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समाचार पत्रों से चयित अंश Newspapers Clippings

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

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CONTENTS

S. No.	TITLE		Page No.
	DRDO News		1-3
	DRDO Technology News		1-3
1.	DRDO Conferred With Best Anti Drone Technology Award	<i>PSU Connect</i>	1
2.	नाग का काटा फिर भी बच जाए, इस मिसाइल के वार से दुश्मन नहीं बचेगा!	<i>नवभारत टाइम्स</i>	2
	Defence News		3-23
	Defence Strategic: National/International		3-23
3.	Indian Composites Industry can 'Make for the World' to become the Preferred Sourcing Destination Dr G Satheesh Reddy Scientific Advisor to Raksha Mantri Ministry of Defence on Inauguration of ICERP	<i>The Week</i>	3
4.	Aircraft Carrier INS Vikramaditya to Start Sailing End-January	<i>Hindustan Times</i>	5
5.	India should Plan a Fleet of Six-SSBNs for Continuous at-Sea Deterrence	<i>Financial Express</i>	6
6.	Army Organises Hackathon to Seek Solutions to Operational Cyber Challenges	<i>The Economic Times</i>	8
7.	Republic Day Celebrations: Biggest Drone Show this Time at Beating Retreat	<i>The Times of India</i>	9
8.	R-Day: Navy's Vintage IL38 SD Aircraft to Join Flypast for First and Last Time; Event to See 45,000 Spectators	<i>The Indian Express</i>	10
9.	Indian Army Keen to Procure Pitbull Rcws	<i>Janes</i>	11
10.	India Gives 2 Sea Ambulances to Maldives, Unveils Aid for Development Projects	<i>Hindustan Times</i>	12
11.	With Focus on Counter-Terrorism, Defence, India and Oman Hold Strategic Dialogue in Delhi	<i>WION</i>	13
12.	Strengthening India-Japan Defence Cooperation: A Look Beyond Quad	<i>News 18</i>	14
13.	Pakistan may Lose Major Non-Nato Ally Status After US Lawmaker Moves Bill in House	<i>India Today</i>	16
14.	"Many Nations Bought Soviet-Era Equipment...": US on India Defence Ties	<i>NDTV</i>	17
15.	'Red General': Germany's 'Brash' New Defence Chief	<i>The Economic Times</i>	18
16.	Ukraine Closer to Receiving Modern Western Battle Tanks, More Patriots	<i>The Hindu</i>	19
17.	NATO Chiefs of Defence Meet in Brussels	<i>NATO OTAN</i>	20
18.	Intruder Defence 'Passive Listening' Saves Lives in Seabed Warfare	<i>Naval Technology</i>	21
19.	Northrop Grumman Developing New AESA Radar for F-35	<i>Janes</i>	22
	Science & Technology News		23-28
20.	Union Minister Dr Jitendra Singh Says, The Start-Up Conclave at IISF, Bhopal will Showcase 300 Deep Tech Success Stories with Tech-Innovative Products and Technologies in the Areas of Health, Agriculture, Industrial Technology, IT, Mobility and Education	<i>Press Information Bureau</i>	23
21.	Indian Space Association Outlines Budget Recommendations for the Sector	<i>Financial Express</i>	25

22.	Startups are Powering India's Space Odyssey 2.0	<i>Mint</i>	27
23	FinMin Deliberates Steps to Deal with Cyber Security Issues	<i>The Pioneer</i>	28



Wed, 18 Jan 2023

DRDO Conferred With Best Anti Drone Technology Award



DRDO was conferred with Best Anti Drone Technology Award under Make in India Category during the 14th International Conference cum Awards for Civil Aviation organised by Assocham. The award was received by Dr B K Das Director General ECS Anti Drone System is state of art technology designed to protect our critical assets and has capability of both Hard Kill and Soft kill options. The system has proven its worth by successful deployment and critical validation by our Armed Forces.

<https://www.psuconnect.in/news/drdo-conferred-with-best-anti-drone-technology-award/36007>

नवभारत टाइम्स

Wed, 18 Jan 2023

नाग का काटा फिर भी बच जाए, इस मिसाइल के वार से दुश्मन नहीं बचेगा!

गणतंत्र दिवस 2023 से पहले 'अपना देश अपने हथियार' सीरीज में हम स्वदेशी हथियारों से आपको रूबरू करा रहे हैं। आज तीसरी कड़ी में बात 'नाग' मिसाइल की। देश में पाए जाने वाले कोबरा सांप के नाम पर इस मिसाइल का नाम है। सिर्फ नाम ही नहीं, इसका वार भी कोबरा जैसा है। नाग मिसाइल का एक वार दुश्मन के खेमे में खलबली मचाने को काफी है। इंटीग्रेटेड गाइडेड मिसाइल डेवलपमेंट प्रोग्राम (IGMDP) के तहत, तीसरी पीढ़ी की इस मिसाइल को तैयार किया गया है। यह पांच तरह के वैरिएंट्स में आती है और हर मौसम में तैनात की जा सकती है। नाग मिसाइल को 10 साल तक मेटेन करने की जरूरत भी नहीं। सिर्फ 43 किलो वजनी यह मिसाइल 828 किलोमीटर प्रतिघंटा की अधिकतम रफ्तार से दागी जा सकती है। 'अपना देश अपने हथियार' पार्ट 3 में इसी 'नाग' मिसाइल के बारे में जानते हैं।

'नाग' मिसाइल का इतिहास क्या है?

- 'मिसाइल मैन' डॉ एपीजे अब्दुल कलाम के नेतृत्व में 'नाग' मिसाइल ने आकार लेना शुरू किया था।
- इसका डिजाइन डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन (DRDO) ने तैयार किया।
- नब्बे के दशक की शुरुआत में टेस्ट भी हुए लेकिन IIR आधारित गाइडेड सिस्टम में दिक्कत के चलते डिवलपमेंट फंसा रहा।
- सितंबर 1997 और फिर जनवरी 2000 में मिसाइल ने टेस्ट में काबिलियत साबित कर दी। अगले कुछ सालों के भीतर इसे और रिफाइन किया गया।
- 'नाग' मिसाइल के लिए खास मिसाइल कैरियर NAMICA तैयार किया गया जिसे 'सारथ' नाम मिला है। यह एक टैंक डिस्ट्रॉयर है जिसमें 12 मिसाइलें रखी जा सकती हैं।
- नाग मिसाइल के पांच अलग-अलग टाइप पर काम चल रहा है। यह ऐसी मिसाइल है जिसे जमीन या हवा, कहीं से भी फायर कर सकते हैं।
- नाग मिसाइल का एक लैंड वर्जन है, दूसरा मास्ट-माउंटेड सिस्टम। बाकी तीन खास जरूरतों के हिसाब से बनाए जा रहे हैं। उनके बारे में विस्तार से आगे जानते हैं।

NAG मिसाइल की खूबियां जानिए

- नाग मिसाइल के अलग-अलग वैरिएंट्स की रेंज 500 मीटर से 20 किलोमीटर तक है।
- इसका गाइडेड सिस्टम 'फायर एंड फॉरगेट' है मतलब एक बार दाग दिया तो टैंक को तबाह कर ही दम लेगी।
- दिन हो या रात, किसी भी मौसम में 'नाग' मिसाइल को फायर किया जा सकता है।
- 'नाग' में एडवांस्ड पैसिव मिसाइल होमिंग गाइडेड सिस्टम लगा है जिससे इसे हाई सिंगल-शॉट किल प्रॉबेबिलिटी मिलती है।
- नाग मिसाइल 828 किलोमीटर प्रतिघंटा की रफ्तार से अपने टारगेट को हिट कर सकती है।

NAG MPATGM की क्या खासियत है?

तीसरी पीढ़ी की मैन पोर्टेबल ऐंटी-टैंक गाइडेड मिसाइल (MPATGM) का टायल 2005 में शुरू हुआ। यह दिखने में नाग मिसाइल के लैंड वर्जन जैसी ही है लेकिन बेहद हल्की (करीब 14 किलोग्राम) है। नाग के MPATGM वर्जन की रेंज लगभग 2.5 किलोमीटर है। यह टैंकों के ऊपर जाकर फिर नीचे आकर धमाका कर सकती है जिसे 'टॉप अटैक' कहते हैं। लगभग सवा मीटर लंबाई वाली इस मिसाइल में चार छोटे पर लगे हैं। इसमें हाई एक्सप्लोजिव ऐंटी-टैंक (HEAT) वारहेड फिट होता है।

<https://navbharattimes.indiatimes.com/india/nag-missile-weapons-of-india-read-about-helina-dhruvastra-mpatgm-and-sant-variants/articleshow/97078767.cms?story=7>

DefenceNews

Defence Strategic : National/International

THEWEEK

Wed, 18 Jan 2023

Indian Composites Industry can 'Make for the World' to become the Preferred Sourcing Destination Dr G Satheesh Reddy Scientific Advisor to Raksha Mantri Ministry of Defence on Inauguration of ICERP

A replica of DRDO's Agni - V being displayed by Kenico Group at the 10th International Conference and Exhibition on Reinforced Plastics - ICERP 2023 - inaugurated in Mumbai today. Mr Shekhar Sardesai, Executive Vice Chairman and Managing Director of Kinenco Group showcasing the replica to Dr G Satheesh Reddy Scientific Advisor to Raksha Mantri, Ministry of Defence, Government of India, Mr Kumarpal Rawji, Chairman of FRP Institute, Ms Piya Thakkar, Chairperson of ICERP 2023 and other dignitaries

The 10th International Conference and Exhibition on Reinforced Plastics – ICERP 2023 – inaugurated in Mumbai today

Mumbai (Maharashtra) [India], January 18: As India is becoming Atmanirbhar (self – reliant) with its strong manufacturing and innovation prowess, the Indian Composites Industry, with its rapidly growing significance and competency, has a bright future to 'Make for the World' and become the one – source destination for all composites needs, said Dr G Satheesh Reddy,

Scientific Advisor to Raksha Mantri, Ministry of Defence, Government of India and an eminent scientist while inaugurating the 10th International Conference and Exhibition on Reinforced Plastics – ICERP 2023 – organised by FRP Institute, an apex body of India’s composite industry.

