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Sun, 15 May 2022

Explained: How India's latest BrahMos missile test was different

India test-fired the extended-range of the BrahMos missile from a SU-30 MKI fighter jet. This missile has a range of over 350 km, compared to the 290 km of the older version India successfully test-fired an extended-range version of the BrahMos Air Launched missile from a Su-30 MKI fighter aircraft.

It's another feather in the cap for the Indian Armed Forces.

On Thursday, India successfully test-fired an extended-range version of the BrahMos Air Launched missile from a Su-30MKI fighter aircraft. As per reports, the Sukhoi from the “Tiger Sharks” squadron took off from the Thanjavur airbase in Tamil Nadu, underwent mid-air refuelling and then fired the missile at the “designated target” in the Bay of Bengal. According to a statement by the Indian Air Force, the test firing from the aircraft went as planned and it also achieved a direct hit on the designated target located in the Bay of Bengal region. We take a look at why this is a ‘game changer’ for India.

The New BrahMos Missile

While the BrahMos missile is not new weaponry for India, this particular trial was special for the nation as it was testing the extended range (ER) version of the missile. For the uninitiated, BrahMos Aerospace, an India-Russian joint venture, produces supersonic cruise missiles that can be launched from submarines, ships, aircraft, or land platforms. BrahMos missile flies at a speed of 2.8 Mach or almost three times the speed of sound. The range of the BrahMos missile is said to be 290 kilometre.

The first test of the initial version was carried out in 2017.

However, on Thursday, the IAF test-fired the newer version, which has a range of over 350 km, compared to the 290-km range of the previous variety. India had conducted at least 10 BrahMos supersonic cruise missile tests this year, starting with the test-firing of an advanced sea-to-sea variant of the missile from INS Visakhapatnam on 11 January.

Why Is This Such A Big Deal?

Defence experts have noted that the extended range and the high performance of the Su-30MKI aircraft, gives the IAF a “strategic reach”. The IAF, in fact, in its statement, said, “The extended range capability of the missile coupled with the high performance of the Sukhoi Su-30MKI aircraft gives the IAF a strategic reach and allows it to dominate the future battlefields.” Explaining how this will be beneficial to India’s defence capabilities, an expert told Times of India, “This is the first time the new BrahMos missile with a strike range of over 450 km (original range 290 km) has been tested from the air. The Sukhoi, with a combat radius of almost 1,500-km without mid-air refuelling, combined with the 450-km range BrahMos missile is a formidable weapons package.” This will come in handy at a time when India is facing the double threat of China and Pakistan.

<http://www.indiandefensenews.in/2022/05/explained-how-indias-latest-brahmos.html?m=1>

The Tribune

Sun, 15 May 2022

Govt bringing reforms in DRDO, says Rajnath

Defence Minister Rajnath Singh said today that to promote technology, the government was bringing in reforms in R&D establishments such as Defence Research and Development Organisation (DRDO) and the Council of Scientific & Industrial Research (CSIR). He was addressing a workshop organised by the Lucknow branch of Central India Regional Council of Institute of Chartered Accountants of India in Lucknow. It was organised to update the participants on the new developments related to the economy.

Rajnath said a link had now been established between academia and the industry so that the research being conducted in colleges and universities could reach the industry and both parties could gain from it. Rajnath exuded confidence that the Innovations for Defence Excellence (iDEX) initiative and its recently launched version — iDEX Prime — would ensure the growth of innovators and start-ups. He said the government was providing market to the industries and as part of Prime Minister Modi’s vision of ‘Aatmanirbhar Bharat’, a number of steps had been taken to encourage procurement from domestic players.

<https://www.tribuneindia.com/news/nation/govt-bringing-reforms-in-drdo-says-rajnath-394896>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Mon, 16 May 2022 10:13 AM

पूर्वावलोकन : भारतीय नौसेना के दो अग्रिम मोर्चे के युद्धपोतों का लोकार्पण

स्वदेशी युद्धपोत निर्माण के इतिहास में राष्ट्र 17 मई, 2022 को एक ऐतिहासिक घटना का साक्षी बनने जा रहा है, जब भारतीय नौसेना के दो अग्रिम मोर्चे के युद्धपोतों का लोकार्पण किया जायेगा। ये युद्धपोत हैं, *सूरत*, जो परियोजना 15बी का डिस्ट्रॉयर है और दूसरा है *उदयगिरि*, जो परियोजना 17ए का फ्रिगेट है। मुम्बई के मझगांव डॉक्स लिमिटेड (एमडीएल) में एक साथ दोनों का शुभारंभ किया जायेगा। दोनों कार्यक्रमों में रक्षामंत्री श्री राजनाथ सिंह मुख्य अतिथि होंगे।

