light combat aircraft, light transport aircraft, long-range land-attack cruise missiles, basic trainer aircraft and multi-barrel rocket launchers.

For 2022-23, India has earmarked ₹84,598 crore – 68 % of the military's capital acquisition budget -- for purchasing locally produced weapons and systems, besides setting aside 25% of the defence research and development (R&D) budget for private industry, start-ups and academia.

While the defence ministry had earmarked 64% of the capital acquisition budget for the domestic industry in 2021-22, it was able to "overachieve this target" and local military purchases accounted for 65.5% of the capital budget.

<https://www.hindustantimes.com/india-news/army-receives-swarm-drones-eyes-light-tanks-to-check-pla-101661537524265.html>

ThePrint

Fri, 26 Aug 2022

Army Bolsters Military Capability with Two Sets of Swarm Drones for Surveillance, Close Recce

In a fillip to its ongoing modernisation process, the Indian Army has inducted two sets of swarm drones for surveillance and punitive operations.

Swarm drones refer to several unmanned aerial vehicles that operate in coordination. These are equipped with Artificial Intelligence (AI) and can communicate with each other as well as with the control station. The AI-based algorithms on which the drones function enable them to distribute tasks, navigate operational areas, and prevent collision during reconnaissance flights.

The Army has also initiated work on specialised swarm drones that can be deployed in high-altitude areas like Eastern Ladakh, where it is involved in a standoff with the Chinese troops for over two years now.

Sources in the defence and security establishment said the drones will prove to be a force multiplier in military operations, as evident from its application in the Ukraine crisis and other conflicts across the world, including in Armenia, Azerbaijan, Syria, and strikes on oil fields in Saudi Arabia.

The swarm drones have been procured from two Indian startups — Bengaluru-based NewSpace Research and Technology, run by former Indian Air Force officer Sameer Joshi, and Noida-based Raphe mPhibr Private Limited.

The contract for these swarm drones was signed in September last year and hailed as a Revolution in Military Affairs (RMA), ThePrint had reported.

The Army has been focusing heavily on drone technology and is in the process of inducting various types of unmanned aerial vehicles. The force has also made key changes to drone formations and moved its assets from the Artillery to the Army Aviation Corps as part of streamlining its modernisation processes.

Swarm drones for surveillance, close recce

A group of swarm drones operating in conjunction with ground forces will provide aerial manoeuvre capability during offensive and defensive operations, thereby enhancing the combat potential of the Army, the sources said.

These drones will be integrated with both mechanised and armoured columns.

“We need swarm drones for providing tactical commanders with a force multiplier capable of providing surveillance inputs, undertaking close recce of a particular area to confirm inputs received from other ISR resources, while also having the ability to engage varied targets

including artillery and air defence equipment, enemy command and control centres, besides armoured vehicles,” a source said.

The AI-based Automatic Target Recognition (ATR) feature in swarm drones enables these aerial vehicles to automatically recognise targets like tanks, guns, vehicles and humans while relaying back information to the control station screen.

This minimises chances of an operator missing any target and also facilitates engagement by a suitable type of weapon platform, sources added.

<https://theprint.in/defence/army-bolsters-military-capability-with-two-sets-of-swarm-drones-for-surveillance-close-recce/1101665/>



Sun, 28 Aug 2022

Indian Army Presses Drones in Action to Bolster National Security

The Indian Army is ramping up the security apparatus of the country by putting use of the state-of-art technologies. Acting in the same direction, the Indian Army is all set to use drones in the modern day warfare ecosystem. Army will be using Chennai-based drone maker Garuda Aerospace’s expertise and technical knowledge to use drones in carrying strategic and tactical operations.

Speaking of the collaboration with the Indian Army, Founder and CEO of Garuda Aerospace Agnishwar Jayaprakash said “Garuda Aerospace has created significant traction by deploying drones for unique applications to support the Indian Army and now will be using multiple purpose drones for strategic and tactical operations.”

This collaboration will also help in meeting defence requirements and enable big companies like us to leverage our expertise, he added.

Notably, the indigenously developed drones are designed with artificial intelligence and machines which have rapid learning. Further, the drone start-up has been invited by the Indian Army to dispatch their technical team to undertake the modification and help the army maintain timelines and operational tempo whilst executing their duties towards the nation.