In his inaugural address, Dr Reddy called upon the Indian Composites Industry to ‘Design, Develop and Manufacture’ with technological innovation to become the world’s top sourcing destination of composites material. Emphasising on the importance of the composites material, Dr Reddy further mentioned that the composite material was being increasingly used in the automotive, aerospace, defence, infrastructure and construction sectors in India and hence, many Companies were entering or expanding in this sector making it more competitive. He stressed on the need to have improved technologies for wider applications. “For any country to be self – reliant, it must be strong both in manufacturing and technology. In order to enhance the contribution of the manufacturing sector from today’s 17% into India’s GDP to 25%, we must bring resilience in the manufacturing sector with innovation and Indian Composites Industry has a capability to achieve the same”, he added.

Dr Reddy also cited the need for import of composites material in the defence sector and mentioned that India’s defence exports had grown to Rs 13,000 crore in the last year due to its emphasis on Atmanirbhar Bharat mission and the Indian Composites Industry would benefit from increasing demand from the defence sector.

Dr Reddy advised the Indian Composites Industry stakeholders that the industry players should set up ‘Centres of Excellence’ and manufacturing clusters with modern technologies.

Mr Kumarpal Rawji, Chairman of FRP Institute, while welcoming the guests at the Conference, said, “The \$ 1.26 billion Indian Composites Materials Industry, better known as reinforced plastics, is eyeing growth at a CAGR of 6.9% over the next five years to reach US\$ 2.01 billion in 2027. With a volume growth globally, it is set to cross the global average of 4.7% by volume and touch the mark of 6.1% in the next five years”.

Ms Piya Thakkar, Chairperson of ICERP, 2023 said, “Indian Composites Industry fared well during the COVID pandemic and showing a growth momentum. As India is poised to become a global economic leader, the Indian Composites Industry has a bright future. India’s focus on infrastructure, energy, mass transportation, defence, construction sectors, the demand for composites is just growing. The Atmanirbhar Bharat mission demands indigenisation of composite value chain to meet the country’s composite needs”.

The International Conference and Exhibition on Reinforced Plastics (ICERP 2023) has brought together all stakeholders of Indian and global Composites Industry on one platform.

According to the Report ‘Indian Composites Materials Market – Current Status & Forecast – 2027’ launched earlier by the FRP Institute, the Indian Composites Material Industry is taking the consumption from 511.9 kilotons of composites materials in 2021 to 768.2 kilotons in 2027.

The Report further stated that India still has a lower per capita consumption of composites at merely 0.37 kg in 2021 as compared to matured markets such as the USA with 11.5 kg, which has the highest per capita consumption and Germany with 7.7 kg. Even countries like the United Kingdom, France, Italy, Spain and Asian countries like Taiwan, Japan have per capita consumption of composites ranging between 4 to 9 kg. As per this, India has the highest opportunities in terms of composites consumption”.

Out of the total Composites Materials Market in India (which is 511.9 kilotons in 2021 by material type) Matrices and Reinforcements together represented 86.7% share in 2021 while fillers and other composites occupied the rest of the share. Glass Fiber, Polyesters, and Epoxies remained as dominant materials and collectively represented 77.7% share in 2021. With further push on infrastructure and logistics by the Government, the sectors like ground transportation, building and construction, infrastructure development collectively accounted for approximately 50.8% share in 2021, in terms of volume.

Forecast – 2022 to 2027:

Ground Transportation, Construction and Infrastructure are likely to remain the key markets for Composites Materials by 2027. From 2022 to 2027, in terms of volume, the sectors such as Renewable Energy will see the highest CAGR of 8.6%, Aerospace and Defense will clock a CAGR of 8.2%, Construction and Infrastructure will witness a CAGR of 6.5% and CAGRs in others such as Telecom (5.8%), Electrical and Electronics (5.5%), Ground Transportation (5.4%), Pipe and Tanks (5%) and other sectors at 4.7%.

The future of Indian composites market looks attractive in the wake of increasing consumption opportunities for composites material in the industries like electrical and electronic, particularly due to emergence of electrical vehicles, wind energy, mass transportation and construction industries.

The major drivers for growth would be the rise in demand for electrical and electronic, wind energy, and pipe and tank applications due to increase in the number of Government projects like smart cities development, eco-friendly energy generation, hydrocarbon opportunities, freshwater transportation, sewage treatment system, rehabilitation of water and sewage pipelines. The Atmanirbhar Bharat initiative will further augment the prospects on a global level.

<https://www.theweek.in/wire-updates/business/2023/01/18/dcm60-dr-g-satheesh-reddy.html>



Wed, 18 Jan 2023

Aircraft Carrier INS Vikramaditya to Start Sailing End-January

With India's two aircraft carriers operational by end of this year, the mission objectives of these two warships will have to be defined in the Indo-Pacific which goes beyond projecting maritime dominance and gun-diplomacy.

India's first aircraft carrier INS Vikramaditya is expected to come out of major refitment at Karwar Naval base end of this month and will be at the center of events when Prime Minister Narendra Modi addresses the Combined Commanders Conference in March. The battleship is expected to start sailing around January 30 and sea trials will commence soon.

While the Indian Navy expects flight trials on both INS Vikramaditya and its successor INS Vikrant to take place before monsoon, the two operational aircraft carriers will add heft to India's naval footprint in the Indo-Pacific. A decision on the procurement of 26 maritime strike

fighters including eight trainers for INS Vikrant will also be taken soon with French Rafale-M and US F-18 being the two principal contenders.

It is understood that the Indian Navy has already submitted the trial reports of the two fighters to the Defence Ministry and based on the performance of the fighters the decision will be taken by the Modi government. The INS Vikramaditya has Russian MiG-29K fighters as main weapon on board, while a landing of maritime LCA is also being considered on INS Vikrant as a test case scenario this year.

Both the aircraft carriers will be based on India's western coast till a jetty to handle the huge war machines is ready at Vishakhapatnam on India's eastern seaboard. In the meantime, the Indian Navy is considering leasing a jetty at Kattupalli Port in north Chennai to dock the aircraft carriers with another carrier jetty being considered at Campbell Bay in Island territory of Andamans and Nicobar Islands.

With two operational aircraft carriers at the end of this year, Indian national security planners will have to evolve a doctrine that defines the objectives or missions of these two carrier-based strike forces beyond the Bay of Bengal and Arabian Sea. Simply put, India does not need two aircraft carriers for maritime dominance in Arabian Sea or Bay of Bengal but to project power in the Indo-Pacific and beyond.

Given that Chinese Navy's armadas with three aircraft carriers are expected to patrol in the Indian Ocean by 2025, the Indian carrier-based forces will counter the PLA Navy while deepening naval cooperation with QUAD navies in the Indo-Pacific.

Already PLA strategic surveillance vessels are mapping the Indian Ocean including the 90 degree ridge and the five ingress straits to South China Sea for future maritime operations. Beijing has offered naval cooperation to Indian Ocean littoral states by gifting them off-shore patrol vessels like the one presently being offered to Seychelles. The Indo-Pacific scenario is warming up with Japan getting ready to meet the Chinese challenge with US support and Australia contesting Beijing in far Pacific. India with its two aircraft carriers will have to do the heavy lifting in the Indian Ocean from Africa's eastern seaboard to the west coast of Australia.

<https://www.hindustantimes.com/india-news/aircraft-carrier-ins-vikramaditya-to-start-sailing-endjanuary-101674015321940.html>



India should Plan a Fleet of Six-SSBNs for Continuous at-Sea Deterrence

By Anubhav Shankar Goswami

India is situated in a difficult weapons of mass destruction (WMD) region. The fact that both of its nuclear-capable neighbours—China and Pakistan—are engaged in a secret and extensive nuclear cooperation framework adds to New Delhi's difficulties. Therefore, to create a robust nuclear deterrent, India has also embarked on developing the sea-leg of its nuclear triad, which is believed to be the least vulnerable and most survivable deterrence platform. With the launch of

the third ballistic submarine missile of the *Arihant-class* in January 2022, which is capable of carrying intermediate-range Submarine Launch Ballistic Missiles (SLBM); India's SSBN programme is maturing into a credible second-strike capability. Gradual addition of longer range SLBMs in future will allow the Indian Navy to exploit larger patrol areas afforded by longer range missiles through Open Ocean patrolling and have a permanent presence in the deep sea. Called continuous at-sea deterrence (CASD) posture in military parlance, permanent presence of an SSBN in the open ocean adds credibility to the sea-leg of a country's nuclear deterrence.

