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**Press Information Bureau
Government of India**

Ministry of Defence

Wed, 24 May 2023

Vice Admiral Priyantha Perera Commander of the Sri Lanka Navy Visit to India

VAdm Priyantha Perera, Commander of the Sri Lanka Navy is on a five day official visit to India from 23 - 27 May 23. During the visit, VAdm Priyantha Perera will be presiding over the Passing Out Parade of the Spring Term 23 at Indian Naval Academy, Ezhimala.

VAdm Priyantha Perera called on Adm R Hari Kumar, Chief of the Naval Staff on 24 May 23 at New Delhi and held discussions on collaborative mechanisms towards ensuring peace and security in the region. He was received with a ceremonial Guard of Honour at the South Block Lawns. Earlier in the day he paid homage to the bravehearts at the National War Memorial.

India and Sri Lanka share a close and historically significant relationship, and both the countries have engaged closely towards reinforcing the existing relations. India and Sri Lanka have enhanced their interactions in the maritime domain substantially in accordance with India's 'Neighbourhood First Policy' and the maritime outlook of 'Security and Growth for All in Region'.

Indian Navy cooperates with the Sri Lanka Navy through various initiatives, which include operational interactions such as the bilateral naval exercise SLINEX, hydrography, training, and other maritime avenues. In addition, warships from both the Navies regularly make port calls at each other's ports.

The extant visit by the Commander of the Sri Lanka Navy is symbolic of increasing naval cooperation between the two navies and renewed the sense of commitment of two friendly maritime neighbours to enhance the security and tackle the maritime challenges in the IOR.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1926970>

THE TIMES OF INDIA

Thu, 25 May 2023

'MSMEs to Carry out Overhaul of Armoured Vehicles'

Tamil Nadu Industrial Investment Corporation (TIIC) will soon be entering the defence sector by extending support for MSMEs to start maintenance and repairs of armoured vehicles in association with the Armoured Vehicles Nigam Limited. This is a newest step on its path of growth of the

corporation which has, since its founding in 1949, grown from a loan disbursing agency to an institution that aids the overall economic growth of the state.

TIIC will soon enter into a memorandum of understanding with the Armoured Vehicle Nigam Limited (AVNL) based on which the corporation will explore the possibilities to facilitate and equip the MSMEs and also the enterprises it is working with to carry out the maintenance, repairs and overhaul of armoured vehicles, said a statement.

“TIIC and AVNL organised a one-day workshop for MSMEs at the AVNL Institute of Learning in Avadi which was attended by representatives of around 150 MSMEs across the state. During the meeting, the trainers from the nigam offered an understanding about the requirement for maintenance and repairs of the armoured vehicles.”

Sources said that an exclusive officer has been appointed for defence to take the suggestion forward and to speed up implementation.

A member of an MSME sector said that there has been quite a good progress in the defence clusters in Coimbatore and Hosur and many small industries in Sriperumbudur are capable of making components for defence. “There is expertise among the small and medium industries which need to be leveraged. One-on-one meetings, exhibitions etc are the best way to go forward,” he added.

In the last two year, the corporation has made huge progress and also has signed agreements with 14 agencies including CII and Society of Indian Defence Manufacturers, Codissia and Defence Innovation and Atal Incubation Centre, Bharat Heavy Electricals for enabling a conducive climate for defence production in the state.

The tie-up with Coddissia will ensure financial assistance to start-ups while the association with CII will help TIIC to extend guidance and loans to MSME to improve the administrative and technological skills to meet the requirement of the defence sector, said the statement.

The other tie-ups are with agencies including Chennai corporation and Metro water to extend assistance for working capital to the contractors.

<https://timesofindia.indiatimes.com/city/chennai/msmes-to-carry-out-overhaul-of-armoured-vehicles/articleshow/100488573.cms>



Wed, 24 May 2023

India’s Submarine Capabilities Stall; No Order After the Last Kalvari-Class

The sixth submarine of Project 75, Yard 11880, Indian Navy’s Kalvari class commenced her sea trials on May 18. The submarine was launched in 2022 from the Kanhoji Angre Wet Basin of Mazagon Dock Shipbuilders Limited (MDL).

While the ‘Vaghsheer’ is scheduled for delivery to the Indian Navy in early 2024 after the completion of these trials, the question is being raised—what is next as the contract for six- diesel submarines come to an end?

The docks will remain idle and the workforce underutilized as the strategic projects conclude at MDL. The issues become critical as the next project in line for building next-generation

submarines is still moving through the stages of a highly complex submarine tendering process under the Ministry of Defence (MoD).

Four submarines of the project— INS Kalvari, INS Khanderi, INS Karanj, INS Vela and INS Vagir— have been commissioned into the Indian navy. Indian navy's fifth stealth Scorpene class Submarine INS Vagir was commissioned into the Indian Navy in Jan 2023 at the Naval Dockyard Mumbai. Project 75 was initiated in 2006 to build six diesel-electric attack submarines of the Kalvari class that is based on the Scorpène-class submarine, which is being built at MDL.

No new Scorpene: What is next?

Project 75 was launched to locally construct the submarine via a transfer of technology(ToT). Through such ToT, India was aiming to acquire and absorb significant absorption of technology and create a tiered industrial ecosystem for submarine construction in India.