परियोजना 15बी श्रेणी के पोत भारतीय नौसेना के अगली पीढ़ी के स्टेल्थ गाइडेड मिसाइल डिस्ट्रॉयर हैं, जिन्हें मझगांव डॉक्स लि. मुम्बई में बनाया जाता है। 'सूरत' परियोजना 15बी डिस्ट्रॉर श्रेणी का चौथा पोत है, जिसे पी15ए (कोलकाता श्रेणी) में कई परिवर्तन करके विकसित किया गया है। इसका नाम गुजरात की वाणिज्यिक राजधानी और मुम्बई के बाद पश्चिमी भारत के दूसरा सबसे बड़े व्यापारिक केंद्र सूरत के नाम पर रखा गया है। सूरत शहर का समृद्ध समुद्री और पोत निर्माण इतिहास रहा है। यहां 16वीं और 18वीं शताब्दी में जहाज बनाये जाते थे, जो लंबे समय तक कार्यशील रहते थे, यानी जिनकी आयु 100 से अधिक की होती थी। 'सूरत' का निर्माण ब्लॉक निर्माण पद्धति से हुआ है, जिसमें जहाज की पेंदी को दो विभिन्न भौगोलिक स्थानों पर निर्मित किया गया है। बाद में इसे एमडीएल, मुम्बई में जोड़ा गया। इस श्रेणी के पहले पोत को 2021 में कमीशन किया गया था। दूसरे और तीसरे पोत का शुभारंभ किया गया तथा वे साजो-सामान/परीक्षण के विभिन्न चरणों में हैं।

'उदयगिरि' का नाम आंध्रप्रदेश की पर्वत श्रृंखला के नाम पर रखा गया है। यह परियोजना 17ए का तीसरा फ्रिगेट है। इन्हें पी17 फ्रिगेट (शिवालिक श्रेणी) का अनुपालन करते हुये संशोधित स्टेल्थ विशेषताओं,

उन्नत हथियारों, संवेदी उपकरणों और प्लेटफार्म प्रबंधन प्रणालियों से लैस किया गया है। 'उदयगिरि' दरअसल पुराने 'उदयगिरि' का अवतार है, जो लियेंडर क्लास एएसडब्लू फ्रिगेट था। इस पोत ने 18 फरवरी, 1976 से 24 अगस्त, 2007 तक के तीन दशकों के दौरान असंख्य चुनौतीपूर्ण गतिविधियों का सामना करते हुये राष्ट्र की शानदार सेवा की। पी17 कार्यक्रम के तहत कुल सात पोतों का निर्माण किया जा रहा है, जिनमें से चार पोत एमडीएल और तीन पोत जीआरएसई में बनाये जा रहे हैं। एकीकृत निर्माण, मेगा ब्लॉक आउटसोर्सिंग, परियोजना डाटा प्रबंधन/परियोजना जीवन-चक्र प्रबंधन (पीडीएम/पीएलएम) आदि जैसी नई अवधारणाओं तथा प्रौद्योगिकियों का इस्तेमाल किया जा रहा है। इन सबको स्वदेशी युद्धपोत डिजाइन तथा निर्माण में पहली बार अपनाया जा रहा है। याद रहे कि पी17ए परियोजना के पहले दो जहाजों को एमडीएल और जीआरएसई में क्रमशः 2019 और 2020 में शुरू किया गया था।

15बी और पी17ए, दोनों जहाजों को डायरेक्टोरेट ऑफ नैवल डिजाइन (डीएनडी) में घरेलू स्तर पर डिजाइन किया गया था। यह देश के सभी युद्धपोतों की डिजाइन तैयार करने की गतिविधियों की गंगोत्री बना। शिपयार्ड में निर्माण गतिविधियों के दौरान उपकरणों और प्रणालियों के लिये लगभग 75 प्रतिशत ऑर्डर स्वदेशी कंपनियों को मिले, जिनमें सूक्ष्म, लघु और मध्यम उद्यम शामिल थे। यह देश की 'आत्मनिर्भर' भावना का सच्चा प्रमाण है।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1825706>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 14 May 2022 5:05PM

Deployment of INS Gharial to Seychelles – Mission SAGAR IX

As part of on going deployment of Indian Naval Ship *Gharial* in South West Indian Ocean, under Mission SAGAR IX, the Ship called at Port Victoria, Seychelles from 11 to 14 May 22. Following up on the proposal received from the Govt of Seychelles earlier, three ceremonial Saluting Guns, with ammunition, were delivered by the Ship to the Seychelles Defence Forces (SDF). These were formally presented by Gen Dalbir Singh Suhag (Retd), High Commissioner of India to Seychelles to Brigadier Michael Rosette, the Chief of Defence (CDF), SDF in a solemn ceremony held onboard INS *Gharial* on 13 May 22. INS *Gharial* also transhipped one 15 m Wave Rider Patrol Boat, sourced by Seychelles from Colombo and was handed over to Seychelles Defence Forces (SDF).

During the stay of the Ship at Seychelles, the Indian Navy facilitated training of SDF personnel in domain specific maritime disciplines. Coming close to the recent official visit of Admiral R Hari Kumar, Chief of the Naval Staff, Indian Navy to Seychelles from 21-23 Apr 22, the activities undertaken during the port call of INS *Gharial*, amply demonstrate the commitment of Indian Navy in making positive contribution to capacity building and capability enhancement efforts of the Seychelles Defence Forces. Before calling at Port Victoria, the ship had also visited Colombo, Sri Lanka and Male, Maldives to deliver essential medical supplies. Successive deployments of the Indian Navy under Mission SAGAR are aligned with the vision of Security And Growth for All in the Region and strengthen the concept of 'Collective Responsibility' for maritime security in the Indian Ocean Region.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1825371>



Mon, 16 May 2022

Explained: What are the Protected Mobility Vehicles that the Army wants to purchase?