According to Garuda Aerospace, Demining is an inherently dangerous operation and the Indian Army is constantly endeavouring to improve the speed, cost and efficacy of this process.

Accelerating the use of drones, the Indian Army also intends to use the drones in integral day to day activities as well as bolster effectiveness of special missions by detecting, deterring, and disrupting transnational organized criminal networks.

As per Garuda Aerospace, the firm will be analysing the practices and propose a solution using their ‘Make in India’ drones to decrease the vulnerability of Indian soldiers and manual labour involved by providing reconnaissance, logistic support.

Defence Ministry's Proposal For Armed Swarm Drones

In July this year, the Defence Ministry announced a new Rs 28,732 crore budget for procurement of military equipment, including a Rs 700 crore plan to purchase swarm drones.

The Defence Acquisitions Council (DAC) noted that drones have been a force multiplier for combats around the world. Accordingly, to augment Indian Army's capability in modern warfare, Acceptance of Necessity (AoN) for procurement of Autonomous Surveillance and Armed Drone Swarms has been accorded by the DAC under Buy (Indian-IDDM) category.

Indian Army, Drone Federation To Bolster Counter-Drone Technologies

Earlier this month, the Army Design Bureau (Indian Army) and the Drone Federation of India (DFI) have inked an Memorandum of Understanding (MOU) to collaboratively work towards research, development, testing and manufacturing of drones.

The collaboration between the Indian Army and DFI 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.

Notably, the Army Design Bureau is a nodal agency of the Indian Army that facilitates the R&D efforts with the Industry, Academia, DRDO and DPSUs to enable them to understand and appreciate user requirements in depth, all with the aim of promoting indigenisation.

Whereas, 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.

<http://www.indiandefensenews.in/2022/08/indian-army-presses-drones-in-action-to.html?m=1>



Sun, 28 Aug 2022

Indian Army Inducts Swarm Drones: How it will Impact Balance with China Along LAC

India Army's swarm drones driven by artificial intelligence

The Indian Army announced it has inducted swarm drones into its mechanised forces describing it as a "niche" and "disruptive technology". The Army said the drones will provide an "edge" in meeting future security challenges.

India's swarm drone system is equipped with cutting-edge technology that can identify targets using artificial intelligence-driven software. The drones consist of a number of drones controlled from the same station which can be programmed using an algorithm to carry out various tasks including surveillance.

As China continues its military manoeuvres along the Line of Actual Control(LAC), the Army is set to transform itself into a technology-enabled force.

According to reports, the Army has initiated a Make II case Autonomous Surveillance and Armed Drone Swarm (ASAD-S).

China showcases Intercontinental Ballistic Missiles at National Day Parade

In October 2019, China celebrated its National Day amid great fanfare at Tiananmen Square in Beijing. The highlight of the day was China's military drones which created a worldwide buzz.

China has now seamlessly integrated its drones in all three wings of the military - Army, Navy and Air Force with the Rocket Force playing its role to give the communist country an edge in mobile warfare.

Reports emerged in July in the Taiwanese press which said China's "Soaring Dragon" UAV (Unmanned Aerial Vehicle) had carried out surveillance mission on a US Navy ship USS Antietam as it sailed along the Taiwan Straits.

The "Soaring Dragon" was first displayed as model at the Zhuhai Air Show in 2006. In 2016, UAV reportedly went into production.

The "EA-03 Soaring Dragon" reportedly has a combat range of 2,000 kms with turbojet engine propulsion which is mainly used for reconnaissance but the People's Liberation Army(PLA) intends to use it in combat support later.

AFADS: US drone swarms can find targets through AI

The US uses MQ-9 Reapers which it controls remotely. Reports claim the US has been fully autonomous Drone swarms(AFADS). The AFADS target has the ability to lock into its AI to automatically target attacks without human interaction marking a shift in how the US intends to now use drones during combat. Both the US Army and Navy are reportedly developing autonomous platforms to target enemies amid changes linked to war strategy worldwide.

The use importance of drones has become a key feature in the Ukraine war as Ukraine's army has targeted several Russian military vehicles and tanks from the sky.

In fact, the US has also addressed public concern over drone swarms being used in a manner like weapons of mass destruction (WMDs).

Terminator drones

Amid US arms supplies to Ukraine, reports claim Ukraine is targeting the Russian military with "Terminator drones". The drones are reportedly being used to "trick" the Russians to believe they are being pursued by "Skynet".