Looking back then, India was threatened as Pakistan had acquired Harpoon underwater missile capability, and India needed to fill that critical void which came through the Scorpene submarine. The choice of Scorpene was because of the Exocet, a missile manufacturer, which later merged into French defence entity MBDA, provided Indian navy with the underwater missile capability.

However, MDL will have to enter into a new contract with the French entity, Naval Group for another set of Scorpène-class submarines as the existing contract nearly concludes.

While MDL has been willing to continue with the Scorpène-class submarine which is rechristened as Kalvari-class by the Indian navy, the new contractual obligations pose another challenge.

“That needs to be negotiated as a new contract,” points out a leading industry expert who wished to remain anonymous.

In fact, for the new contract, the price quoted by the naval group is much higher than the previously-negotiated scorpene deal, it is learnt.

Apart from the higher-priced scorpene, the technology remains the same with the option of Air Independent Propulsion (AIP) systems in the next phase.

In that case, the focus is shifted to the next generation Project-75 India (P-75 I).

Unveiling P-75 India

Germany's ThyssenKrupp Marine Systems (TKMS) is one of two international bidders for the proposed submarine project. In 2021, the Ministry of Defence (MoD) issued Request for Proposal (RFP) for the first acquisition programme under the Strategic Partnership model for the construction of six conventional submarines named Project 75(India) [P-75(I)] for the Indian Navy.

The P-75I will embrace advanced submarine capabilities based on the AIP systems which is the key element of the strategic partnership (SP) model.

The ambitious P-75(I) proposes the plan for the indigenous construction of six conventional submarines, including associated shore support, engineering support package, training and spares package with contemporary equipment, weapons & sensors. Apart from the AIP Systems, the P-75 (I) must have advanced missile systems and torpedoes.

It is learnt that India has asked Germany for the full transfer of technologies (ToTs) for the submarines which is about sharing the full spectrum of submarine manufacturing from the design stage to development.

However, the German bidder, ThyssenKrupp Marine Systems (TKMS) is undergoing a makeover as the parent company –ThyssenKrupp— is also going through restructuring.

The German steel to submarine conglomerate ThyssenKrupp is selling its submarine and maritime systems unit. Despite receiving a \$5 billion submarine order from Norway, German industrial group ThyssenKrupp has revived its plans to sell its submarine and maritime systems unit. Once a symbol of German industrial might, with a 200-year-old legacy of shipbuilding, ThyssenKrupp is in the final phase of a restructuring to pay down debt as per the latest report. The reason is the poor financial performance due to the customer claims which result in the current profitability below 2-3%, according to the naval expert.

Will that cause the further delay?

In some way as ThyssenKrupp does have a proven AIP system—operational and sea-worthy certified. Besides, the strict defence export rules and regulations bind their ability to transfer the key technologies, despite the intentions.

Interestingly, politics also play a crucial part as the debate rages in Germany after the Russian-Ukraine war on modernizing German's naval capabilities and utilizing resources within the NATO-centric world.

While the German government is willing to participate in the Indian submarine programme—P75 I—the internal politics and security scenarios entangle, leading to delays.

What makes the partnership model clumsy is the case of another bidder in the fray, Korean submarine manufacturer, Hanwha Ocean—formerly known as Daewoo Shipbuilding & Marine Engineering — is also grappling with similar challenges. The dichotomy lies in refurbishing its naval capabilities in the wake of lingering threats from the neighbouring North Korean regime and technology transfer under defence export.

In fact, South Korea has made great strides in building submarines, destroyers, battleships, submarine rescue vessels, AUVs, and other speciality vessels domestically.

South Korea's latest 3000-tonne submarine project KSS-III Batch II which is based on Dosan Ahn Changho-class is equipped with cutting-edge systems and advanced combat management which include the essential AIP system, Lithium-Ion battery and Vertical Launching System, loaded with Submarine Launched Ballistic Missiles — Hyunmoo-2B ballistic missiles (500 km range).

Another bidder, a Spanish shipbuilding conglomerate, Navantia has also offered their expertise with full TOTs like integrating their new age AIP system known as BEST “Bio-Ethanol Stealth Technology”, which has been developed together with the Spanish Company Abengoa and the American Collins Aerospace, working under a sub-contract by Navantia.

Navantia already has signed MoUs with L&T and MDL, both shortlisted as Strategic Partners for the P75(I) project in India.

Despite the challenges, the project is moving ahead with Indian entities—Larsen and Toubro and MDL—are ready to submit their final proposal by August, according to the sources.

There are already concerns over the failing response deadline, beginning from the request for proposal (RfP) for P-75I in July 2021, to December 2022, which is been further deferred to 2023.

Submarine construction is an intricate activity as the difficulty is compounded when all equipment is required to be miniaturised and is subject to stringent quality requirements.

Recently, Navy Chief Admiral R Hari Kumar also highlighted the capability gaps, especially on the P-75(India). Since the project is yet to take off under the strategic partnership model, the process for Project 75I for building next-generation submarines will be through by the next year, he said.

The delay over the submarine project is also posing a serious challenge for the Indian navy to address China's constant maritime expansionism in the IOR. The Indian navy is grappling to

maintain its operational capability in the region and beyond in the Indo-Pacific with depleting numbers of submarines.