The Army has floated a Request for Information (RFI) to purchase Protected Mobility Vehicles (PMV) for high-altitude areas and for deserts and plains. What are PMVs, how are they utilised and who manufactures them?

What is the operational role of PMVs?

The PMV is essentially a wheeled armoured personnel carrier. It provides protection to the soldiers travelling inside the vehicle from mine blasts and sudden attack by small arms. The troops in these vehicles could be members of any quick reaction team heading to a point of conflict, or members of patrolling parties heading to border areas. They could also be members of a reconnaissance squad operating behind enemy lines or in forward positions of own troops.

What kind of vehicles does the Army intend to procure?

The Army floated an RFI on May 12 for information from vendors for PMV to deploy in areas above the height of 4000 metres and for deserts and plains. The detailed instructions given by the Army along with the RFI specifies that these vehicles should be wheeled, 4X4 drive mode and should have automatic transmission. These vehicles should be able to carry ten personnel excluding the driver and co-driver with each person carrying a combat load of not less than 30 kg.

What are the technical specifications for such vehicles?

The PMVs must have ballistic protection and should be able to protect the vehicle from grenade and mine blasts. It should have a maximum speed of 90 km on road and 40 km per hour on cross country terrain. They should be able to operate in temperature range of 40 degree centigrade to minus 15 degree in high-altitude areas. The vehicles are required to have a weapon mount to enable a 7.62 mm Light Machine Gun (LMG) to be fitted and a turret with 360 degree rotation for a LMG. It is also required to have 11 firing ports with five each on the starboard and port side

of the vehicle and one at the rear. The PMV should be able to ford in water with depth of 1000 mm without any special preparation.

When will these vehicles be procured?

After going through the responses of the RFI, the Army is expected to float a Request for Proposal (RFP) in the month of November which will be followed by trials at areas above 17,000 feet and in the plains and deserts. These trials will be held within a period of six to nine months of issuing of the RFP.

Does India produce such vehicles?

India has the capability of producing PMVs. In April this year, the Tata Advanced Systems Limited (TASL) handed over the first of such Infantry Protected Mobility Vehicles (IPMVs) to the then Chief of Army Staff, Gen MM Naravane. The TASL is now the first private sector company in the country to produce such wheeled armoured personnel carriers and has developed the IPMV in collaboration with the Defence Research and Development Organisation (DRDO). These vehicles are produced at the TASL's Pune establishment and have been built on the strategic 8X8 wheeled armoured platform jointly developed by TASL with Vehicles Research and Development Establishment (VRDE) of DRDO.

<https://indianexpress.com/article/explained/explained-what-are-the-protected-mobility-vehicles-that-the-army-wants-to-purchase-7913981/>

THE ECONOMIC TIMES

Mon, 16 May 2022

China building infrastructure near LAC, Indian Army says its ready

Lt Gen Rana Pratap Kalita, the Eastern Army Commander, has said that after the notification on reduction of the Armed Forces (Special Power) Act, 1958, the army is moving out of those areas where the Act was in force and has been re-inducted in the Northern borders. He said China is building infrastructure along their side of the border and India is enhancing its infrastructure across the border areas. Talking to media in Guwahati for the first time after taking over the Eastern command on Monday, he said, "Following the notification on reduction of AFSPA, some portion of the army has been withdrawn from counter insurgency operations and re-inducted and tasked to focus on the primary front, that is the Northern borders." He added the army is happy because it can now focus on its primary duty of external threats instead of internal security.

"The capability of the CAPF and police has been enhanced tremendously," he said. Last month, the Centre announced the withdrawal of AFSPA from different areas under 15 police station limits in the valley districts of Manipur. Admitting that the terrain and inclement weather were major challenges on the border front, he said, "Infrastructure work has been carried out, roads are built and old advanced landing grounds have been revived in Arunachal Pradesh".

"Across the Line of Actual Control in the Tibet region, a lot of infrastructure development is going on. The other side is constantly upgrading their road, rail and air connectivity so that they are in a better position to respond to a situation or mobilise forces". The Chinese have built border villages close to the LAC that can be used for dual purposes. He asserted that the Indian Army was fully ready with "high level of operational preparedness". On the firing incident in Nagaland's Mon district on December 4 in which 14 civilians and a security personnel had died, he said: "It was a case of mistaken identity. The court of inquiry report is examined; we are in receipt of the SIT report and both have been analysed. Necessary action for the lapses will be taken. As per the Army Act and provisions, necessary action will be taken for delinquency." He said the security situation in Northeast India has improved.