This article tries to assess the kind of SSBN force level Indian Navy would need to operationalise a CASD posture in the future.

For permanent open ocean patrolling to be credible, India needs at least a global format of four SSBNs. A global format of four SSB N allows uninterrupted deterrence patrol "with at least one boat on patrol, one preparing for patrol, one returning to port, and one in maintenance". Anything below four, it would not be possible for the Indian Navy to guarantee the invulnerability of its SSBN fleet for a number of reasons. First, CASD posture with only three boats in the fleet would put severe stress on the Indian Navy as the "permanence at sea of an SSBN under good conditions of dilution (guaranteeing its invulnerability) would no longer be possible". Second, the fourth boat also offers substitute cover in case of an 'act of God' occurrence, such as a mistaken collision with a friendly or hostile nuclear submarine.

Moreover, India is sandwiched between two belligerent powers with nuclear weapons. To credibly deter both China and Pakistan, India might need at least two SSBNs on continuous patrol, which is impossible to achieve with only three vessels in the fleet. In times to come, China's Anti-Submarine Warfare (ASW) capabilities will greatly increase in effectiveness. People's Liberation Army Navy (PLAN) has already intensified the regular visits of its SSNs to the Indian Ocean. Chinese ASW forces will naturally find it easier to identify or follow a solitary Indian SSBN on patrol. If the Indian Navy deploys multiple SSBNs on open ocean patrol, the risk that it may lose the ability to conduct a second-strike while at sea may be significantly reduced. The SSBN force is also less vulnerable overall if it has two or three boats at sea as opposed to one since a nuclear assault on their base is more likely to just result in the loss of one SSBN. In the foreseeable future, all of India's nuclear-powered submarines, both SSBNs and SSNs, will be home stationed at the sole underground naval base, INS Varsha. Reportedly the base will be able to withstand even nuclear attacks. However, technological breakthroughs support *offense* more than *defence* and INS Varsha's fortitude against future nuclear capabilities can never be fully assured. Therefore, it is strategically prudent for the Indian Navy to put at least two SSBNs permanently at sea. Finally, in the face of rapid modernization of its nuclear forces by China that will see its nuclear inventory skyrocket to 1000 warheads by 2030, having two or more SSBNs permanently at sea will enable New Delhi to continue upholding 'credible minimum deterrence' against Beijing.

'S-5' Class should be prioritised

Putting two SSBNs to sea for continuous at-sea deterrence, however, will require the Indian Navy more than a fleet of four ballistic missile submarines. During the cold war, France had a fleet of six *Le Redoutables* to maintain a CASD of two/three boats. A fleet of minimum six SSBNs is what New Delhi should also look at so that two vessels could be sent for continuous patrolling at all times, while retaining the option to slip a third boat during times of crisis.

With three more SSBNs to come, the *Arihant class* will have a strength of four in total. In the future, when the proposed S-5 class will join the Indian Navy, utility of the first-generation *Arihant* and *Arighat* will shrink due to their credibility issues. Currently operational *Arihant* and soon-to-be commissioned *Arighat* lacks the sufficient range in its SLBMs (K-15) to either target Islamabad or Beijing. However, the much bigger S-5 class, with twice the weight of the *Arihantis* expected to carry 12 K-6 SLBMs of intercontinental range of 6,000 km. It is unclear how many 'boomers' the Indian Navy is looking for the S-5 class. But since the Navy would most likely be interested in maintaining a CASD posture, a minimum of two S-5s will certainly be on the cards to fill the void left by *Arihant* and *Arighat* whenever they are decommissioned. It would do well for the Indian Navy to start thinking about having at least four boats of S-5 as well. Four S-5s, with the capability to strike all of China, would act as a formidable force multiplier to the third and the final boats of the *Arihant class*, the upgraded and upcoming S-4 and S-4*, which will carry eight intermediate range K-4 SLBMs. Therefore, it is imperative upon Indian defence establishment to expedite work on the S-5 class so that they can be commissioned sometime around the late 2030s.

<https://www.financialexpress.com/defence/india-should-plan-a-fleet-of-six-ssbns-for-continuous-at-sea-deterrence/2952627/>

THE ECONOMIC TIMES

Wed, 18 Jan 2023

Army Organises Hackathon to Seek Solutions to Operational Cyber Challenges

The Indian Army has organised a hackathon to seek solutions to operational cyber challenges, provide a platform to identify indigenous talent in niche domains and enhance the standard of training in domains of cyber deterrence, the Defence ministry said on Tuesday. The event 'Sainya Ranakshetram 2.0' was held from October last year to January, and winners were virtually felicitated by Army Chief General Manoj Pande during an online ceremony held on Tuesday, it said.

The Indian Army under the aegis of HQ Army Training Command (ARTRAC) organised the second edition of the hackathon with an "aim to seek solutions to operational cyber challenges and to jump start and telescope the development time for innovative solutions in the field of cyber security", the ministry said in a statement.

The event was also aimed at "providing a platform to identify indigenous talent in niche domains and enhance the standard of training in domains of cyber deterrence, security software coding, electro magnetic spectrum operations (EMSO), and artificial intelligence / Machine Learning (AI / ML)", it added.

The participation, permitted as an individual or as a team, was open to all Indian citizens. A seminar-cum-workshop on cyber threat was also held, it added.

<https://economictimes.indiatimes.com/news/defence/army-organises-hackathon-to-seek-solutions-to-operational-cyber-challenges/articleshow/97092538.cms?from=mdr>

THE TIMES OF INDIA

Thu, 19 Jan 2023

Republic Day Celebrations: Biggest Drone Show this Time at Beating Retreat

The biggest-ever drone show in the country will be conducted at the Beating Retreat ceremony this time, with 3,500 drones flying in perfect synchronisation as compared to 1,000 last year. The Republic Day parade, with a special focus on 'Atmanirbharta', in turn, will mark the debut of India's first indigenous light combat helicopter called 'Prachand'. Mahatma Gandhi's favourite hymn 'Abide with Me', however, will not figure in the enthralling Beating Retreat on January 29 like last year, in line with the government's decision to replace all western tunes with swadeshi ones. 'Abide with Me' was retained in 2020 and 2021 at the last moment after a major outcry but replaced with 'Ae Mere Watan ke Logon' last year.

Defence secretary Giridhar Aramane on Wednesday said the R-Day celebrations have been planned to reflect PM Narendra Modi's vision of 'Jan Bhagidari'. The functions will commence on January 23, the birth anniversary of Netaji Subhas Chandra Bose, and culminate on January 30, which is observed as Martyrs' Day marking Mahatma Gandhi's assassination.

"The celebrations will be a tribute to INA veterans, people and tribal communities who participated in the freedom movement against the British," Aramane said. The focus during the R-Day parade on January 26 will be on showcasing indigenous weapon systems and platforms. They will range from K-9 Vajra self-propelled artillery guns, Nag anti-tank guided missiles, BrahMos supersonic cruise missiles and Akash surface-to-air missiles to the 'Prachand' helicopter, which will take part in the flypast by 50 fighters, aircraft and choppers.

The flypast will also witness the first and last participation by the Russian-origin IL-38 anti-submarine warfare aircraft, which have now been replaced by the US-origin P-8I longrange patrol aircraft in the Navy. Aramane said a series of new events are being organised as part of R-Day celebrations, which include a military tattoo and a tribal dance festival on January 23-24 as well as 'Veer Gatha' and 'Vande Bharatam', to showcase the nation's cultural diversity, digital India and the rise of the start-up ecosystem.

The drone show will be one of the main attractions when it lights up the evening sky over the Rasina Hills, weaving myriad forms of national figures and events through smooth synchronisation. "The show depicts the success of the start-up ecosystem, technological prowess of the country's youth and paves the way for future path-breaking trends. For the first time, a 3D anamorphic projection will also be organised during the Beating Retreat on the façades of the North and South Blocks," an official said.

<https://timesofindia.indiatimes.com/city/delhi/republic-day-celebrations-biggest-drone-show-this-time-at-beating-retreat/articleshow/97101279.cms>

R-Day: Navy's Vintage IL38 SD Aircraft to Join Flypast for First and Last Time; Event to See 45,000 Spectators

For the first and last time, the Navy's vintage IL38 SD will fly overhead Kartavya Path—earlier known as Rajpath—as part of a 50 aircraft-strong flypast on Republic Day, the IAF said Wednesday. Inducted in the late 1970s, the IL38 SD had played a critical role in the Navy's long-range maritime reconnaissance missions and had long-range submarine search and strike, anti-shiping strike, electronic signal intelligence and distant search and rescue capabilities.