Hellfire missiles fired by drones in targeted attacks have been known for powerful explosions and often extensive collateral damage and deaths. Since 2017, a handful of other finely-targeted attacks show similar results.

Details of the mysterious weapon leaked out, and it was dubbed the "flying Ginsu," after a famous 1980s television commercial for ostensibly Japanese kitchen knives that would cut cleanly through aluminium cans and remain perfectly sharp.

The drone strike which killed Zawahiri is also called "ninja bomb," the missile has become the US munition of choice for killing leaders of extremist groups while avoiding civilian casualties.

US MQ-9 Reaper with Paveway II and air-to-ground missiles

The US MQ-9 Reaper is used by the US for several functions namely: intelligence, surveillance and reconnaissance, close air support, combat search and rescue, precision strike, buddy-lase, convoy and raid overwatch.

It uses laser-guided munitions including Guided Bomb Unit-12 Paveway II and air-to-ground missile-114 Hellfire which is believed to be highly accurate. It has a ceiling of up to 50,000 feet and reportedly costs \$56.5 million.

The basic crew of a Reaper consists of a rated pilot to control the aircraft and command the mission, and an enlisted aircrew member to operate sensors and guide weapons.

Gray Eagle Unmanned Aircraft System

According to the General Atomics, it is collaborating with the US Army to develop a modular open system approach (MOSA) for its MQ-1C Gray Eagle drone.

Gray Eagle Extended Range (GE-ER) is a next-generation advanced derivative of the battle-proven Gray Eagle Unmanned Aircraft System (UAS).

GE-ER delivers long-endurance UAS surveillance, communications relay, and weapons delivery missions during wartime. The relevance of drones has become even more significant after UAV have destroyed several tanks and military vehicles helping in surveillance and in hitting Russian targets.

Gray Eagle's target acquisition

According to the company, GE-ER features an automatic take-off and landing system (ATLS) that allows the aircraft to be launched.

It has a wingspan of 58 feet and is 28 feet long and has Satellite communication points with automatic take-off and landing which greatly reduces a pilot's workload.

It can launch upto 29,000 feet with maximum endurance of 42 hours. The drones extra fuel supports the Army's reconnaissance, surveillance and Target Acquisition (RSTA) requirements.

<https://www.wionews.com/photos/indian-army-inducts-swarm-drones-how-it-will-impact-balance-with-china-along-lac-510780#gray-eagle-unmanned-aircraft-system-469935>

THE ECONOMIC TIMES

Sat, 27 Aug 2022

Indian Coast Guard 100 Pc Indigenized, Aircraft, Ships are Made in India: DG V S Pathania

The Indian Coast Guard is 100 percent indigenised as all ships and aircraft are made in Indian yards, said Director-General Virender Singh Pathania on Saturday. "ICG is 100 per cent indigenised as all ships and aircraft whether fixed wing or rotary or smaller vessels, everything is Indian and made in the Indian yards. With Government's support, we are heading towards being Atmanirbhar." Pathania told ANI.

The top Indian Coast Guard official was in Chennai for the tenth edition of the National Maritime Search and Rescue Exercise (SAREX -22), which is being attended by foreign observers and friendly foreign countries. "This edition of the search and rescue exercise that we have today, we had about 51 resource agencies from India itself. We had shipping, fisheries, airport authority, Navy, Air Force, and others participating. And we have 24 representatives from 16 friendly foreign countries," he said.

" This shows that all these people who have friendly relations and concern for the safety of marines at sea have made sure that they're part of us. They actively participated in the seminar and exercise," he said. Since SAREX is taking place after the Covid pandemic, Pathania did mention that period was difficult but the Indian Coast Guard never let its guard down.

"This is a biennial exercise, the pandemic did affect the people on land but we ensured that the security of the nation is not compromised. None of our ships were ever left wanting to be deployed. We did isolate our people when they were deployed to sea that they would come back. It was a difficult time but the guard was never let down," he said.

The 10th edition of the National Maritime Search and Rescue Exercise (SAREX-22), was inaugurated today by Dr Ajay Kumar, Defence Secretary, Government of India.