<https://economictimes.indiatimes.com/news/defence/army-says-china-building-infrastructure-near-arunachal-border/articleshow/91599641.cms?from=mdr>



Mon, 16 May 2022

Government's rethink on role of Chief of Defence Staff is a step in the right direction

The Government of India has all but admitted it bungled the post of Chief of Defence Staff (CDS). This follows a pattern of ill-considered decisions, with poor preparation and planning, and no understanding of second- or third-order effects. Unlike its normal mistakes which it doubles down on however, it's seeming rethink on the CDS and the Department of Military Affairs (DMA) is a step that should be encouraged. Clearly the inter-departmental and inter-service rivalry have gone beyond 'collegiality' to absolute toxicity, and a refusal to comply or share. Case in point the division of responsibility between the DMA and the Department of Defence, and the complete stalling of the theatre commands, which was meant to be the showpiece of these 'reforms'. We're hearing that this along with several other measures are things that will take time to sort out. The issue isn't one of time. It is one of executive decision-making, and severe differences in thinking.

Much of this is to do with the technology quotient, and how each service approaches a war. But it is also how much the political leadership understands these differences, and comes down decisively in favour of one interpretation. Let's compare NATO and Russia — particularly germane given their different technological development trajectories, and different emphasis. NATO initially adopted tactical nuclear weapons, but in the 1980s switched to technology to overcome its material and manpower shortages vis-à-vis the Warsaw Pact. It had seen in the 1940s how the then USSR had used superior numbers to crush superior German technology. Yet the digital revolution of the 1980s and 1990s gave such an unassailable lead to the West that the quantity-versus-quality equilibrium changed. The proof of concept was how the application of air power and precision ammunitions alone could change regimes, and bring about desirable political outcomes in Yugoslavia, Afghanistan, Iraq, and Libya. That bad political decisions

bogged down the peacekeeping doesn't take away from the rapidity of the conventional military success.

Now the West, thanks to this technology and the tech industry that developed, evolved a mindset that was technology-driven. It was the easiest to implement in the air. Then in ships, and finally on land. So it was that the air force took the lead, the navy followed close behind, and the army lagged way behind. You see this reflected in commercial technology as well — airplanes pioneer technology like auto pilot, GPS mapping, and heads-up displays, ships adopt it next, and your cars and trucks are the last to adopt it, if ever at all. Autonomous movement is already a reality in the air and sea, but on land the effort still lags way behind. Consequently Western leaders, already heavily capitalist, went where industry was going, and saw that in the cost calculation air and sea power were quicker and more effective ways of achieving political objectives. They, therefore, decisively prioritised air power.

Russia followed a different trajectory. The collapse of the USSR, and the subsequent prioritisation of services over manufacturing, destroyed the natural progression Russian technology should've had into the digital and information age. Consequently two decades of industrial development were lost, and manufacturing techniques ossified into what was left over from the 1980s. You see this distinctly with the relative crudeness of Russian aircraft even today, where shoddy quality and obsolescence of the Su-57 led to an outright Indian rejection of the aircraft. Consequently Russian thinking remained overwhelmingly based on the 1970s and '80s technology, and decisively ground centric with the air force merely acting as a support arm. If we look at the horrific casualties Russia is sustaining in its war in Ukraine, we see their frontline fighters and helicopters being shot down at rates unimaginable in the West; they lack even basic electronic or infrared countermeasures. Clearly, technology has meant that the army leads, and the Russian leadership accepted this and went with what was feasible.

India is a different ballgame altogether, predominantly because we suffer from severely-corroded information loops. The air force is convinced it is a first-world air force, despite its intelligence complex, interoperability, human intake, and logistics being nowhere near the West. Meanwhile, the army is convinced it is full of Guderians, which it very well may be, except they're not up against a Zhukov, they're up against a fighter that can take you out from 15-20 kilometres away, if not more. Clearly the political executive still doesn't understand technology or its complex interactions with society and industry, and nurses delusions of being the next Germany despite not having produced a single competent basic propulsion system — air, land, or sea. Russian and US' decision-making is based on reality — India's is mostly not. While it is welcome that the government is relooking the entire CDS episode, the question remains: is it asking the right questions? Will it find the right answer? Or, will it jerry-rig a flawed structure, and settle for a mere papering over? We'll have to wait and see.

<https://www.moneycontrol.com/news/opinion/governments-rethink-on-role-of-chief-of-defence-staff-is-a-step-in-the-right-direction-8517441.html>

Rajnath Singh to launch two India-made warships in Mumbai on Tuesday

In a landmark event in indigenous warship building, two capital warships of the Indian Navy will be launched simultaneously at Mumbai's Mazagon Dock Ltd (MDL) on Tuesday. The warships, designed at the Directorate of Naval Design (DND) and built entirely at MDL, are the Project 15B destroyer called Indian Naval Ship (INS) Surat and the Project 17A frigate INS Udaygiri. Defence Minister Rajnath Singh will preside over both events. The navy's internal design house, the DND, has designed the four destroyers being built under Project 15B and seven frigates under Project 17A. The DND is the fountainhead for all of the navy's warship design. During the building phase, MDL has ordered around 75 per cent of the equipment and systems from indigenous firms including micro, small and medium enterprises (MSMEs), the Ministry of Defence (MoD) said in a statement.