<https://www.financialexpress.com/business/defence-indias-submarine-capabilities-stall-no-order-after-the-last-kalvari-class-3100483/>



Wed, 24 May 2023

INSV Tarini Crew Back After Completing Historic Voyage

“Not a single day at sea is monotonous. You are occupied all the time – setting up sails, maintaining the sailboat, keeping a watch for change in weather patterns, doing chores... At sea, there is no Monday or a weekend. Just the sunrise and sunset. The world out there is really quiet and nights are even quieter,” said Lt Cdr Roopa A as INSV Tarini entered the harbour at INS Mandovi jetty in Goa on Tuesday, successfully completing a trans-ocean inter-continental voyage spanning 17,000 nautical miles after over six months.

The six-member crew was felicitated in a flag-in ceremony attended by Union Minister for Women and Child Development Smriti Irani, Goa Chief Minister Pramod Sawant, Chief of the Naval Staff Admiral R Hari Kumar and former captain of Indian women hockey team, Rani Rampal.

Among the crew, the two women officers – Lt Cdr Dilna K and Lt Cdr Roopa A – undertook the entire expedition from Goa to Rio de Janeiro via Cape Town and back – sailing for 188 days on the vessel. The women officers have now set their sights on training for the Navy’s next endeavour – to send a woman on a solo circumnavigation of the globe.

Other participants in the crew include Capt Atool Sinha, Lt Cdr Ashutosh Sharma, Lt Aviral Keshav, Cdr Nikhil Hegde, Cdr MA Zulfikar, Cdr Divya Purohit, and Cdr AC Doke.

“This journey was important because it was part of a preparatory sortie for the solo circumnavigation,” said Lt Cdr Dilna K, who hails from Kerala. “I always wanted to do something adventurous and different. After joining the navy, I took up sailing and when volunteers were being sought for the expedition, I jumped at the opportunity,” she added.

The crew recounted their voyage on the vessel – their home for six months – which included sailing through a major storm, spotting dolphins, reading books of previous sailing expeditions, watching movies, cooking with dry rations and mostly maintenance of the sailboat.

“In April, near the south of the South African coast, we experienced a 60-knot storm with gale force winds and waves up to 10-20 feet. It caused a tear in the sail and some equipment was damaged. The storm lasted for more than 24 hours, but we tactfully went through it and when it subsided, we all repaired the sail. That was a learning experience,” said Lt Cdr Roopa A.

A typical day at sea meant the crew ‘kept a watch’ in groups of two every four hours.

“Watch-keeping essentially entails looking for changes in wind patterns or any merchant traffic, and adjusting accordingly to any emergency since winds can change quickly. The sleep patterns also vary depending on the watch schedule. I used to maintain hourly logs to record any changes in weather or wind. We had a fleeting broadband connection through which we stayed connected with our families and with the Navy,” added Lt Cdr Roopa A.

The officers said a majority time on board is spent in setting up sails as winds keep changing.

“Maintenance of equipment is the most important activity on board,” said Lt Cdr Dilna K.

Appreciating the arduous journey undertaken by the Tarini crew, Irani said that such achievements should be recorded for posterity and shared with the entire nation to encourage and motivate young boys and girls to not only join the armed forces, but to also serve the nation with pride and honour.

Hailing it as a 'historic' achievement, Admiral R Hari Kumar said, "The achievement of crew in navigating through adverse weather conditions and undertaking in-house repairs whenever needed are shining examples of innovation and ingenuity which our countrymen possess."

He also hailed the achievements of Cdr Abhilash Tomy (Retd), who recently finished second in the Golden Globe Race 2022 – considered to be among the toughest solo around the world sailing race.

<https://indianexpress.com/article/cities/goa/insv-tarini-crew-back-after-completing-historic-voyage-8625536/>

The Tribune

Thu, 25 May 2023

Startup Magic to Build Strategic Muscle

TK Arun

FANS of philologist JRR Tolkien and his lore would be familiar with Anduril and Palantir as, respectively, a magical sword and a crystal ball that shows things afar, including in the past. But Anduril and Palantir hitting the headlines are not magical relics of yore, but defence companies that came up from America's technology startup ecosystem to develop high-tech military capability, and figure among the defence startups proving their spurs in the war in Ukraine.

A Chinese unicorn has successfully produced microchips with circuitry that is 20 micron thick. That is a far cry from the 7 or even 4 micron circuits that power the latest generation of advanced chips from Korean and Taiwanese companies that are under American pressure to stop selling their ware to China or Chinese companies. Dozens of unicorns are coming up in China in the areas of microprocessors, robotics and artificial intelligence, as China races to prepare for the high-technology denial regime in which the US wants to cage its acknowledged systemic rival, to cap its capabilities in areas of core strategic competence.

India has also begun to use the startup ecosystem to gain capabilities that Indian companies do not have, that are vital to achieving and retaining strategic parity with other major powers and are at risk of being withheld by foreign suppliers, if access to them is managed entirely through imports. India has to do a whole lot more in this area; it has the requisite talent, opportunity and financial resources.

In this light, a recent initiative by defence shipyard Garden Reach Shipbuilders and Engineers Limited (GRSE) is most welcome. The GRSE has launched the GRSE Accelerated Innovation Nurturing Scheme (GAINS) for young entrepreneurs. The difference between GRSE opening its purse strings to any promising startup that could offer innovations in the company's area of business and GAINS is that GRSE would first let would-be entrepreneurs familiarise themselves with its operations, so that would-be innovators know where innovations are possible and of what kind.