The two-day exercise which is conducted under the aegis of the National Maritime Search and Rescue Board (NMSARB) is hosted by the Indian Coast Guard, the nodal maritime SAR coordinating agency for the Indian Search & Rescue Region (ISRR). In addition to 51 participants from national Maritime SAR stakeholders, the exercise is being attended by 24 foreign observers from 16 friendly foreign countries. SAREX-22 will be spread over two days (27 and 28 Aug 22) and will validate the Standard Operating Procedures and best practices during the conduct of a Mass Rescue Operation (MRO).

The theme of this edition of the biennial exercise is "Capacity Building Towards Marine Passenger Safety" and signifies the resolve and commitment of the NMSARB and other stakeholder agencies in providing succor during large-scale contingencies within our ISSR and beyond. On the first day, August 27, the event focused on Table Top exercises, Workshops, and Seminars on issues of passenger safety, preparedness, challenges, and way ahead. The event culminated with brainstorming sessions and deliberations amongst the national and international participants to mitigate various challenges associated with MRO.

On August 28, the second day of the event, the Sea exercise involving two large-scale contingencies was carried out off Chennai coast with the participation of 16 ICG Ships, one Naval Ship, six ICG aircraft, one Naval ALH, one IAF Helicopter, Passenger Vessel Swarajdweep, one tug from Chennai Port Trust and one boat from the Customs.

The first contingency simulated distress onboard a passenger vessel having 500 pax onboard whereas the second scenario depicted the ditching of a civil aircraft with 200 passengers.

The response matrix in the sea exercise involved various methodologies to evacuate distressed passengers wherein the advent of new-age technology such as the use of remote controlled lifebuoy was demonstrated. Amongst the air elements used in the sea exercise, the rescue modalities demonstration by the newly inducted Advanced Light Helicopter (ALH-MK-III) highlighted the ease and precision of using state-of-art aircraft in large-scale rescue operations.

<https://m.economictimes.com/news/defence/indian-coast-guard-100-pc-indigenized-aircraft-ships-are-made-in-india-dg-v-s-pathania/articleshow/93823528.cms>

Mon, 29 Aug 2022

TEJAS - IAF will have to Start Accepting India Designed Aircraft and Handhold the Industry

by Girish Linganna

A veteran Indian Air Force officer recently stated that the Indian Air Force would desire proven fighter aircraft. Who could argue with that? However, when I consider the anguish caused by crashing MiG-21s, I view this as a problem statement.

If you look at the history of fighter aircraft induction into the IAF, you will see that nothing has ever been truly proven when they were inducted—proven to fly yes, proven to fight no.

Let us begin with the MiG-21, which was introduced in 1963. It had a very small range, no guns, and two nearly worthless K-13 infrared homing missiles that would latch on to the heat of the Earth or the sun rather than a target aircraft's exhaust. Nobody can claim that it was an established and proven platform at the induction time.

The IAF proved it; subsequently, further elements were added, such as a better engine, radar, weapons, missiles, avionics, and other improvements. The MiG-21 was developed into a powerful platform with several war victories.

When we got the legendary Sabre killer, the GNAT, a few years before the MiG 21, it was even less than proved. India purchased an experimental prototype aeroplane. Yes, it could take off and land, but the IAF completed all flying characteristics and flight testing from 1958 to 1980 in India. There were 613 major accidents and 624 minor events aboard the GNAT, including severe flight control issues, gun stoppages, brake seal failures, and problems with the hydraulic system and the HF radio transmitter. For 22 years, this equalled one incident per week.

During the testing phase, the GNAT was even grounded for six months. Finally, the Indian Air Force tested it in action, and we all know how wonderfully it did.

Then, similar to the present MMRCA debacle, we had the Jaguar after a lengthy selection procedure. Because of its ability to fly very low beneath radar cover and deliver explosives precisely in a single pass over the target, the Jaguar is a deep penetration striking aircraft.

Following the Jaguar's selection, the Indian HF-24 was terminated for being underpowered. Unfortunately, the Jaguars were also underpowered, and their weapon targeting system from the United Kingdom was defective. Only with the installation and development of the DARIN system of Indian design has the Jaguar had a really viable ground attack system.

The less said about the MiG 23, the better. It was a significant purchase following Pakistan's acquisition of the F-16. The MiG 23 could never compete with the F-16. However, the Russians gave us an attack aircraft based on the MiG-23, subsequently renamed the MiG-27. The MiG-23 also had a high crash rate.