INS Surat and a storied ship-building town

INS Surat is the fourth destroyer in Project 15B, under which MDL is constructing four 7,400-tonne guided missile destroyers. These are called the Visakhapatnam-class after the lead vessel, INS Visakhapatnam. According to naval tradition, destroyers are named after Indian cities. This began at the turn of the century with Project 15, under which three destroyers were built: INS Delhi in 1997, INS Mysore in 1999 and INS Mumbai in 2001. Project 15 was followed by the three-destroyer Project 15A, of which the lead warship, INS Kolkata was commissioned in 2014, INS Kochi in 2015 and INS Chennai in 2016. Now under way is Project 15B, of which the first destroyer, INS Visakhapatnam, was commissioned last November and the remaining three — INS Mormugao, Imphal and Surat — are to be commissioned at one-year intervals, in 2022, 2023 and 2024.

The cost per unit of these destroyers has steadily risen. Project 15B is expected to cost a total of Rs 35,800 crore — or Rs 8,950 crore per vessel. INS Surat is named after the commercial capital of Gujarat, which is also the second-largest commercial hub of western India after Mumbai. Surat has a rich maritime and ship-building history. Vessels built in the city in the 16th and 18th centuries were renowned for their longevity — pulling on for more than 100 years. “(INS) Surat has been built using the block construction methodology, which involves hull construction at two different geographical locations and joined them together at MDL, Mumbai,” the MoD said on Monday.

INS Udaygiri: When oceans meet mountains

INS Udaygiri follows the tradition of naming Indian frigates after mountain ranges in the country. This began with Project 17, which yielded three frigates: INS Shivalik in 2010, INS Satpura in 2011 and INS Sahyadri in 2012. Following Project 17 is Project 17A, under which seven frigates are being built — four in MDL and three in the Garden Reach Shipbuilders & Engineers (GRSE), Kolkata. These 6,600-tonne frigates are reincarnations of the six-ship Leander-class, or the Nilgiri-class, which included INS Nilgiri (commissioned in 1972,

decommissioned in 1996); INS Himgiri (1974, 2005); INS Udaygiri (1976, 2007); INS Dunagiri (1977, 2010); INS Taragiri (1980, 2013) and INS Vindhyagiri (1981, 2012).

The Nilgiri-class, named after the first-of-class, INS Nilgiri, were the first Indian warships that saw the navy carrying out significant levels of design and indigenisation. INS Udaygiri is named after a mountain range in Andhra Pradesh, and will follow INS Nilgiri into service. The seven Project 17A frigates are the first to have incorporated modular shipbuilding technologies, for which MDL and GRSE shipyards have been upgraded significantly.

https://wap.business-standard.com/article-amp/current-affairs/rajnath-singh-to-launch-india-made-warships-ins-surat-udaygiri-on-tuesday-122051601424_1.html



Sun, 15 May 2022

Indian company produces tactical battery for battlefield conditions

A Bengaluru-based venture has produced a rugged tactical battery that it is now planning to sell to the North Atlantic Treaty Organization's (NATO) forces in Europe. The heavy-duty power bank — the 'Pravaig Field Pack' — is portable, weighs 14 kg, and is of great utility to the digitally connected modern military and special forces personnel, who have to operate in high-risk zones like Ukraine and Libya while using gadgets that require constant power back-up. "These batteries are designed, engineered and made in India. This supply marks a major shift in the defence landscape of India — a tipping point in the reversal of India's high technology defence industry, from users to developers, from importers to exporters," said Pravaig's Siddhartha Bagri. In a statement, Pravaig said that the Field Pack can be used to charge a MacBook 60 times.

The Field Pack can be used to energise a military person's field duties and it can be used to deploy remote sensors. A powerful tactical battery can be used even to operate larger military equipment like drones and even coordinate tactical operations involving multiple weapons systems. "At this time, we are making the prototypes and we are going to present them at Eurosatory 2022 in Paris, which is a global event of defence and security professionals. So many countries will have the opportunity to see this technology. But our goal in the future is to equip NATO forces," said Hippolyte Berger, who is part of the team that is promoting the Pravaig Field Pack.

As illustrated by the ongoing war in Ukraine, digital coordination is now part of the battlefield readiness of modern soldiers and special forces personnel. This calls upon modern military forces to train soldiers in the use of electronic platforms even during live conflicts. The Pravaig Field Pack is one such tactical battery that aims to support the operational ability of modern soldiers in battlefield conditions.

<https://www.thehindu.com/news/national/indian-company-produces-tactical-battery-for-battlefield-conditions/article65417364.ece>

Sun, 15 May 2022

Only India can help Vietnam in sensitive areas like Defence and nuclear technology, says envoy

Vietnam shares highly cordial relations with India because of shared values that promote peace, stability, and an environment of dialogue, and only India can help the southeast Asian nation in "sensitive areas", Ambassador of Vietnam to India Pham Sanh Chau said Friday. "All nations are friendly but we share a highly cordial relation with some countries and India is among them," Chau said at an interactive session organised by the Merchants' Chambers of Commerce & Industry. "Vietnam and India have chosen the 'middle way' of peace, stability and dialogue, the path of Buddha," he said. Notably, Vietnam and India were among the 35 nations that abstained from UN resolution condemning Russia's invasion of Ukraine at the United Nations.