We are familiar with tales of Israeli youngsters coming out of their compulsory stint of military service with ideas for new technology that would aid the military work, and getting down to it, once they have let down their hair for a while on the heady slopes of the Himalayas.

India's bright young minds who join the military have a martial bent of mind and plan to become career officers, rather than tech entrepreneurs. So, in the Indian context, those who have domain

knowledge of defence and those who possess technological or entrepreneurial capability tend to be two different sets with nil or minimal overlap. This cannot be overcome by liberal funding of military startups alone.

When Covid struck, and India stared at an alarming shortage of ventilators, many agents came together to deconstruct the ventilator machine, identify its parts and components and those who could manufacture them. This swiftly resulted in the ability to produce ventilators in plenty.

This method can serve as a rudimentary approach to encouraging startups in defence tech. This would help with indigenising and improving what already exists. It would not help innovative minds work on what could be. For that, those with an entrepreneurial orientation must be exposed to the work on the field of different wings of the armed forces, their planning and administration.

India faces multiple challenges in military capability. One is attaining parity or exceeding it in warfighting capability in terms of raw hardware capability. Another is the ability to integrate the diverse bits of hardware into information networks that yield analysis, integration of the results into actionable intelligence, again distributed among different execution agencies, to be acted on, with precision and speed. This second challenge is related to the new challenge our armed forces are grappling with — unified command and jointness.

There is much glib talk of artificial intelligence (AI) as a solution to complex decision-making. At present, the internal working of AI is a black box. If a piece of AI were to analyse information gathered by satellites, drones, spy craft, electronic eavesdropping and much else and propose that action X be undertaken by division Y of the infantry, rather than a strike by Air Force fighter planes as conventional analysis would indicate, would our Air Force and Army brass agree to bite their tongues and defer to the algorithm? Or should the aim be to develop automated decision-making that can articulate its reasoning and rationale?

Can we offer final-year engineering students a choice to serve two years in the Army, to learn how it works, and think of what could make things work better? A rigorous process of selection could filter out a pilot batch of, say, 100 tech apprentice soldiers who are rotated through different parts of the services, spending time on operational aspects rather than on spit and polish, to see with fresh eyes what is done, what more could be done, and done differently. They could come out of the Army, submit projects to develop their solutions, for part-funding from the defence establishment, with the rest of the funding to be mobilised from venture capitalists more familiar with the feasibility of projects than colonels trained to see 'can't do' with contempt.

The deconstructed ventilator model might be more appropriate for the chipmaking ecosystem. For true autonomy, India would need to make not just the chips, but chipmaking equipment as well. Instead of still thinner copper circuits created by flowing the vaporised metal into micro-grooves etched by laser on to silicon wafers, can we replace the electrons with photons?

For a viable startup system, we need not just liberal startup funding, but much larger outlays on R&D in general as well, to drive research in basic science as well as technology, so that the pool of knowledge and talent that the startup ecosystem can draw upon is wide and deep enough.

Half the publicity outlay of the government could be diverted to this end, perhaps?

<https://www.tribuneindia.com/news/comment/startup-magic-to-build-strategic-muscle-510907>

Wed, 24 May 2023

LIMA 2023: Mazagon Unveils MCM Swarm System for Indian Navy

Indian company Mazagon Dock Shipbuilders Limited (MDL) unveiled a model of its autonomous underwater vehicle (AUV) swarm concept at the Langkawi International Maritime and Aerospace (LIMA) Exhibition 2023 being held from 23 to 27 May in Malaysia.

The concept is to enhance Indian Navy mine-countermeasures (MCM) capabilities. Operating as a swarm, the AUVs will comprise three units. The first will act as the master AUV, with two slaved systems; the second will operate as a mine locator; and the third as a mine neutraliser. The master AUV will establish communication between the AUVs and the surface mother ship and will direct the slaved AUVs in operations.

The AUVs are powered by two 44 kWh batteries and have a length of 1.8 m, a diameter of 251.79 mm, and weigh 60 kg. The AUVs will be able to operate at a speed of 4 kt for up to four hours and will have a payload capacity of 7 kg. The AUVs will be capable of operating up to a maximum depth of 60 m. MDL said the AUVs will be capable of launch and recovery from Indian Navy surface ships and submarine torpedo tubes.

MDL is developing the AUV swarm drones concept under the Indian government's Innovations For Defence Excellence (iDEX) initiative, which is aligned with Indian Navy MCM requirements.

<https://www.janes.com/defence-news/news-detail/lima-2023-mazagon-unveils-mcm-swarm-system-for-indian-navy>

Wed, 24 May 2023

Indra Supplies Surveillance Radars for Indian Navy Vessels

Spanish company Indra has begun delivery of the naval version of its Lanza 3D surveillance radar to the Indian Navy, in collaboration with its Indian partner company, Tata Advanced Systems Limited (TASL).

Indra said on 17 May that it will supply three Lanza-N 3D radars to the Indian Navy, the first of which has been delivered and is being installed on a naval vessel.

The production of the second and third radars has started, and they are expected to pass the factory acceptance tests in 2023, Indra added.