Then there are Sukhois, or SU-30s, which will operate in the same capacity as MiG-21s for many years to come.

We'll experiment with them, alter them, and put them to use. That makes me pleased. What's more, guess what? When we obtained the SU-30, it had hardly been battle or flight tested.

But first, let me return to the current crisis: the MiG-21.

The MiG-21 is a favourite among pilots. They are thrilled with its performance. I get the impression that many pilots regard the MiG-21 as a machine to be conquered. Once you've conquered her, she'll obey you and accomplish amazing things. But she will allow you to make mistakes, and if you do not conquer her, you will die. Everything is lovely and charming. But why doesn't this happen with TEJAS? This is because the TEJAS' fly-by-wire systems prevent the pilot from exceeding limitations, resulting in a crash. The MiG-21 allows pilots to push the envelope, making it exciting and capable. However, some pilots are killed as a result of this. This much is documented.

The MiG 21 has several possibilities for mishaps. The most dangerous aspects of flying are the take-off and landing. The engine is approaching full power for departure, and if it fails immediately after the aeroplane takes off, for example, due to a bird strike, the plane will go down. The MiG 21 has a landing speed of 340 kilometres per hour. At such speed, the plane completes a football field in just over a second. Consider approaching the Earth at that rate. Because the MiG-21's range and flight times are very short, only 30 to 45 minutes, a pilot who has flown 2000 hours on the MiG-21 may have done 5000 take-offs and landings compared to just 1000 take-offs and landings for a transport pilot who does four hour flights, so the chances of a take-off or landing accident in the MiG-21 are that much higher. This is like learning to drive a car in a Formula One car.

It is documented that unless the pilot is previously experienced in flying the Mig-21, it is possible to encounter a flight circumstance that will result in a crash. The point I'm making is that, while being a well-liked and competent aircraft, the MiG-21 has its own set of reasons for being involved in accidents. The MiG-21 crashes should not be blamed on LCA TEJAS delays. The Mig-21 will let the pilot take a safe or dangerous attitude. It is the pilot's responsibility to keep an eye on himself. This increases the burden for the pilot in conflict since he must learn to be safe while fulfilling combat demands.

When it comes to the TEJAS, it will not enable the pilot to push the plane beyond software-defined limitations. The pilot may do whatever he wants on planes like the TEJAS and the Mirage 2000, but the software will not enable him to fly dangerously. And the pilot may focus on weaponry, navigation, or anything else he has to accomplish.

Test pilots have stated in interviews that the TEJAS equalises all pilots. It improves the performance of less-than-average pilots and cools down the hotshot pilots.

As an unspoken corollary, this means that hotshot pilots will stay hotshot with the MiG-21, whereas ordinary pilots may crash. Unfortunately, even pro pilots sometimes have mishaps. The claim that TEJAS did not have or does not have this or that is absurd. As previously noted, the GNAT, MiG 21, and Su-30 were insufficient and unfinished at the outset.

The IAF will have to embrace Indian-made aircraft and work with the industry to bring the platform to maturity, just as they did with so many other critical aircraft. Cooperation between force and industry is a hallmark of great power and must be pursued in the future.

<http://www.indiandefensenews.in/2022/08/tejas-iaf-will-have-to-start-accepting.html?m=1>



Sat, 27 Aug 2022

Argentina Shows Interest in India's Tejas Fighter Aircraft; Wants to Trade in Local Currencies Too

India and Argentina have agreed to firm up ties whilst simultaneously agreeing to increase engagement in defence and trade. The Latin American country has shown interest in India's indigenously developed TEJAS fighter aircraft, manufactured under the 'Make in India' campaign for its Air Force.

"EAM, acknowledging Argentine interest in the Made in India TEJAS fighter aircrafts for Argentine Air Force, highlighted importance of the proposal in enhancing strategic quotient of the bilateral relationship." read the joint press statement released after the Joint Commission Meeting (JCM).

The JCM took place between India's external affairs minister Dr S Jaishankar and Argentina's foreign minister Santiago Cafiero. It is pertinent to note that apart from Argentina, countries such as Australia, Egypt, the USA, Indonesia, and the Philippines have also shown interest in LCA aircraft which is manufactured by Hindustan Aeronautics Limited (HAL). However, Argentina is the first country in Latin America to show interest in Tejas, which is a single-engine, lightweight supersonic fighter.