Chau stressed that Vietnam looks towards India for cooperation in areas like defence and peaceful use of nuclear technology. "Only India can help Vietnam in sensitive areas like defence and nuclear technology for peaceful use...they don't share such technologies," he said. Last month, India and Vietnam complimented each other on the 50th anniversary of the establishment of diplomatic relations between the two countries. Prime Minister Narendra Modi and general secretary of the Communist Party of Vietnam Nguyen Phu Trong had, during their telephonic conversation, expressed satisfaction over the rapid pace of a wide range of cooperation under the India-Vietnam Comprehensive Strategic Partnership which was established during Modi's visit to Vietnam in 2016.

Apart from bilateral and regional issues, including Ukraine and the situation in the South China Sea, both leaders agreed to promote closer cooperation in economic, trade, and defence engagements. Iterating the strong ties, Chau said the top four leaders of India, including President Ramnath Kovind, Prime Minister Modi, Vice-President Venkaiah Naidu and Lok Sabha Speaker Om Birla have visited the southeast nation. Chairman of Vietnam National Assembly Vuong Dinh Hue, along with a high-level parliamentary delegation visited India last December and all the top leaders of the ASEAN country have also come to India from time to time. Chau said bilateral trade between India and Vietnam is expected to reach \$15 billion by 2022 or 2023 from \$13.2 billion in 2021.

He noted that Vietnamese exports to India have increased and the its earlier trade deficit has been balanced with both countries now having an almost equal share in bilateral trade. With a population of 98.15 million people, the highest among the ASEAN nations, Vietnam offers a great opportunity for the Indian pharma sector for further expansion, he said. Indian companies have scope for investment in areas like textile and garments, IT, real estate, agricultural products, solar technology, education, electrical and electronic technology equipment, healthcare and general trading, according to a presentation given during the session. With labour cost as low as \$3 per hour and 95 percent literacy, Vietnam has the potential to be the biggest manufacturing hub, replacing China where the labour cost is \$6-\$7 per hour.

Indian companies -- TATA Coffee, Bank of India, ONGC Videsh, Godrej, HCL Technologies, Wipro, Marico, Tech Mahindra are already operating in Vietnam, while two new Indian start-ups

-- self-drive car rental company Zoomcar and online higher education company UpGrad have also entered Vietnam's market. Due to the country's small size and long coastline, ports are accessible from all industrial parks approximately within half an hour. Further, Vietnam's close proximity to other ASEAN countries makes it suitable as an export hub, it was noted. Post the Doi Moi Reforms in 1986, Vietnam has turned into an open economy, said Do Duy Khanh, First Secretary-Trade Office, Embassy of Vietnam.

Vietnam has an FTA with 15 countries and is part of RCEP with other 14 countries. Regional Comprehensive Economic Partnership or RCEP is a regional trading agreement between ASEAN members and countries with which they have free trade agreements (FTAs). Asia-Pacific nations of Australia, Brunei, Cambodia, China, Indonesia, Japan, South Korea, Laos, Malaysia, Myanmar, New Zealand, the Philippines, Singapore, Thailand, and Vietnam are its members. India though a part of the initial negotiations had opted out of joining the bloc.

<http://www.indiandefensenews.in/2022/05/only-india-can-help-vietnam-in.html?m=1>

DefenseNews

Tue, 17 May 2022

Polish pick MBDA's Brimstone missile for their new fleet of tank-busting vehicles

The British arm of pan-European missile maker MBDA has struck an agreement with the Polish military to provide its Brimstone missile for a new fleet of tank busters being developed by a local industrial consortium led by PGZ. The deal comes just weeks after MBDA UK concluded a separate deal with Warsaw to accelerate the delivery of a new ground-based air defense system. The announcement that the Brimstone anti-tank missile will provide the cutting edge for the Polish vehicle program known as the Ottokar Brzoza came on the same day that PGZ named the members of the industrial consortium set to design and produce the vehicle that will replace the Soviet-era wheeled BRDM-2 currently in service. Polish munitions company MESKO, which is part of the PGZ-led consortium, already makes components for the Brimstone weapon.

The British have been competing with rival international weapons suppliers for the key part of the weapon system for several years. Brimstone has been in the news in the last few days after it emerged that Ukrainian troops had been using the British-supplied weapon to destroy Russian armor. Video footage showed the missile being fired from a truck rapidly adapted to fire a weapon normally used by the British in an air-to-ground role by the Royal Air Force in several conflicts. Naval, helicopter- and drone-mounted versions of the weapon have also been developed by the British arm of MBDA. A spokesman for the company said MBDA had been talking with the Poles about possible multiple applications of the weapon but said he was unaware of whether the current agreement for the tank buster vehicle carried provision for other applications. PGZ chief executive Sebastian Chwalek said in a statement accompanying the announcement that the deal would strengthen cooperation with British industry.

“In difficult times it is good to have partners one can rely on. We are strengthening our cooperation with the UK defense industry. Today's agreement is another step towards

establishing production of the latest generation Brimstone missile in the country,” he said. It’s the second time in less than a month that PGZ, Poland’s largest defense industrial company, and MBDA UK have made news over a missile cooperation deal. Britain originally signed a deal last year to supply Poland with MBDA’s Common Anti-air Module Missile (CAMMS) and launcher as its part of an ground-based anti-air program known as NAREW. But in April the British agreed to accelerate delivery of the first two missile systems to later this year. PGZ is the lead of an industrial consortium which will see the British elements integrated with locally developed radar and command and control systems. The original schedule envisaged the weapon being made available in 2027 but the Russian attack on Ukraine, Poland’s neighbor, changed that.