Indra said it will also supply the “core elements” of the Lanza-N to TASL, which will build 20 more of these radars in India and integrate them on multiple Indian Navy vessels.

“[Indra will provide] an additional reference radar to support this technology transfer during the additional maintenance period of 12-and-a-half years,” the company said.

The deliveries are part of a contract signed between Indra and TASL in 2020 to initiate a technology transfer, following a INR12 billion (USD145.2 million) contract secured by the latter from the Indian Ministry of Defence (MoD) in 2019 to supply 23 shipborne 3D air-surveillance radars to the Indian Navy by 2029.

Indra said that the Lanza-N radar being supplied for the Indian Navy vessels is based on the one fitted onto the Spanish Navy's Juan Carlos I

<https://www.janes.com/defence-news/c4isr-command-tech/latest/update-indra-supplies-surveillance-radars-for-indian-navy-vessels>

THE TIMES OF INDIA

Wed, 24 May 2023

PM Modi: India-Australia Ties have Entered T-20 Mode

Australia's relationship with India has entered "T-20" mode, Prime Minister Narendra Modi said after meeting his counterpart Anthony Albanese, referring to a shortened, fast-paced cricket format popular in both countries.

"This is our sixth meeting in the past one year. This reflects a depth in our comprehensive relations, confidence in our views and the maturity of our ties," PM Modi told reporters in Sydney on Wednesday. "In the language of cricket, our ties have entered the T-20 mode."

— narendramodi (@narendramodi)

At the joint press conference where the duo didn't take questions, Albanese and Modi reiterated their shared ambition for an early conclusion of the Comprehensive Economic Cooperation Agreement, a further step toward boosting economic relationship.

Modi's two-day trip comes as Canberra is attempting to strengthen its diplomatic and economic ties with New Delhi to offset growing strategic competition between the US and China, its largest trading partner. Australia views the South Asian nation's burgeoning middle class as key to boost growth.

India currently doesn't count Australia among its top 10 trade partners, with bilateral trade standing at \$27.1 billion last year, which is less than a tenth of that between Australia and China. That relationship is expected to more than double to around A\$60 billion (about \$40 billion) over the next five years. Apart from trade discussions, the two leaders also announced the finalization of the Australia-India Migration and Mobility Partnership Arrangement that will help promote mobility of students, graduates, academic researchers and business people.

"This will further strengthen our living bridge," Modi said, referring to the fast-growing Indian diaspora in Australia.. The two countries agreed the terms of reference for the Australia-India Green Hydrogen Taskforce, which will comprise Australian and Indian experts in renewable hydrogen. Albanese announced plans to establish the new Australian Consulate-General in Bengaluru and welcomed India's decision for a Consulate-General in Brisbane.

The leaders will again meet at the Group of 20 summit in India in September, though Modi also invited Albanese, as also all Australian cricket fans, to visit India for the 2023 ICC Men's World Cup in October-November.

<https://timesofindia.indiatimes.com/india/pm-modi-india-australia-ties-have-entered-t-20-mode/articleshow/100465212.cms>

Wed, 24 May 2023

India Snubs China! The Dragon Demands Buffer Zone in Depsang Area

China not attending the third G20 tourism working group meeting in Srinagar does not make any difference, says India.

Union Minister Jitendra Singh on Monday said that it is China's loss not attending the meeting and not India. "... China not coming is China's loss, not India's."

China has kept away from the three day meeting after it opposed hosting of any G20 meeting on "disputed territory", adding that such "unilateral actions" will further complicate the situation.

There were 122 delegates, including 60 foreigners, present at the G20 tourism working group meeting in Srinagar. According to officials, several private travel agents and tour operators were present representing countries like Turkiye, Saudi Arabia and Egypt and only China was missing.

Why did China abstain?

The absence comes amidst the ongoing three year long standoff between the Chinese and Indian troops following the Galwan Valley clash in May 2020 along eastern Ladakh. Despite several rounds of talks at different levels – diplomatic, political and military level, China refuses to move away from two friction points and continues its belligerent activities and developing infrastructure on its side of Line of Actual Control (LAC) in eastern Ladakh.

Financial Express Online has reported earlier that the meeting took place with a heavy three level security cover which included Indian Navy's marine commandos, surveillance drones and Kashmir police's special operation group. This is the first international event hosted since the abrogation of Article 370 in 2019 and showcased urban planning, local handicrafts, folk art forms, and destination for filmmakers.

Meanwhile ...

According to reports, a section of media has quoted an official from the intelligence wing of the Indo-Tibetan Border Police (ITBP) stating China has laid down preconditions for disengagement from the strategically critical area of Depsang plains in Ladakh. China wants a 15-20km buffer zone inside India-claimed lines as a precondition for disengagement.

The Chinese PLA continues its bullying tactics and is working aggressively to change the status quo along the LAC. A report in a Kolkata based publication quoting an official from ITBP said that the Chinese Army is already entrenched 18km inside India claimed lines. And now the Chinese side wants a buffer-zone of another 15-20 km before it talks about disengagement from Depsang. This demand according to the media report in the public domain was made during the 18th round of Corps Commander talks which took place in April and has been raised during subsequent meetings at other military talks. However, this demand by the Chinese was rejected by the Indian side.