Both countries have also agreed to "request the Central Banks to carry out studies for the development of a payment mechanism in local currencies" so that trade between the two countries can transpire without the use of a third currency. This development comes in the backdrop of more and more countries being keen to use local currencies for trade instead of the dollar.

In the past, India has used the Rupee-Rial and Rupee-Ruble mechanism to trade with Iran and Russia. In July, India's central bank RBI issued an order that allowed international trade in rupee, a move that not only benefits Russia but many countries in the neighbourhood.

Meanwhile, Argentina has said that India has expressed its support for the country's membership in an expanded BRICS grouping. This has been part of ongoing discussions between the two foreign ministers, dating back to the bilateral meeting between the two ministers on the sidelines of the Bali G20 Foreign ministers' meet, held earlier this year in July. Countries like Iran, and Algeria are also keen to become a member of the over-decade-old grouping which has Brazil, Russia, India, China and South Africa.

In the joint statement, India reiterated its "support to the resumption of negotiations to find a solution to the sovereignty issue relating to the Question of the Malvinas Islands" in accordance with the "Resolutions of the UNGA and the Special Committee on Decolonization". While Argentina calls it Malvinas Islands, the UK calls it Falkland island, and both fought over it in the early 1980s. Argentina has also extended support to India's membership of the Nuclear Suppliers Group and the country's upcoming G20 Presidency.

The External Affairs minister was on a visit to South America, during which he visited Brazil, Paraguay and Argentina. While in Brazil and Argentina, EAM co-chaired the Joint Commission Meetings (JCM) with his counterparts, in Paraguay he inaugurated the premises of the newly opened Indian Embassy which started functioning in January 2022. This was EAM's first visit to the South American region in the current capacity.

<https://www.wionews.com/india-news/argentina-shows-interest-in-indias-tejas-fighter-aircraft-wants-to-trade-in-local-currencies-too-510664>



Sun, 28 Aug 2022

Pentagon Signs \$182mn Deal to Make Air Defence Systems for Ukraine Amid Russian Invasion

Amid its efforts to deter Russian aggression in Ukraine, the Pentagon on Friday, August 26, has reached an agreement with the weaponry company, Raytheon, for purchasing the National Advanced Surface-to-Air Missile Systems (NASAMS) short-and medium-range anti-aircraft systems for the war-torn nation. The Pentagon has inked the contract which is worth over \$182 million. According to a report from the US defence, "Raytheon Co., Tewksbury, Massachusetts, was awarded a \$182,295,333 firm-fixed-price contract for the procurement of National Advanced Surface-to-Air Missile Systems."

The report further stated that the project will be carried out in Tewksbury, Massachusetts, and is anticipated to be finished on August 23, 2024. It also added, "Bids were solicited via the internet with one received."

The funds designated as part of the Ukraine Security Assistance Initiative (USAI) will be used to pay for the purchase of the missile systems.

Earlier this month, Air Force Magazine said in an article that the NASAMS is considered to be a significant piece of equipment that might aid Ukrainian forces in shooting down Russian cruise missiles, which have until now been "nearly unimpeded" in their ability to attack targets in the nation.

US military aid to Kyiv

Besides this, the United States has announced earlier this week that Kyiv will receive nearly \$3 billion in military help. According to the Tass report, Six NASAMS systems are specifically included in the new package. Moreover, a US official stressed that the funds will be used to pay for contracts for drones, weaponry, and other equipment that might not enter the battlefield for a year or two, Associated Press reported.

As per officials with knowledge of the situation, the current funding, unlike the majority of prior packages, is primarily intended to assist Ukraine in securing its medium- to the long-term defensive position. Earlier shipments, the majority of which were carried out under the Presidential Drawdown Authority, concentrated on providing Ukraine with the weapons and

ammunition it most urgently required and contained stockpiled equipment that the Pentagon could quickly deploy.

The latest package is meant to assure Ukrainian leaders that the United States intends to maintain its support, irrespective of the day-to-day back and forth of the crisis, the officials said. It also provides longer-term help that Ukraine may utilise for any future defence requirements.

In the meantime, The Washington Post claimed by citing sources familiar with the situation that the US has started sending weaponry to war-torn Ukraine via sea. The publication on Saturday said that ships can transport massive volumes of cargo at once, allowing Kyiv to collect a greater stockpile of weapons despite the fact that the delivery of munitions by water is slower than by plane.