The Navy had inducted five IL38SD aircraft, but only two of them are operational now and they are on the verge of retirement. Two of these aircraft were lost and 17 personnel were killed in a 2002 mid-air collision during the naval air squadron's silver jubilee celebrations. In January last year, the first IL38 SD aircraft of the Navy was decommissioned after 44 years of active military flying. As per the Navy, the aircraft had clocked 10,000 hours of operational flying and remained fully serviceable till the day it retired and even flew a sortie on that day. The Republic Day flypast will see the modern Rafale fighter jets as well as the vintage Dakota, which was the first major transport aircraft inducted into the Indian Air Force (in 1946) and participated in the wars with Pakistan in 1947-48 and in 1971, the IAF said during a press preview of the force's contingent at the January 26 parade. No single-engine fighter jet is participating in the flypast.

“While the Rafale jets will fly in three separate formations, the Dakota will be flanked by two Dornier 228 in a Vic formation. The 50-aircraft strong flypast will include 23 fighter aircraft, 18 helicopters and eight transport aircraft alongside the Dakota,” Wing Commander Indranil Nandi said. Others participating in the flypast across 13 different formations include the indigenous light combat helicopter, advanced light helicopter Mark IV, Mi-17 V5 and the Su-30s, MiG-29s, Jaguars as well as the C-130 and C-17, which are transport aircraft.

The IAF's marching contingent in the Republic Day parade will be led by Squadron Leader Sindhu Reddy and the air force band contingent comprising 72 musicians and three drum majors will play popular martial tunes including Sound Barrier and Ladakoo. The theme of the IAF's tableau this year is the Indian Air Force: Power Beyond Boundaries, which will have the airborne early warning and control aircraft Netra, LCA Tejas MK II, the LCH Prachand, the Airbus C-295 aircraft among the elements displayed. While the Army is yet to reveal its tableau theme, the Navy's tableau will highlight Nari Shakti in the force.

Overall, 23 tableaux—17 from the states and Union Territories and six from various ministries or departments will participate in the Republic Day event. As many as 120 musicians of the IAF will participate in the Beating Retreat ceremony, which officials said will include completely Indian tunes, such as those based on Indian classical music. Last year, the traditional hymn “Abide With Me ” was dropped for the first time since 1950 and was replaced by the patriotic Hindi song “Ae Mere WatanKe Logon”. The January 26 event will begin with a homage

ceremony at the National War Memorial and subsequently, the event at Kartavya Path will begin with the unfurling of the national flag and presenting of the national salute to the President of India. The President would be assisted by the IAF's Flight Lieutenant Komal Rani. The Republic Day celebrations also include cultural performances by children; acrobatic motorcycle rides and a flypast, besides the Beating Retreat ceremony at the Vijay Chowk and the NCC rally.

Addressing the media separately Wednesday, defence secretary Giridhar Aramane said the week-long celebrations would start on January 23—the birth anniversary of Netaji Subhas Chandra Bose—and culminate on January 30, which is observed as Martyrs' Day. The celebrations will be a tribute to Indian National Army veterans and other people and tribal communities which participated in the freedom movement. The new events that will be organised as part of the Republic Day celebrations this year include a military tattoo & tribal dance festival with its grand finale featuring Kailash Kher, Veer Gatha 2.0; the second edition of the Vande Bharatam dance competition; performances of military and Coast Guard bands at the National War Memorial; an all-India school band competition at the memorial, a drone show comprising 3,500 indigenous drones and projection mapping during the Beating Retreat ceremony.

Additionally, Bharat Parv will be organised at Gyan Path in front of the Red Fort showcasing Republic Day tableaux, performances by the military bands, cultural performances, pan-India food courts and a crafts bazaar. There will be a total of 45,000 spectators to the Republic Day event this year, as compared to over a lakh in pre-Covid 19 years. The physical invitation cards for guests and spectators have been replaced by e-invitations, the defence ministry said. India has invited Egyptian President Abdel Fattah Al Sisi as the chief guest for the Republic Day celebrations.

<https://indianexpress.com/article/india/r-day-navy-vintage-il38-sd-aircraft-flypast-8390322/>



Wed, 18 Jan 2023

Indian Army Keen to Procure Pitbull RCWS

Shahar Gal, the CEO of General Robotics, told Janes that the Indian Army and the Indian Navy are “willing to procure the company's Pitbull RCWS”. Gal added that the company is analysing production opportunities under Make in India (MII) provisions.

Pitbull is an ultra-lightweight RCWS designed for armoured vehicles and unmanned platforms and can be controlled from within the vehicle or from a remote location. Pitbull weighs around 85 kg without weapons and ammunition. The system can be equipped with either a 5.56 mm, a 7.62 mm, or a 12.7 mm machine gun. The system weighs around 110 kg when fitted with an M240 machine gun with ammunition and 150 kg when equipped with an M2 machine gun with 200 rounds of ammunition.

The RCWS utilises artificial intelligence (AI), enabling it to autonomously detect, track, and estimate the predicted positions of threats using its Target Prediction Algorithm (TPA). The system can also determine the optimum time to engage a target, increasing its efficiency and accuracy, the company said.

Pitbull integrates a drone jammer that blocks several frequencies simultaneously to disrupt the drones, command, and Global Positioning System (GPS) signals.

Gal earlier told Janes that the Pitbull RCWS could detect small unmanned aircraft systems (UASs) at ranges of up to 1 km, although it has been designed to integrate radars that can detect threats at up to 5 km.

Gal also highlighted Pitbull's ability to mount soft- and hard-kill effectors. He noted that besides jamming UAS threats, there have been advances in hard-kill methods, with one example being the use of AI technology to perform predictive analysis for targeting.

In October 2022, General Robotics launched a naval version of Pitbull RCWS known as Shark. Shark is designed for small manned and unmanned naval vessels. The naval RCWS can integrate all machine guns up to .50 calibre, the company said.

Shark can also be controlled from a remote location, and is capable of striking targets up to Sea State 3 (wave height of 0.5–1.25 m). Shark can be configured as a standalone system or integrated with other sensors onboard, Janes earlier reported.

<https://www.janes.com/defence-news/news-detail/indian-army-keen-to-procure-pitbull-rcws>



Wed, 18 Jan 2023

India Gives 2 Sea Ambulances to Maldives, Unveils Aid for Development Projects

India handed over two sea ambulances to the Maldives on Wednesday even as the two sides signed three agreements for cooperation in infrastructure and education, with external affairs minister S Jaishankar saying the countries are responsible for ensuring peace and security in the region.

The sea ambulances, or special boats for transporting patients between islands in emergency situations, were acquired with Indian grant assistance of more than \$400,000 for the Maldives' defence ministry as part of efforts to strengthen the healthcare delivery system. The Indian Ocean archipelago has been one of the main beneficiaries of India's "Neighbourhood First" policy.

"We are good neighbours, we are strong partners, we are mutually invested in develop and progress but we also together have a responsibility for peace and security in the region," Jaishankar said at a media interaction with his Maldivian counterpart Abdulla Shahid in Manadhoo island.

"Our security partnership also continues to strengthen. India is always willing to meet the requirements and needs of the Maldives, both for itself and for the larger region," he added.

Shahid referred to aid provided by India amid the Covid-19 pandemic, including a grant of 200,000 vaccine doses and uninterrupted supply of essential commodities, and said these actions proved the Maldives "can always rely on India". He described bilateral relations as

“inextricable” and said the Maldives is committed to enhancing ties and cooperation under its “India First” policy.

He added that the two sides are implementing defence projects under an Indian line of credit of \$50 million.

The three memorandums of understanding (MoUs) finalised by the two sides cover the second phase of Indian grant assistance for high impact community projects worth 100 million Maldives Rufiyaa, the development of a sports complex, and academic cooperation between Maldives National University and Cochin University of Science and Technology.

Jaishankar emphasised that India-backed projects adhere to the basic tenets of transparency, full participation and ownership of the host country and competitive pricing. Though he didn’t name any other country, the remarks were perceived as a reference to Chinese projects that have resulted in several countries in the region facing pressure in terms of external debt.

“The partnership with India has made a real difference to the lives of people. My visit was an opportunity to see tangible results,” Jaishankar said in a tweet.

<https://www.hindustantimes.com/india-news/india-gives-2-sea-ambulances-to-maldives-unveils-aid-for-development-projects-101674054792758.html>



Thu, 19 Jan 2023

With Focus on Counter-Terrorism, Defence, India and Oman Hold Strategic Dialogue in Delhi

India and Oman on Wednesday held the eighth strategic dialogue in Delhi which was led by India's Deputy National Security Adviser Vikram Misri and Oman's Secretary General of the National Security Council Major General Idris Abdulrahman Al-Kindi. The last strategic dialogue was held in Muscat in January 2020.

During the talks, both sides focused on strategic and security cooperation, defence and counter-terrorism. On counter-terrorism, the key focus of the conversation was on the expansion of terrorist propaganda, misuse of new and emerging technologies, fundraising and disinformation and are keen to work with each other on collective and coordinated response.

Another key aspect of the conversation was on preserving maritime safety and security in the region. Oman and India are maritime neighbours, sharing the coastline with the Arabian Sea. In the past few years, both countries have cooperated in ensuring maritime security in the Indian Ocean region. As part of the cooperation, the first meeting of the Joint Maritime Committee took place on 23 February 2022 virtually.