<https://www.financialexpress.com/business/defence/india-snubs-chinanbsp-the-dragon-demands-buffer-zone-in-depsang-area/3100361/>

Wed, 24 May 2023

China's Cyber Warfare: These Special Units in Chinese PLA Target Indian Defence Research Organisations, other Departments

The Chinese People's Liberation Army (PLA) is creating tools for strategic guidance and training personnel necessary to support traditional war fighting disciplines, and is developing computer network operations (CNO) capability. And it uses cyber operations to target its other rivals. The Chinese academic community and hacker groups around the world are heavily focused on researching new 'zero-day' vulnerabilities.

There are special cyber-warfare units in the Chinese PLA who target not only Indian defence research organizations but other departments too. The Chinese cyber strategy is based on a broad set of objectives that are derived from Beijing's interests and started investments in cyber warfare beginning in 1997.

India Vs China

Dr (Prof) Nishakant Ojha, Advisor-Cyber & Aerospace Security, tells Financial Express Online: "India is yet to develop the notion of using cyber for accomplishing its strategic objectives. The Indian State sponsored cyber offensives are mainly observed as targeted towards Pakistan and very few of them towards China. Also, the number of Indian cyber operations publicly attributed to India is much less as compared to that of China."

However, "range of sectors observed as targeted in these cyber-attacks is very vast as it includes, economic, trade, defence and foreign affairs, other government and research institutes, mining, automotive, legal, engineering, food service, banks, etc. Due to the lack of publicly available information about the activities of intelligence agencies and the armed forces in the cyber arena, it is difficult to pinpoint the entities that lead the offensive cyber campaigns in India," Dr Ojha who is also an Expert –Counter Terrorism (West Asia & Middle East) adds.

What are the capabilities of Chinese Hackers?

Successful use of spear phishing emails in various ways such as, use of previously compromised email addresses, impersonating prominent individuals who are relevant to the target, and more.

Proficient in Installation of custom backdoors and use of credential stealers, keyloggers.

Have developed components for infecting removable drives, rootkits and Master Boot Record (MBR) bootkits to hide the malware and maintain persistence on the victim's systems.

Hacking groups can sustain their activities for a long time and successfully modify and adapt source code to maintain the same tools, tactics and infrastructure.

Frequently develop and adapt Zero-Day exploits for operations.

Create profiles and posts on forums to embed encoded C2 for use with a variant of the malware it used which makes it difficult to determine the true location of the C2 and allow the C2 infrastructure to remain active for a longer period.

Other than spear-phishing techniques, the managed service providers are also used to access victim's networks.

Successful use of browser based exploits.

Ability to infect air-gapped networks.

The operational capabilities of overall Indian hacking community as observed from the operations so far attributed to India are listed below:-

Successful use of spear phishing emails.

Reuse of C&C infrastructures and decoy documents in spear phishing emails.

Use of SQL Injection to access the website server and obtain administration rights in order to deface the website.

Use of information stealers like Delphi Information Stealers, file splitter tools, C++ information stealers (keyloggers, screen grabbers and file harvesters), and various other malware written in Visual Basic.

Rare use of Zero Day exploits for operations.

What is China's aim?

“China is aiming to establish a large digital footprint across the globe which it could later leverage to project economic and political power and influence the overall global order While India has a separate policy document for cyber, this document is focused only on securing the country's cyber space and there is no notion, in slightest, about cyber as a tool for projecting power or influence and there is no role for military in the cyber domain,” states Dr Ojha.

<https://www.financialexpress.com/business/defence-chinas-cyber-warfare-these-special-units-in-chinese-pla-target-indian-defence-research-organisations-other-departments-3100761/>

THE ECONOMIC TIMES

Wed, 24 May 2023

Now, Chinese Def Firm Link to Pak Supplies to Ukraine

Pakistan has expanded its defence ties with Ukraine not only through supply of defence equipment to Kiev via Poland but by also setting up a defence trading firm in Warsaw to smoothen the process of arms supplies. The defence firm has allegedly entered into partnership with China for defence supplies to Ukraine in the backdrop of Sino-Pak "all weather friendship".

Pakistan defence trading firm Kestral Trading has established a firm in Warsaw allegedly under the name 'Balferrten Investments' to smoothen supplies to Ukraine, ET has learnt.

Kestral Trading has allegedly entered into a partnership with a Chinese defence firm, Beijing Heweyongtai Science & Tech Co Ltd, to procure UAVs for supplies to Kiev, ET has reliably learnt. The supplies could be taken at Poland's Gdynia Port, hinted persons familiar with the issue.

Meanwhile, Pakistan Ordnance Factories is using a ship under the flag of Antigua and Barbuda to supply over 200 defence stores comprising rockets to Ukraine, ET has learnt.

Since last year, Pakistan has been a regular supplier of arms and defence equipment to Ukraine. ET had reported earlier this month that Pakistan will export three consignments of 155 mm artillery ammunition rounds over the next three months to Kiev via Poland.

The consignments will be shipped by Pakistan Ordnance Factories from Karachi Port to Gdansk Port in Poland in the next three months and subsequently moved to Ukraine, ET had reported.

The shipments will be exported via MV Maj Richard Winters, MV SLNC Magothy and MV Ocean Freedom, ET had reported. Kiev, in return, has launched the process to supply Mi-17 helicopter engines and auxiliary spare parts to the Pakistan military in lieu of Islamabad's regular supply of defence equipment to the Ukrainian army.