<https://www.republicworld.com/world-news/russia-ukraine-crisis/pentagon-signs-182mn-deal-to-make-air-defence-systems-for-ukraine-amid-russian-invasion-articleshow.html>

Science & Technology News



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Union Minister Dr Jitendra Singh says, 'Waste to Wealth' is emerging as a new avenue for StartUp in India

The Minister addresses National Seminar on “Waste to Wealth” organised under “Ek Kaam Desh ke Naam” in Jammu

Industry leaders from all over India, from Kerala to Haryana and Gujarat to Odisha, were felicitated for having excelled in using latest technologies for waste to wealth conversion to generate business, livelihood and new opportunities for StartUps

Union Minister Dr Jitendra Singh said in Jammu today that “Waste to Wealth” is emerging as a new avenue for StartUp in India.

The Minister was addressing National Seminar on “Waste to Wealth” organised under “Ek Kaam Desh ke Naam” programme, at which Industry leaders from all over India, from Kerala to Haryana and Gujarat to Odisha, were felicitated for having excelled in using latest technologies for waste to wealth conversion to generate business, livelihood and new opportunities for StartUps. The organising team was led by Delhi BJP Vice President Rajiv Babbar, a group of former senior retired bureaucrats, scientists and activists.

Dr Jitendra Singh reiterated Prime Minister Narendra Modi's reference to Amrit Kaal and said next 25 years will see a sudden surge in India's economy and this will happen through the

utilisation of resources which have either remained unexplored in the past or which could not be utilised because of the lack of technology to re-use the waste products.

Referring to PM Modi's call for "Swachhta" in his Independence Day address and also Modi's leading role in all the international movements related to climate concerns, Dr Jitendra Singh said, waste to wealth methodology serves the dual purpose of not only keeping the environment clean but also creating wealth out of elements which otherwise pollute the environment. He made an interesting disclosure during the Swachhata campaign held in October last year to commemorate the Gandhi Jayanti, the cleaning of Govt of India offices in New Delhi and subsequent disposal of electronic scrap from discarded mobile phones, computers, etc. had generated revenue of over Rs.62 crores when it was taken to the market.

Dr Jitendra Singh said, there is need to create awareness about several waste products which can generate income without much effort and in this regard he referred to the use of cooked oil from the kitchen which could be sold off at the rate of around Rs.20 per litre to the industry which had the technology to convert it into alternative fuel. Similarly, he referred to Fly Ash produced through combustion of coal which could be utilised for making bricks for construction etc. All these, he said, were new resources of livelihood, simply through optimum utilisation of waste products.

Dr Jitendra Singh emphasised close integration of industry with scientific research in order to ensure sustainable StartUps. He lauded the efforts made through this programme today in which representatives of industry as well as senior scientists from CSIR, Ministry of Science & Technology as well as young students and potential StratUps participated.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1854855>



Sat, 27 Aug 2022

Artemis-I to Launch on Aug 29: What is the First Biology Experiment Going to Moon?

As the Artemis-I mission launches to the Moon on August 29, while the spacecraft will not be carrying any humans, there will be a dedicated set of CubeSats onboard that will lay the groundwork for the crew that arrives a few years later. Among the payload is the first biology experiment headed into lunar orbit.

Dubbed BioExpt-1, it is a set of four experiments that will study the effects of space radiation before humans jump onboard and are sent to the Moon and, then on to Mars. Long-range space travel has several effects on the human body and understanding these effects will ensure a better strategy to counter them or minimise them.

"The experiment is called Bio Experiment 1 and it consists of four different experiments that cover four different biological specimens. All of which help us understand how biological systems taken from Earth thrive in space. So we will get a very nice sense of what roughly 42-

day mission in this environment with elevated ionising radiation levels and microgravity environment, what it will do the biology," Dr. Sharmila Bhattacharya, Nasa's program scientist for space biology said. Scientists are sending not just plant seeds and algae but cellular systems like fungi, and yeast to study radiation effects and how biological systems can adapt and thrive in deep space. They will gather data before and after the flight and analyse the changes to understand what all these biological systems experienced during the flight.

Nasa said that the four bio experiments will be split into two science bags and placed into container assemblies. The experiments will travel along the journey of the Orion spacecraft, the crew module above the Space Launch System, and will go as far as 60,000 kilometers beyond the Moon and return to Earth.