Major General Idris Abdulrahman Al-Kindi also called on National Security Adviser Ajit Doval. This is the first visit by Al-Kindi to India after his appointment as the Secretary General of the NSC of Oman and was in India from January 16 to 19. The ninth Strategic Dialogue between the two sides will take place in 2024.

The visit of Oman's Secretary General of NSC is part of increased high-level engagement between the two sides. Minister of State for External Affairs and Parliamentary Affairs V Muraleedharan visited Oman in October 2022, while Oman's commerce minister Qais bin Mohammed al Yousef and foreign minister Sayyid Badr bin Hamad visited India the same year.

New Delhi has extended an invitation to Oman to participate in the G20 Summit and meetings as a guest country during its ongoing presidency of the grouping.

<https://www.wionews.com/india-news/with-focus-on-counter-terrorism-defence-india-and-oman-hold-strategic-dialogue-in-delhi-553971/amp>



Wed, 18 Jan 2023

Strengthening India-Japan Defence Cooperation: A Look Beyond Quad

In recent years, New Delhi and Tokyo have intensified their aspirations to assume a greater role in providing security for the Indo-Pacific region. In this regard, deepening defence cooperation between the two is a natural continuation of their already growing bilateral relations. **India** and Japan are holding their maiden joint air exercise, Veer Guardian 2023 from 12 to 26 January, which seeks to promote air defence cooperation between the two sides.

The Indo-Pacific region is facing myriad challenges, majorly due to a shifting balance of power and increasing uncertainty about what the future world order looks like. This has led to various nations stepping up their security strategies and defence cooperation. One such nation is Japan.

Veering away from its pacifist constitution, Japan recently unveiled its National Security Strategy (NSS) which calls for boosting defence spending in the face of growing threats from regional rivals. Japan declared in its NSS, which was announced alongside the Security Strategy, that it wants to promote training and exercises, as well as defence equipment and technology collaboration with India. In this context, it is critical to examine where the two countries fit in each other's strategic vision.

Veer Guardian 2023: Maiden Indo-Japan Air Combat Exercise

On 8 September 2022, India and Japan agreed to increase bilateral defence cooperation and conduct additional military exercises at the second 2+2 Foreign and Defence Ministerial meeting in Tokyo, Japan. As a result, India and Japan are carrying out their first air exercise, *Veer Guardian 2023*. The name alludes to "Exercise Dharma Guardian," a bilateral exercise undertaken by the Indian Army and the Japanese Ground Self-Defence Force.

The 15-day-long bilateral exercise, Veer Guardian 2023, is taking place at the Hyakuri Air Base in Japan and involves featuring several aerial combat drills between the Indian Air Force (IAF) and the Japan Air Self-Defence Force (JASDF). According to the IAF, they are conducting multi-domain air combat missions in a complicated environment and sharing best practices. Squadron Leader Avni Chaturvedi, India's first female fighter pilot, will also be taking part in

the exercise, which makes her IAF's first female officer to take part in an international war game held outside of the country.

While the navy and army of both nations regularly participate in bilateral exercises, particularly JIMEX and Dharma Guardian, as well as the Malabar and MILAN naval exercises, Veer Guardian 2023 will be the first bilateral exercise of both nations' air force. According to the IAF, Veer Guardian would strengthen the two air forces' long-standing partnership and expand areas of defence cooperation. It will be another step toward deeper strategic ties and closer defence collaboration between the two countries.

A look beyond Quad

With the advent of new players, growing power imbalances, and the resulting challenges to regional security, the Indo-Pacific geopolitical landscape has undergone remarkable changes. An aggressively rising China has resulted in a convoluted regional security environment, resulting in a dramatic turnaround in major power relations, particularly India-Japan relations. As great power conflict in the region intensifies, India and Japan, along with the United States and Australia, have come closer in an effort to construct a new security architecture. This has manifested itself in the form of Quad.

However, the Indo-Japan security relationship extends much beyond Quad. Since the release of the India-Japan Joint Declaration on Security Cooperation in 2008, both countries have achieved tremendous progress in encouraging joint efforts toward shared security. India and Japan have been cooperating on defence technology since 2014-15, when the Joint Working Group on Defence Equipment and Technology Cooperation (JWG-DETC) was established. It aimed to offer a continuous leadership focus to the bilateral defence trade partnership and to promote prospects for defence equipment co-production and development. Both countries reached an understanding in 2015 on two major security agreements focussing on security measures for the protection of classified military information and the transfer of defence equipment and technology. In September 2017, India and Japan held their first-ever Defense Industry Forum.

2019 marked a major breakthrough in bilateral relations between the two countries, particularly in the defence sector. They agreed to conduct a 2+2 ministerial dialogue with their respective defence and foreign ministries. Japan was only the second country with whom India had such a high level of engagement, after the US.

In 2020, the two countries deepened their maritime security cooperation by signing a Mutual Logistics and Supply Agreement (MLSA), which granted access to each other's bases and a multitude of related supplies. The two nations held their second 2+2 ministerial dialogue in Tokyo in 2022. According to the Indian EAM, the 2+2 Foreign and Defence Ministerial meeting underlines India's commitment to enhancing bilateral security and defence cooperation between the two Asian nations. India and Japan also hold a number of policy dialogues aimed at improving defence cooperation. In addition to the Annual Defence Ministerial Dialogue, the two countries hold a National Security Advisers' Dialogue and a Defence Policy Dialogue.

Bharat Electronics Ltd (BEL), a defence PSU, is in talks with two Japanese businesses, Toshiba Corporation for Li-Ion battery technology and Jupiter Corporation for the supply of Anti-Drone Systems. If successful, this will provide the Indo-Japan defence cooperation a considerable boost. With the publication of Japan's 2022 National Defence Strategy, it is expected that bilateral and multilateral defence relations with India will be strengthened even further. Service-

to-service exchanges will take place in a variety of domains, including maritime security and cyber security. Japan's intention to enhance training and exercises, as well as defence equipment and technology cooperation with India, is also expressed in its 2022 National Defence Strategy.

What does the future look like?

India's ties with Japan have grown substantially in the recent decade, yet there are still many untapped avenues in this relationship. To offset China's growing influence in strategic infrastructure, India and Japan unveiled the Asia-Africa Growth Corridor (AAGC) at the African Development Bank Summit's 52nd Annual Meeting in May 2017. However, there is little evidence of progress.

The ShinMaywa US-2 Amphibian aircraft sale is one of the biggest points of stalemate in Indo-Japan defence ties. While significant progress was made during the 2020 DefExpo, the deal's future remains questionable. In addition, the Reciprocal Access Agreement that Japan has with nations like Australia is much more comprehensive than the Indo-Japanese Mutual Logistics and Supply Agreement (MLSA), which is much narrower in scope than the Reciprocal Access Agreement.

Despite the fact that there is still room for improvement, both parties have demonstrated the awareness and willingness necessary to further strengthen their defence cooperation. Deepening defence exchanges, expanding maritime cooperation, especially Maritime Domain Awareness (MDA), and increasing defence equipment and technological collaboration were all key themes of Indian Defence Minister Rajnath Singh's address at the 2022 2+2 Dialogue.

Satoshi Suzuki, Japan's Ambassador to India, stated that Japan can assist India in developing an indigenous fifth-generation stealth aircraft as well as future-generation naval vessels and submarines. Such a commitment is expected to open up new avenues of collaborative development in defence technologies in the future. Defence and security cooperation is an important component of India's strategic engagement with Japan, which has grown since 2015 owing to increased political and bureaucratic dialogue and military personnel exchanges.

While the late Japanese Prime Minister Abe Shinzo was a driving force in strengthening the India-Japan relationship, there is a growing consensus among international experts that the relations will be sustained with the same fervour under future administrations.

<https://www.news18.com/amp/news/opinion/strengthening-india-japan-defence-cooperation-a-look-beyond-quad-6860149.html>



Wed, 18 Jan 2023

Pakistan may Lose Major Non-Nato Ally Status After US Lawmaker Moves Bill in House

In a fresh headache for Prime Minister Shehbaz Sharif, Pakistan may lose its major non-Nato ally status after a bill was moved in the US House of Representatives to terminate the

designation. The bill (HR 80) was introduced by Congressman Andy Biggs, who represents the fifth Congressional district of Arizona, reported PTI.

The bill has been sent to the House Foreign Affairs Committee for necessary actions. It needs to be passed by the House and the Senate before it can be signed into law by the US President.

As a major non-Nato ally, Pakistan enjoys several perks, such as access to excess US defence supplies and eligibility for loans of materials, supplies or equipment for cooperative research, development, testing, or evaluation purposes, news agency ANI reported.

Should this bill fructify, it would not only be a major embarrassment for Pakistan, but it would also lose key privileges at a time when its economy is in the doldrums.

For any further continuation of Pakistan's designation as a major non-Nato ally, the bill asks the US president to issue a certification that the country has shown progress in arresting and prosecuting Haqqani Network senior leaders and mid-level operatives and has taken steps to demonstrate its commitment to prevent the Haqqani Network from using any Pakistani territory as a safe haven.