The British Army deployed its own CAMMS based anti-air system, known as Sky Sabre, to Poland earlier this year as a stop gap to boost local air defenses.

<https://www.defensenews.com/global/europe/2022/05/16/polish-pick-mbdas-brimstone-missile-for-their-new-fleet-of-tank-busting-vehicles/>

R. REPUBLICWORLD.COM

Tue, 17 May 2022

NATO starts one of the largest military exercises since 1991 in Estonia

NATO has started its military exercise in the Baltics in Estonia, which is dubbed "Hedgehog," involving ten nations, including Finland and Sweden, who are set to join the alliance in the coming days. As per the reports of BBC, the Estonian exercises, which will go on until June 3rd were planned before Russia's invasion of Ukraine but the invasion disrupted the plans. The exercise will involve 15,000 troops, making it one of Estonia's largest military exercises since 1991. The exercise takes place 64 kilometres from the nearest Russian military base. The exercises are meant to improve the readiness and interoperability" of NATO forces. Russian President Vladimir Putin has stated that Russia has no issues with Finland or Sweden, but that a military buildup near its borders would need a response. Sweden, like Finland, announced its intention to apply for NATO.

Russia regards NATO as a security threat

Russia regards NATO as a security threat and has threatened consequences for new members who join the alliance. Sweden remained neutral throughout WWII and has avoided joining military alliances for more than two centuries. Finland also remained out of NATO till now. But after Russia invaded Ukraine on February 24, the two countries decided to join NATO. Estonian Foreign Minister Eva-Maria Liimets said that they see that once their close neighbours and friends join NATO, the general security environment in the region, especially around the Baltic Sea, would obviously rise. On Wednesday, they will submit their formal applications to join the alliance. Jens Stoltenberg, the Secretary General of NATO, proposed that the two countries' applications may be expedited, with temporary security procedures in place to deal with any potential Russian response. Russia's invasion of Ukraine has convinced regional governments

that they must significantly strengthen their defences in order to discourage President Putin from additional military intervention.

'Russia is keeping a careful eye on the extension'

Kremlin spokesman Dmitry Peskov stated that Russia is keeping a careful eye on the extension of NATO, and believes it would not help Europe's security, according to media reports. He said that this is a serious issue, one that concerns Russia and that they will be watching it closely. Other NATO drills are taking place around Europe, including in Poland, North Macedonia and Lithuania.

<https://www.republicworld.com/world-news/russia-ukraine-crisis/nato-starts-one-of-the-largest-military-exercises-since-1991-in-estonia-articleshow.html>

Science & Technology News



Fri, 13 May 2022

ISRO successfully tests rocket that will power India's Gaganyaan mission

The Indian Space & Research Organisation (Isro) on Monday successfully conducted a static fire test of the boosters that will power India's maiden astronaut mission, Gaganyaan. The space agency conducted the static fire test in the wee hours as propellants burned to mark a major milestone for the mission. During the test the solid rocket booster HS200 was fired at 7:20 am at the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh. The HS200 rocket booster is the human-rated version of the well-proven S200 rocket booster of GSLV Mk III satellite launch vehicle, popularly known as LVM3. "The successful completion of this test marks a major milestone for the prestigious human space flight mission of ISRO, the Gaganyaan, as the first stage of the launch vehicle is tested for its performance for the full duration," Isro said in a statement.

The S200 motor which is the first stage of the LVM3 launch vehicle intended for launching a 4000 kg class of satellites to Geosynchronous transfer orbit, was configured as a strap-on rocket booster. Design and development of the HS200 booster were completed at Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram, and propellant casting was completed at SDSC, Sriharikota. Isro said that decision to use LVM3 to launch Gaganyaan was taken based on the successful launch pedigree of this vehicle during the Chandrayaan mission. The vehicle has gone through several improvements for launching the manned mission. "A host of design improvements that were aimed at increasing the safety and reliability of various systems were implemented in the S200 booster like all other systems. These include additional safety features for motor case joints and robust insulation and ignition systems. The control system used in this

booster employs one of the world's most powerful electro-mechanical actuators with multiple redundancies and safety features," Isro added.

For the static fire test, the HS200 booster loaded with 203 tons of solid propellant was tested for a duration of 135 seconds. The 20 m long and 3.2 m diameter booster is the world's second-largest operational booster with solid propellant. Scientists measured about 700 parameters and concluded that the performance of all the systems was normal. Out of the three propulsion stages of LVM3, the human-rated versions of the second stage known as L110-G loaded with liquid propellant and the third stage C25-G with cryogenic propellant are in the final phase of qualification including tests with static firing.