"How these four different systems respond in the space environment will be helpful in understanding how to keep humans happy, comfortable, and provided for when they do long-duration flights in space. The cells in fungi and how they respond will be indicative of cellular response for humans on one hand and the two plant systems, the single-cellular algae and the seeds will give us an idea of how plants respond in this environment. We rely on plants on Earth and will need to carry it when we go beyond Earth," Dr. Sharmila Bhattacharya said.

With Nasa planning to send missions for long periods of time in deep space, new information is needed compared to the Apollo-era mission that ended five decades ago. "We don't currently know what the effects of radiation are outside of low-Earth orbit and how that could affect our system and our biology. I am excited to see what we can learn from these experiments, to see us go back to the Moon, and to know that I get to be a part of all of this," Dinah Dimapilis, Nasa project manager added.

Nasa will launch its ambitious Space Launch System on an uncrewed mission to the Moon and beyond on August 29. The mission is to test the system that will carry humans in the near future to lunar orbit and on the surface.

<https://www.indiatoday.in/science/story/artemis-1-launch-moon-mission-biology-experiment-nasa-space-travel-mars-1993262-2022-08-27>



Sun, 28 Aug 2022

Boosting Neuron Formation to Restore Memory in Alzheimer's Disease

Scientists have discovered that increasing the production of new neurons in mice with Alzheimer's disease (AD) rescues the animals' memory defects. The study shows that new neurons can incorporate into the neural circuits that store memories and restore their normal function. This suggests that boosting neuron production could be a viable strategy to treat AD patients. The study, which was published on August 19 in the Journal of Experimental Medicine (JEM), was done by researchers at the University of Illinois Chicago.

New neurons are created from neural stem cells via a process known as neurogenesis. Previous studies have shown that neurogenesis is impaired in both AD patients and laboratory mice carrying genetic mutations linked to AD. This impairment is especially serious in a region of the brain called the hippocampus, which is crucial for memory acquisition and retrieval.

“However, the role of newly formed neurons in memory formation, and whether defects in neurogenesis contribute to the cognitive impairments associated with AD, is unclear,” says Professor Orly Lazarov of the Department of Anatomy and Cell Biology at the University of Illinois Chicago College of Medicine.

In the new JEM study, Lazarov and his colleagues boosted neurogenesis in AD mice by genetically enhancing the survival of neuronal stem cells. The scientists deleted the gene *Bax*, which plays a major role in neuronal stem cell death, ultimately leading to the maturation of more new neurons. Increasing the production of new neurons in this manner restored the animals’ cognitive performance, as demonstrated in two different tests measuring spatial recognition and contextual memory.

By fluorescently labeling neurons activated during memory acquisition and retrieval, the scientists discovered that, in the brains of healthy mice, the neural circuits involved in storing memories include many newly formed neurons alongside older, more mature neurons. These memory-storing circuits contain fewer new neurons in AD mice, but the integration of newly formed neurons was restored when neurogenesis was increased.

Further analyses of the neurons forming the memory-storing circuits revealed that boosting neurogenesis also increases the number of dendritic spines. These are structures in synapses known to be critical for memory formation. Plus, boosting neurogenesis also restores a normal pattern of neuronal gene expression.

Lazarov and colleagues confirmed the importance of newly formed neurons for memory formation by specifically inactivating them in the brains of AD mice. This reversed the benefits of boosting neurogenesis, preventing any improvement in the animals’ memory.

“Our study is the first to show that impairments in hippocampal neurogenesis play a role in the memory deficits associated with AD by decreasing the availability of immature neurons for memory formation,” Lazarov says. “Taken together, our results suggest that augmenting neurogenesis may be of therapeutic value in AD patients.”

Reference: ” Augmenting neurogenesis rescues memory impairments in Alzheimer’s disease by restoring the memory-storing neurons” by Rachana Mishra, Trongha Phan, Pavan Kumar, Zachery Morrissey, Muskan Gupta, Carolyn Hollands, Aashutosh Shetti, Kyra Lauren Lopez, Mark Maienschein-Cline, Hoonkyo Suh, Rene Hen and Orly Lazarov, 19 August 2022, Journal of Experimental Medicine.

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<https://scitechdaily.com/boosting-neuron-formation-to-restore-memory-in-alzheimers-disease/amp/>