<https://www.indiatoday.in/world/story/pakistan-may-lose-non-nato-ally-status-after-us-lawmaker-moves-bill-in-house-2323143-2023-01-18>



Wed, 18 Jan 2023

"Many Nations Bought Soviet-Era Equipment...": US on India Defence Ties

India is a "great example" of countries who are choosing security assistance from the US, the Pentagon has said, underlining that it was ready for any response to wean them away from Russia. Pentagon spokesperson Pat Ryder also said the US understands that some countries that bought Russian or Soviet-era weapons want to maintain some type of relationship with Moscow. "There are a lot of countries that maintain a security or defence relationship with Russia. Again, that's a sovereign decision for individual countries to make," he said on Tuesday at a media briefing in Washington.

Ryder made these remarks when asked if there is no concern if information or technology that the US might share with them will be shared with Russia. "Many of those nations have in the past purchased Russian-built or Soviet-era equipment. So it stands to reason that they may maintain some type of relationship. From a security cooperation standpoint, certainly from the US perspective, I think that the types of security assistance the United States provides to include capabilities is much more dependable and also maintained," he added.

"And something that we continue to discuss with various partners and allies around the world on would they -- should they choose to purchase those kinds of systems, we're certainly all ears. India is a great example," Ryder said. In 1997, defence trade between India and the US was almost negligible, today it stands above USD 20 billion. India has faced flak from US

lawmakers, both Republicans and Democrats, for choosing to abstain from a UN vote to rebuke Russia's invasion of Ukraine.

US officials have expressed concern over India's purchase of the S-400 missile systems by Russia. In October 2018, India signed a USD 5 billion deal with Russia to buy five units of the S-400 Triumf air defence missile systems to ramp up its air defence, despite a warning from the then-Trump administration that going ahead with the contract may invite US sanctions. Despite strong objections from the US and the threat of sanctions from the Biden administration, India has refused to make any changes in its decision and is going ahead with the purchase of the missile defence system. India pursues an independent foreign policy and its defence acquisitions are guided by its national security interests, the Ministry of External Affairs said in November 2021.

<https://webcache.googleusercontent.com/search?q=cache:l-gNuDglvKsJ:https://www.ndtv.com/india-news/many-nations-purchase>

THE ECONOMIC TIMES

Wed, 18 Jan 2023

'Red General': Germany's 'Brash' New Defence Chief

Boris Pistorius, Germany's incoming defence minister, is an unknown on the world stage but an experienced politician with credentials in security and a history of straight talking. Pistorius, 62, from Chancellor Olaf Scholz's Social Democrats (SPD), will graduate to the job from his current post as interior minister in Lower Saxony state, which he has held since 2013. Der Spiegel magazine called his appointment "a real surprise" and nicknamed him the "red general" for the colour of the SPD and his hard-charging style.

It described him as a "sharp-tongued" official who has "repeatedly made his mark on domestic policy", especially through much-lauded efforts to reform the police in his state. "Pistorius is considered impatient, occasionally comes across as brash and can sometimes barely conceal it when he is annoyed with others," public broadcaster NDR wrote of him in September. However, NDR also praised his ability to "get the job done", while also looking beyond regional concerns "to Europe and to federal politics". In May last year, Pistorius was forthright about Ukraine's right to recapture territories taken by Russia, putting him at odds with many other Social Democrats who had been reluctant to endorse a counter-offensive.

- 'Well-connected' - "The recapture of occupied territories is legitimate and completely correct and must also be supported by us. Ukraine must win the war," he told the TV show "Beisenherz". But he was also critical of calls to destabilise Russia, adding: "There will have to come a time after the war... when we in Europe will be able get along with Russia, in whatever form." And he was facing accusations from opposition politicians for being too "pro-Kremlin" over comments he made in 2018, in which he questioned sanctions on Russia.

On Tuesday he defended his remarks, telling top tabloid Bild that he did not "criticise the sanctions themselves or their goal, but like many others questioned their effectiveness". "Today's sanctions cannot be compared to the sanctions from back then, and they do work, as we

know." Born in the northern city of Osnabrueck, Pistorius studied law and worked as an attorney before entering politics in the 1990s, eventually becoming mayor of his hometown.

In Lower Saxony, Pistorius has gained a reputation for his work in renewing the police force and boosting it to combat extremism. Der Spiegel noted that he is "the most visible" of the state interior ministers, and is "well connected with the security authorities". He had previously been rumoured to be in the running for the post of federal interior minister, which looks set to be vacated later this year by current postholder Nancy Faeser. Pistorius is an adaptable politician who has proven several times that he can "communicate robustly", Thomas Jaeger, a political scientist at the University of Cologne, told news broadcaster NTV. Pistorius completed his own compulsory military service in the early 1980s, going on to membership of the defence committee in the Bundesrat upper house of parliament. He is still a member of the reserve force. He has two daughters and was widowed in 2015 when his wife died of cancer.

<https://economictimes.indiatimes.com/news/defence/ukraine-army-chief-top-us-general-meet-for-the-first-time/articleshow/97094008.cms>



Wed, 18 Jan 2023

Ukraine Closer to Receiving Modern Western Battle Tanks, More Patriots

Ukraine has taken a step closer to winning approval for German-made modern battle tanks to confront invading Russian forces and has secured a pledge of more Patriot defence missiles as its allies appear ready to rally for the next phase of the war. Ukraine has relied primarily on Soviet-era T-72 tank variants. Germany's Leopard 2 tank, operated by armies in about 20 countries, is regarded as one of the West's best. The tank weighs more than 60 tons, has a 120mm smoothbore gun and can hit targets at a distance of up to five km.

Ukraine says the tanks would give its troops the mobile firepower to drive Russian troops out in decisive battles. Germany has been the West's biggest holdout on pledging tanks but a Cabinet minister said on Tuesday the issue would be the first to be decided by new defence minister Boris Pistorius. He will host U.S. Defense Secretary Lloyd Austin on Thursday ahead of a meeting on Friday of dozens of defence ministers at Ramstein air base in Germany.

Western countries have provided a steady supply of weapons to Ukraine since Russia invaded last Feb. 24 in what it calls a "special military operation" to protect its security because its neighbour grew increasingly close to the West. Ukraine and its allies accuse Moscow of an unprovoked war to grab territory and to erase the independence of a fellow ex-Soviet republic. The allies must intensify their military support to Ukraine to help them break a hardening of the front lines and avoid a prolonged battle of attrition, Britain's foreign minister, James Cleverly, said on a visit to Washington on Tuesday.

"What we see when you have these kind of brutal, attritional conflicts is this huge loss of life. And that cannot be what any of us want to see - which is why we think that now is the right time to intensify our support for Ukraine," Cleverly told a small group of reporters. Also in

Washington, Prime Minister Mark Rutte of the Netherlands told U.S. President Joe Biden of Dutch plans to offer the U.S.-made Patriot missile defence system to Ukraine, working together with Germany amid a barrage of missile attacks from Russia. Last month, Washington announced additional military aid for Ukraine, including the transfer of a Patriot system, considered one of the most advanced U.S. air defence systems that offers protection against aircraft, cruise and ballistic missiles.

Dnipro toll rises to 45

The civilian death toll from a missile that struck an apartment block in the central city of Dnipro on Saturday rose to 45, including six children, among them an 11-month-old boy, Ukrainian President Volodymyr Zelenskyy said in his Tuesday night video address. "It is now merely a matter of time before we drive the occupants from our land, before justice returns, and before the sentences for Russian murderers are announced," Zelenskyy said. Ukrainian authorities called off the search for survivors in Dnipro on Tuesday. Zelenskyy is to speak on Wednesday to the World Economic Forum in Davos, Switzerland.

Meanwhile, the General Staff of the Ukrainian Armed Forces on Tuesday evening said Ukrainian and Russian forces exchanged fire on the eastern frontline, where neither side has advanced much in recent months. Russian forces launched four missile strikes, including two on civilian targets in the city of Kramatorsk in Donetsk region, west of the two focal points of fighting, the towns of Bakhmut and Avdiivka, the military's report said. Russian forces also launched 13 air raids and 23 shelling attacks from multiple rocket launchers, it said. Reuters was not able to verify battlefield reports.

Russian President Vladimir Putin is due to visit St Petersburg on Wednesday, the 80th anniversary of the day Soviet forces managed to open a narrow land corridor to the city - then known as Leningrad - and break a Nazi blockade that had lasted since September 1941. Kremlin spokesman Dmitry Peskov told a domestic news agency that there was no truth to rumours Putin would announce changes to the war effort such as a general mobilisation.

<https://www.thehindu.com/news/international/ukraine-closer-to-receiving-modern-western-battle-tanks-more-patriots/article66396357.ece/amp/>



Wed, 18 Jan 2023

NATO Chiefs of Defence Meet in Brussels

The Chair of the NATO Military Committee, Admiral Rob Bauer, and the NATO Deputy Secretary General, Mr. Mircea Geoană, opened the first meeting of the NATO Military Committee in Chiefs of Defence Session of 2023 on Wednesday 18 January 2023. This meeting brings together the Allied Chiefs of Defence and their counterparts from Invitees Finland and Sweden. The Military Committee will discuss the strengthening of the Defence and Deterrence posture of the Alliance by increasing readiness, developing capabilities and interlinking national and NATO military planning more closely than ever. The Chiefs of Defence will also discuss the

military situation in and around Ukraine. Tomorrow, sessions will include NATO's Operational Partners to discuss the NATO Mission in Iraq and the Kosovo Force Mission.