<https://www.indiatoday.in/science/story/isro-successfully-tests-rocket-that-will-power-india-s-gaganyaan-mission-1949065-2022-05-13>



Mon, 16 May 2022

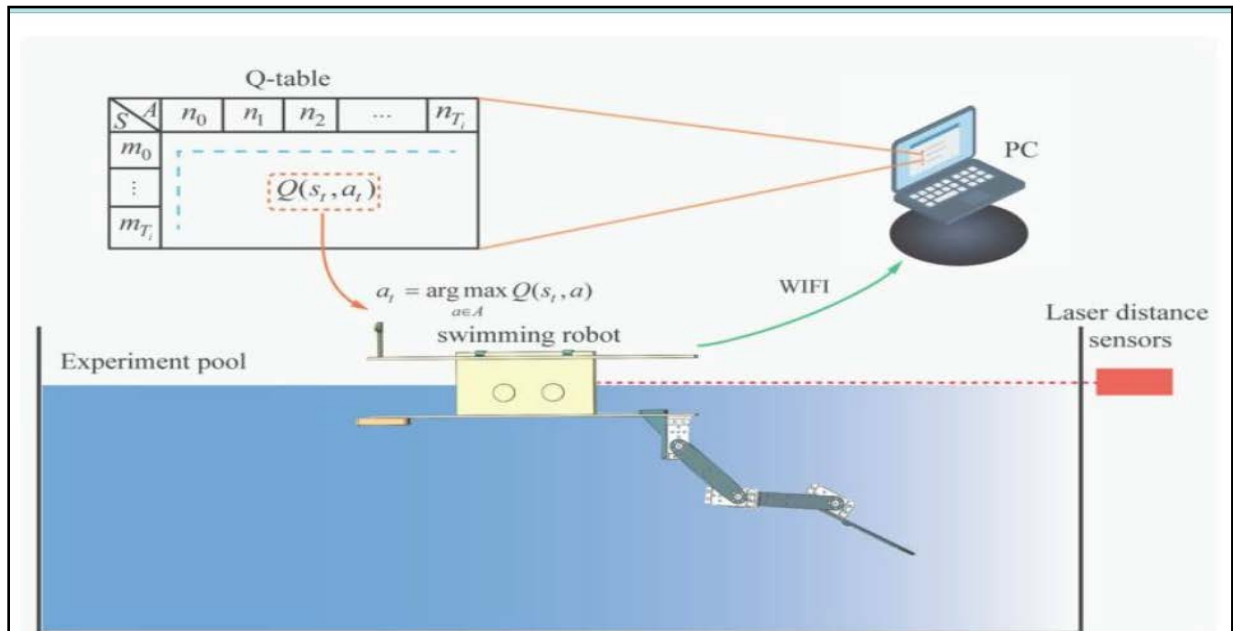
A beaver-inspired method to guide the movements of a one-legged swimming robot

When developing new technologies, computer scientists and roboticists often draw inspiration from animals and other living organisms. This allows them to artificially replicate complex behaviors and locomotion patterns to enhance their systems' performance, efficiency and capabilities. Researchers at Zhejiang Sci-Tech University and University of Essex have recently developed a reinforcement learning technique that can be used to control the movements of a beaver-inspired, single-legged robot. Their method, introduced in a paper published in *Robotics and Autonomous Systems*, allows the robot to autonomously learn how to perform swimming motions that resemble those observed in beavers. "In this study, we introduce a biological-inspired reinforcement learning control method to model the motion of underwater robots," Gang Chen, one of the researchers who carried out the study, told TechXplore. "This method is mainly based on one of our previous works studying the motion of beavers, published in Springer Link's *Journal of Intelligent & Robotic Systems*."

Underwater robots such as the one created by Chen and his colleagues are nonlinear systems, and their movements involve complex hydrodynamics. Accurately modeling their motion can thus be a very complex and challenging task that involves significant computing efforts. In contrast with other models to guide the motion of underwater robots introduced in the past, the approach devised by Chen and his colleagues does not require the integration of complex motion models based on hydrodynamics.

This is mainly because it relies on simplified joint angle representations that dynamically replicate the swimming motion of beavers. These joint representations make the model easier to train while also reducing the robot's ineffective motions during training. "By combining reinforcement learning with the mechanisms underpinning the swimming behavior of beavers, our method implements the robot's swimming control as quickly and operably as possible," Chen

explained. "Its most notable and unique advantage is that it can avoid building complex motion control models and quickly realize the swimming control of a beaver-like, single-legged robot."



Actual controller of the robot after training

Chen and his colleagues evaluated their beaver-inspired reinforcement learning-based method in a series of experiments, using a single-legged robotic platform. Their results were very promising, with their approach resulting in effective beaver-like swimming motions that improved the robot's locomotion. In the future, the method introduced by this team of researchers could be used to improve the performance and movements of other one-legged robots designed to operate in water. In addition, their work could inspire the development of similar approaches to control the movements of other underwater robots. "In our future work, we plan to improve the structure and performance of the beaver-like swimming robot," Chen added. "We would also like to investigate ways to improve the intelligence behind robotic swimming motions using reinforcement learning, not only focusing on the robot's swimming velocity, but also on swimming stability, trajectory planning, and obstacle avoidance, all within a real underwater environment."

<https://techxplore.com/news/2022-05-beaver-inspired-method-movements-one-legged-robot.html>