Pakistan has signed a deal worth \$1.5 million to take supplies of Mi-17 helicopter engines and spare parts for the helicopters.

Last year, the United Kingdom used Pakistan as an air bridge to supply arms to Ukraine via Romania. Nur Khan air base in Rawalpindi was part of the air bridge reportedly used by the UK for military aircraft.

<https://m.economictimes.com/news/defence/now-chinese-def-firm-link-to-pak-supplies-to-ukraine/articleshow/100483449.cms>

THE ECONOMIC TIMES

Wed, 24 May 2023

US Aircraft Carrier Arrives in NATO Member Norway, to Take Part in Drills

A U.S. aircraft carrier arrived Wednesday in Oslo with the Norwegian armed forces saying it gives them "a unique opportunity to further develop cooperation and work more closely with our most important ally, the United States."

The nuclear-powered ship USS Gerald R. Ford entered the Oslo fjord escorted by a rapid dinghy-type boat with armed personnel on board. The Norwegian armed forces has said any boats must stay a half-kilometer (half-mile) away from the aircraft carrier and a no-fly zone was created over the area where the aircraft carrier was.

Described as the largest aircraft carrier in the world, the vessel will stay in the Norwegian capital until Tuesday. It is then expected to take part in drills with the Norwegian armed forces.

The ship's first foreign call was broadcast live on Norwegian public television. Onlookers, some using binoculars, were seen on land watching as the large aircraft carrier glided deeper and deeper into the fjord and eventually reach the city of Oslo.

Laila Wilhelmsen, who stood along the route in Droebak, said that she grew up in the small town about halfway through the fjord during the Cold War in the 1950s and "there were warships here all the time."

"I don't know, but now we have teased (Russian President Vladimir) Putin even more. It's scary, I think," she told Norwegian broadcaster NRK.

The Russian Embassy in Oslo said that "such demonstrations of power look illogical and harmful."

Ties between Oslo and Moscow have been tense since Russia's invasion of Ukraine. Norway and Russia have a 198-kilometer-long (123-mile-long) border in the Arctic.

The Norwegian Coastal Administration said two of its pilots were onboard to navigate through the more than 100-kilometer (62-mile) long fjord, and that the depth of the 76-meter (250-foot) tall vessel was "the big challenge."

"The aircraft carrier stays marginally within the maximum depth in the sailing regulations for the Oslo fjord," the administration said.

Later Wednesday, the aircraft carrier anchored off the island of Ormoeya in the inner part of Oslofjord, the Norwegian news agency NTB wrote.

In early May, the U.S. Navy said that the ship had departed from Norfolk, Virginia, on its "first combat deployment," following a shorter two-month deployment in the autumn of 2022.

The vessel is the first of the U.S. Navy's new Ford class of aircraft carriers. Two more Ford-class carriers are under construction.

The vessel houses about 2,600 sailors, 600 fewer than the previous generation of aircraft carriers.

<https://economictimes.indiatimes.com/news/defence/us-aircraft-carrier-arrives-in-nato-member-norway-to-take-part-in-drills/articleshow/100475578.cms>



Thu, 25 May 2023

US Approves \$285 Million Sale of Air Defence System to Ukraine

The United States on Wednesday announced the approval of a \$285 million sale of a NASAMS air defense system and related equipment to Ukraine as Kyiv seeks to boost protection against Russian strikes.

"Ukraine has an urgent need to increase its capabilities to defend against Russian missile strikes and aircraft," the US Defense Security Cooperation Agency said in a statement. "Acquiring and effectively deploying this capability will enhance Ukraine's ability to defend its people and protect critical national infrastructure."

The agency also said the sale will support US foreign policy national security goals by "improving the security of a partner country that is a force for political stability and economic progress in Europe."

The sale would not require any additional US government employees or contractors to be assigned to Ukraine, the statement added.

The State Department approved the sale, and the DSCA on Wednesday provided the required notification to Congress, which still needs to sign off on the transaction.

Countries including the United States that are supporting Ukraine in its battle against invading Russian forces have donated tens of billions of dollars of military equipment to Kyiv, but this transfer would be a sale.

Ukraine's air defenses have played a key role in protecting the country from strikes and preventing Moscow's forces from gaining control of the skies.

When Russia invaded in February 2022, Ukraine's air defenses largely consisted of Soviet-era planes and batteries.

They have since been significantly augmented by Kyiv's international supporters, who have donated a series of systems including NASAMS.

<https://www.ndtv.com/world-news/us-approves-285-million-sale-of-air-defence-system-to-ukraine-4064112>



New Artificial Light-Harvesting System using Organic Nanotubes Useful for Solar Cells, Photocatalysis, Optical Sensors & Tunable Multi-color Light Emitting Materials

Inspired by natural photosynthetic systems, researchers have developed a new method of harvesting artificial light using organic nanotubes, which can be utilized in solar cells, photocatalysis, optical sensors, and tunable multi-color light-emitting materials.