In his opening remarks, Admiral Bauer referred to the degraded global security environment caused by Russia's war of aggression against Ukraine. Bauer: "Unfortunately, we are seeing the dawn of a new era of collective defense. However, it is an era that NATO is ready for. We have shown the world that we are capable of quickly scaling up our presence whenever and wherever necessary. " The Deputy Secretary General stressed that NATO "must retain the military capacity and capability to defend the Alliance against all challenges, now and in the future, including in multi-domain operations." He further identified three areas of important work in the run up to the next Summit set to take place in Vilnius later this year: investing more in defence, ramping up production of weapons and ammunition, and transforming NATO for the digital age.

https://www.nato.int/cps/en/natohq/news_210690.htm

Naval Technology

Wed, 18 Jan 2023

Intruder Defence 'Passive Listening' Saves Lives in Seabed Warfare

Seabed warfare has come into sharp focus in the last twelve months, with several major interruptions to the security of seabed infrastructure, the most notorious being the as yet unattributed intruder attack to the Nord Stream pipeline.

Such deep-sea operations are hard to carry out, not only because of a myriad of factors derived from the great distances being traversed and the intense underwater pressure, but also because they are difficult to complete covertly and without notice, says IosebaTena, commercial director at global maritime defence company Forcys. "If you're running an operation in the middle of the Atlantic, at a significant depth, it's a lot harder. There's a footprint and a presence you're going to generate in order to carry out a mission. It's very hard to do that covertly."

An alternative vector of attack comes through the littoral environment, the home of most seabed infrastructure, rich with refineries and power stations, cables and pipelines. Even infrastructure that spans the ocean will make its way through the shallows at some point, and it is here that they are most vulnerable to expeditionary forces seeking to interfere with a state's energy or communications networks.

Intruder detection on the seafloor

Representing a new advancement in seabed warfare protection, Forcys has developed a subsea intruder detection system, typically deployed in the littoral environment, designed to alert the operator to threats that would otherwise go unobserved, that has demonstrated success against both uncrewed underwater vessels (UUV) and divers trained to avoid detection.

The underwater environment has a lot of background noise that makes targets hard to detect and challenging to follow after detection. For conventional sonar detection systems, tracking a UUV

presents a special challenge because of their small profile and the speed they travel at. Spotting a diver looking to target marine infrastructure is also a fraught with obstacles: even under normal circumstances they are very difficult to detect because of their small size, but this difficulty is heightened by the shrewd tactics special forces employ on such sorties.

Tena offers as an example, the capacity for divers to elude sonar detection by hugging close to a harbour wall and staying still. “Traditionally, when you’re playing around with these systems, divers that will try and play games. So, they’ll play those games where they stop next to a wall, and you can’t see them again until they start swimming towards you again.”

Forcys has developed technology that couples sonar detection methods with sensors that listen for the natural sound signature of its target. “One of the things that we noticed,” says Tena, “is that if you start to evaluate that passive signature at that frequency of a contact, you can start to tell apart those contacts from the background.”

For UUVs this means listening for the mechanical components acting within the vessel; for divers the intruder detection system listens for the sound of the rebreather apparatus. “What we’re able to do now is track them, and then use the passive component to keep that bearing while they stop.”

It is a misnomer to call these emissions ‘natural sound’ as the frequencies being detected are inaudible to the human ear, but the signal is distinct from normal sonar detection because the system is not relying on use of sonar to locate threats. The intruder detection system is truly utilising sound created by the adversary. However, this leap forward in protection is due to a combination of both the audio detection and a sonar component. “In effect,” says Tena, “what it’s doing is to say: at this bearing, there is somebody breathing.”

The intruder detection system that Forcys has developed is a 35kg unit emitting a 70 kilohertz sonar and a passive listening sensor at 72 kilohertz. “It’s a really delicate microphone, to be fair,” adds Tena. When stationed on the seafloor they can sit at rest for two weeks before being raised for cleaning and maintenance, when they are then ready for redeployment, at the same site, or elsewhere.

Although the system has been used as a defence against intrusion, it has applications for expeditionary sorties, mounted upside-down on a tripod from a battery-operated topside vessel. “We’ve had clients tell us that we’ve said they save their lives, but that’s as much as we can share on that.”

<https://www.naval-technology.com/interviews/intruder-defence-passive-listening-saves-lives-in-seabed-warfare/>



Wed, 18 Jan 2023

Northrop Grumman Developing New AESA Radar for F-35

Engineers at Northrop Grumman are developing a new advanced active electronically scanned array (AESA) radar for the F-35 Lightning II, which company officials say will be compatible with all variants of the advanced stealth fighter jet. Work within the company's electronic systems

directorate is ongoing on the AN/APG-85, which will replace the current AN/APG-81 AESA fire-control radar employed aboard the F-35, according to an 11 January Northrop Grumman statement. The system's development will “be capable of defeating current and projected adversarial air and surface threats ... [and] incorporate some of the latest technologies available and help ensure air superiority” for the US armed forces and allied forces fielding the F-35, company officials added in the statement.

A Northrop Grumman spokesperson declined queries by *Janes*, requesting information on the radar's ongoing development, projected capabilities, and whether the new AESA platform will be made available to partner countries in the Joint Strike Fighter (JSF) consortium. Northrop Grumman is also the prime manufacturer for the current AN/APG-81 AESA system.

The AN/APG-81 radar is based on the AN/APG-68 and AN/APG-77 ASEA variants and features 12 air-to-air modes and 12 air-to-ground modes – which include maritime modes for tracking sea-based targets and support search-and-rescue operations – four electronic warfare (EW) modes and four navigation and weather modes. The most recent variant, the Block 4 version, includes three new electronic protection packages for the EW modes, focused on defending electromagnetic spectrum operations (EMSO) emanating from land, sea, or air domains.

<https://www.janes.com/defence-news/news-detail/northrop-grumman-developing-new-aesa-radar-for-f-35>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Wed, 18 Jan 2023

Union Minister Dr Jitendra Singh Says, The Start-Up Conclave at IISF, Bhopal will Showcase 300 Deep Tech Success Stories with Tech-Innovative Products and Technologies in the Areas of Health, Agriculture, Industrial Technology, IT, Mobility and Education

The Minister reviews the preparedness of IISF to be held from 21st to 24th January, 2023 at the joint meeting of six Science Ministries and departments in New Delhi

The Start-up conclave in Bhopal will have exhibits by enablers offering incubation services and shared infrastructure and guidance on forming start-up

Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh today said, the StartUp Conclave at India International Science Festival (IISF)-2022 at Bhopal will showcase 300 DeepTech success stories with tech innovative products and technologies in the areas of Health, Agriculture, Industrial Technology, IT, Mobility and Education. At a joint meeting of six Science Ministries and departments, including Science & Technology, Biotechnology, CSIR, Earth Sciences, Space and Atomic Energy, Dr Jitendra Singh reviewed the preparedness of IISF Bhopal to be held from 21st to 24th January, 2023 and emphasised integrated Start-Ups and integrated R&D.

Dr Jitendra Singh was pleased to note that the Start-Up ecosystem in India has gathered momentum since Prime Minister Narendra Modi unfurled the national flag at the Red Fort in 2015 and gave the slogan of Start-Up India Stand-Up India, thus unveiling a new vision for the country's economy. He said, from 350 odd start-ups in 2014, the number swelled to 75,000 in August, 2022 and only in a few months, the number of Start-Ups climbed up from 75,000 to 88,000 spread across 653 districts of the country. The burgeoning sector has generated more than nine lakh job opportunities, he added

The Minister said, India is also home to 107 Unicorns (companies that reach a valuation of \$1 billion without being listed on the stock market) and 23 of them emerged in 2022 itself. He said, as per International Data, till November 2022, the US leads the start-up industry globally with 704 unicorns, followed by China, which had 243 unicorns, and India is catching up very fast. Dr Jitendra Singh said, the Start-Up conclave in Bhopal will have exhibits by enablers offering incubation services and shared infrastructure and there will be focused discussions for start-ups, enablers and stakeholders for peer-to-peer learning, networking and sharing best practices. He said, guidance on forming start-up and availing enabling opportunities under Start-Up India will also be provided at the venue.

Some of the important Prime Speakers and Experts who are taking part in IISF, Bhopal are Dr. Krishna Ella, CMD, Bharat Biotech, Dr. Archana Sharma, CERN, Geneva, Shri S. Somanath, Chairman, ISRO, Sh. Anand Deshpande, Founder & CMD Persistent Systems, Prof. A. P. Dimri, Director, DST-IIG, Dr. Anil Bhardwaj, Director, PRL, Prof. Amitava Patra, Director, INST Mohali, Prof. Tapas Chakraborty, Director IACS. Face-to-Face with New Frontiers in Science will be a platform for cordial interaction and short discussion-based sessions of students/researchers with people par excellence in various disciplines of S&T. This will certainly inspire students to pursue science and research in his/her career.

Dr. Krishna Ella, CMD, Bharat Biotech, will lead the session titled "Powering AtmaNirbhar Bharat through Science and Entrepreneurship", while Sh. Anand Deshpande, Founder & CMD Persistent Systems will Chair the Session on "Technological Advancements in Data Science and India's leadership in Digital Transformation". Dr. Archana Sharma, CERN, Geneva will be the Key Speaker on "Journey of a scientist in Unlocking secrets of the universe", while ISRO Chairman will Chair the Session on "Marching towards AmritKaal with Technological Strides in Frontiers of Space".

Young Scientist Conference will be organised from 22nd January to 24th January. This event is intended for young scientists, Researchers, Faculties and Science Innovators from National laboratories, Academic institutions and from Scientific Industry fraternity. The themes selected for the Young Scientist Conference are Frontier areas of Science Research, Pandemic

Challenges, impacts and research in vaccine development, Water resources, conservation, recycling and purification, Biodiversity, Environment & Climate Change, Food and Energy Security for Self-Reliant India. New Age technologies show (22-24 January) aims to promote innovation in cutting-edge technologies such as Artificial Intelligence Machine Learning, Cyber Security, Block Chain, Digital Currency Industry, 4.0, 5G/6G, Quantum Computing, Semiconductor Chip Design, Drone Technologies, Green Energies, Space Technologies, Sensor Technologies, Systems and Synthetic Biology.

There will be NATS Exhibition/ Innovation Showcase [100], where Students will showcase the engineered prototypes and products in various cutting-edge areas. The meeting was attended by Principal Scientific Advisor to the Government of India, Secretary, DST, Secretary D/o Space, Secretary, M/o Earth Sciences, Secretary, D/o Biotechnology, Secretary, DSIR and representatives and senior officials of other science departments.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1892014>



Wed, 18 Jan 2023

Indian Space Association Outlines Budget Recommendations for the Sector

The forthcoming Union Budget 2023-24 will be crucial for the emerging space industry. Given the government's impetus in promoting the private sector's participation in this segment, the budgetary allocations are seen as potential triggers to promote the space sector. In a major policy decision, taken in June 2020, the government opened the space industry to the private sector. Despite being one of a few spacefaring nations in the world, India accounts for only about 2% of the space economy which is currently valued at about \$ 360 billion.

The government also opened the Indian Space Research Organisation (ISRO)'s facilities to the private sector for testing, tracking and telemetry, launch pads, and laboratories. It aimed to enable the private space industry to climb the value chain. In 2021-22, the government allocated Rs 13,949.09 crore to the Department of Space out of which ₹5,720.46 crores has been under the Revenue Budget and the rest of ₹8,228.63 crore under the Capital Budget.

Building upon the mandate, the government also created various independent agencies under the Department of Space. The government defined its strategic roadmap for enhancing the role of Non-Government Entities (NGEs) in the space sector through hand-holding, tech support, and providing them with a level playing field. By opening ISRO's space infrastructure to private companies, the government laid the ground for developing satellite systems, and the launch of rockets and vehicles developed by the private sector. In a bid to further the cause of the sector, the Indian Space Association has outlined key policy recommendations. According to Lt General AK Bhatt (Retd.), Director General of the Indian Space Association (ISpA) these recommendations are aimed to put forward the suggestions received from the space industry.

Recommendations for the space sector

Production Linked Incentive (PLI) Scheme for the space industry – The space industry has strongly urged the government to include a production-linked incentive (PLI) scheme for space tech players in the upcoming budget. In the Union Budget 2021-22, the finance minister announced an outlay of INR 1.97 Lakh Crores for the Production-Linked Incentive (PLI) Schemes for 13 key sectors, to boost domestic manufacturing in sunrise and strategic sectors. While the PLI Scheme extends to electronics manufacturing on building a vibrant and robust electronic component manufacturing ecosystem for multiple sectors such as IT Hardware, LED Products, Automotive, Medical Devices, Solar Cells, Energy Storage, etc., the space-related activities do not fall under the scheme. Experts point out the anomalies as the space component is linked to telecom and electronic systems.

“The PLI scheme will promote research and development in India and provide incentives to entities engaged in the space sector,” says General Bhatt, adding that the space sector is all about the investment in new technology. Voicing a concern similar to ISpA, the SatCom Industry Association of India (SIA-India), whose members include AsiaSat, Dhruva Space, and others, has put forth a demand for the production-linked incentive (PLI) scheme for space tech players in the upcoming budget.

Financial support from Government through loans & grants and tax incentives – The space sector is capital intensive which requires heavy investment in the early stage of the development of satellite, and space-based equipment, including the launch mechanism. The industry suggests that the tax incentives for companies and organizations operating in the space sector may include reduced corporate tax rates, tax credits for research and development expenses, and other forms of financial support. General AK Bhatt further explained that the private space industry is still maturing at this stage and the incentive will drive the ecosystem. Bhatt further clarifies that the existing policies restrict such incentives for the first 10 years which is applicable to private players, including startups.

Most of the startups in the space domain are nearing 9-10 years so the new draft space policy must extend the benefits to the industry beyond the 10-year mark. Since the new space policy is in its final stages of development, the provision of tax exemption for startups should be continued till the time the incumbent policy is implemented.

Parity in treatment of capital gains for shares of unlisted companies– Considering that most space-tech companies in India are startups and access to capital is an issue, it would be beneficial to create parity in terms of the short-term capital gains tax rate and treatment with respect to listed and unlisted entities.

GST exemption for private satellite launch service providers – The GST exemption remains the focal point of policy recommendations. While the government has included it in the Draft Indian Space Policy 2022 for consideration, no decision is taken yet on this. “GST exemption for the provision of satellite launch services must be provided to all the parties who are in the process of providing such services,” Bhatt emphasized. This would result in the creation of a level playing ground for the entire industry. The government may also consider providing deductions or credits for companies that incur these costs as part of their operations in the space sector. These measures are aimed at encouraging employment generation and supporting the growth of private satellite launch service providers.

Space technology parks — General Bhatt also urges the government to set up space technology parks and form a group of experts for the use of the space ecosystem. “The development of a Space Technology Park (STP) ecosystem will create a thriving environment for commercial organizations of all sizes, including startups working on new space technology, and will allow the Indian government and industry to develop and improve products and services related to the space industry,” Bhatt says.

Exemption from angel tax—Considering that most space-tech companies in India are startups and access to capital is an issue, it would be beneficial to exempt them from the angel tax bracket altogether as part of its efforts to support the growth of the space industry in India. Overall, experts believe that if these measures are implemented, it could create a favourable environment for companies operating in the space domain and encourage investment, research, and development with the goal of making India a global hub to produce space-based products. With such strategic policy interventions, the Department of Space can further work towards tapping the immense potential of the private sector working in the space sector.

<https://www.financialexpress.com/defence/indian-space-association-outlines-budget-recommendations-for-the-sector/2951777/>



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Startups are Powering India's Space Odyssey 2.0

Dhruva Space founder Sanjay Nekkanti's obsession with satellites began early. It was 2008 and he was still in college. The country was basking in the success of Chandrayaan-1, India's first moon mission, which generated a lot of interest in the space programme, especially among students. The Indian Space Research Organisation (Isro) decided to tap into this frenzy and asked universities to encourage students to build satellites. It offered to deploy the student satellites in orbit for free.

Chennai's SRM University was among the earliest to take up this offer. Nekkanti, who was pursuing a bachelor's degree in electronics and telecommunication engineering, was drafted into the university team building the satellite, thanks to his unusual hobby, ham radio (amateur radio, involving two-way communication). After many challenges, the SRMSat, designed to address pollution by monitoring carbon dioxide and water vapour in the atmosphere, was ready in 2010. It was put into orbit by Isro's PSLV-C18 (Polar Satellite Launch Vehicle) in October 2011.

<https://www.livemint.com/companies/start-ups/indias-rocket-dreams-ready-for-a-liftoff/amp-11673969838215.html>

FinMin Deliberates Steps to Deal with Cyber Security Issues

The Finance Ministry on Wednesday deliberated on steps being taken to mitigate the threats of cyber security in the financial segment amid the growing digitisation of the sector. The symposium titled Financial Services Cyber Security (FINSCY) was organised by the Department of Financial Services (DFS) and Secretary Vivek Joshi inaugurated it, an official statement said. The symposium provided an opportunity for senior officers from government departments, and financial services sector regulators, as also senior executives and chief information security officers of banks and financial institutions to share their ideas, practices and concerns on cyber security measures, it noted.

It also discussed the readiness of the sector for future cyber threats and perspectives on the revised draft Digital Personal Data Protection Bill. Besides financial services officers, officials of the Ministry of Electronics and Information Technology (MeitY), Ministry of Home Affairs, government agencies viz., CERT-In, NCIIPC, Indian Cyber Crime Coordination Centre; Regulators in the financial services sector viz., RBI, IRDAI and PFRDA attended the seminar, it added.

<https://www.dailypioneer.com/2023/business/finmin-deliberates-steps-to-deal-with-cyber-security-issues.html>