In nature, plants and photosynthetic bacteria capture sunlight and deliver it to the reaction center through a cascade of energy and electron transfer steps for its eventual storage in the form of chemical energy. The antenna chromophores in the light-harvesting complexes are precisely aligned into arrays by the surrounding proteins, which in turn allows the energy migration between them in a highly efficient manner. Mimicking natural photosynthetic systems and understanding the fundamental processes of energy transfer has gained enormous interest in recent years, especially for systems that need energy conversion and storage.

Towards this direction, Dr. Supratim Banerjee from the Indian Institute of Science Education and Research (IISER) Kolkata, an autonomous Institute under the Ministry of Education, and Dr. Suman Chakrabarty from the S. N. Bose National Center for Basic Sciences (SNBNCBS), Kolkata, an autonomous institute of Department of Science and Technology (DST) carried out experimental and computational investigations on artificial light-harvesting in organic nanotubes derived from the union of an organic fluorescent molecule and a therapeutically important biopolymer. The former is an amphiphilic cationic molecule called cyano stilbenes (an organic molecule with fluorescent properties that are known to exhibit enhanced emission in their aggregated state), and the latter is an anionic therapeutically important bio-polymer called heparin (used as an anti-coagulant-during-surgery-and-in-post-operative-treatments) in aqueous media.

In the presence of heparin, the cationic cyano stilbenes employed in this study formed nanotubes with bright greenish-yellow emission through an electrostatically driven co-assembly process. Just like the antenna chromophores or pigmented (coloured) membrane-associated vesicles used to perform photosynthesis in bacteria, the nanotubes acted as highly efficient energy donors (antennae) in a system that mimicked the natural photosynthetic process.

They donated energy to acceptor dyes such as Nile Red and Nile Blue, resulting in emission color tuning from initial greenish-yellow to orange-red, including white light. The energy transfer phenomenon demonstrated in this study is known as FRET (Förster resonance energy transfer), which has significant importance in different applications such as the determination of DNA/RNA structures, mapping biological membranes, real-time PCR tests, and so on. The future is moving towards the conversion of solar energy for storage as chemical or electrical energy, and the process of energy transfer is a key factor for such applications.

In the study published in Chemical Science, the flagship journal of the Royal Society of Chemistry, the formation of the nanotubes was investigated by employing absorption and fluorescence spectroscopy, transmission electron microscopy (TEM), and fluorescence lifetime imaging microscopy (FLIM) studies. Molecular Dynamics (MD) simulation studies demonstrated that the cyano stilbene molecules formed cylindrical structures in the presence of heparin. The local molecular level interactions and packing of the cyano stilbene chromophores that led to the formation of one-dimensional nanostructures were also visualized and quantified through the simulation studies. Due to the temperature responsiveness of the FRET process in these systems, they were further employed as ratiometric emission thermometers (that sense temperature based on the variation in emission intensity at two different wavelengths) in the temperature range 20–90 °C, and this highlighted a practical application of these artificial light-harvesting systems.

Publication link: <https://dx.doi.org/10.1039/d3sc00375b>

<https://pib.gov.in/PressReleasePage.aspx?PRID=1926923>



Thu, 25 May 2023

‘Principles of Science Originated in Vedas, but Repackaged as Western Discoveries:’ ISRO Chairman S Somanath

Algebra, square roots, concepts of time, architecture, the structure of the universe, metallurgy, even aviation were first found in the Vedas, travelled to Europe through Arab countries, and were subsequently posited as discoveries of scientists of the western world, S Somanath, the chairman of the Indian Space Research Organisation (Isro) said on Wednesday.

Part of the problem, added Somanath, secretary of the department of space and chairman of the space commission, was that the language the Indian scientists of the time used, Sanskrit, had no written script. “It was listened to, and learnt by heart, which is how the language survived.” It was only later that people started using the Devanagari script for Sanskrit.

Somanath was speaking at the convocation of the Maharishi Panini Sanskrit and Vedic University in Ujjain, Madhya Pradesh. Panini is believed to be the person who wrote down the rules of Sanskrit grammar. The language’s syntax and structure make it ideal to “convey scientific thoughts and processes”, Somanath said. He added : “Engineers and scientists like Sanskrit a great deal. It suits the language of computers and those learning artificial intelligence learn it. Lots of research is being done on how Sanskrit can be used for computation.” To be sure, much of this is still work in progress, although the narrative itself has become taller in the telling.

There are other benefits to Sanskrit, Somanath added, and these extend beyond science.

“Indian literature written in Sanskrit is extremely rich in its original and philosophical form. It is also important in the scientific form. There is no separation of cultural, spiritual and scientific study in Sanskrit,” he said.

Somanath said that the imprints of the contribution of scientists in Sanskrit can be seen in the journey of Indian culture over thousands of years. “Findings in astronomy, medicine, sciences, physics, chemical sciences and aeronautical sciences were written in Sanskrit. But they were not fully exploited and researched,” he pointed out, and gave the example of Surya Siddhanta, a book on astronomy that is believed to date back to the 8th century. “Being a rocket scientist I was fascinated

by this book in Sanskrit that talks about the solar system, time- scale, and the size and circumference of Earth,” he said.

Isro is working on several key space missions, including the Chandrayaan-3 lunar mission, and the Aditya-1 mission to study the Sun.

<https://www.hindustantimes.com/india-news/sanskrit-the-language-of-science-and-philosophy-uncovering-the-contributions-of-ancient-indian-scientists-to-modern-discoveries-101684953815696.html>

