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समाचार पत्रों से चयित अंश
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Tue, 20 Dec 2022

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अरुणाचल प्रदेश के तवांग सेक्टर में भारतीय जवानों और चीनी सैनिकों की झड़प के बाद एक बार फिर से भारत और चीन के रिश्तों में खटास आ गई है. LAC पर दोनों देशों की तनातनी के बीच भारतीय सेना अपनी ताकत में लगातार इजाफा करने में जुटी हुई है. एएनआई न्यूज के मुताबिक भारतीय सेना अब बैलेस्टिक मिसाइल 'प्रलय' खरीदने पर विचार कर रही है. 'प्रलय' बैलेस्टिक मिसाइल 150 से 500 किलोमीटर दूर स्थित दुश्मन के ठिकानों का पूरी तरह सफाया करने में सक्षम है. भारतीय सेना द्वारा 'प्रलय' खरीदी का प्रस्ताव अग्रिम चरण में है. इस सप्ताह होने वाली उच्च स्तरीय बैठक में इस पर फैसला होने की उम्मीद है. रक्षा सूत्रों के हवाले से एएनआई ने बताया कि भारतीय रक्षा बलों की ओर से पेश किया गया प्रस्ताव अपने अंतिम चरण में है.

दिसंबर 2021 हुआ था सफल परीक्षण

प्रलय बैलेस्टिक मिसाइल का पिछले साल दिसंबर में लगातार दो दिनों में 2 बार सफल परीक्षण किया गया था और तभी से सेना इसके अधिग्रहण और इसे सैन्य बेड़े में शामिल करने की दिशा में काम कर रही है. प्रलय मिसाइल को डीआरडीओ ने विकसित की है और ये ठोस-ईंधन पर शॉर्ट रेंज बैलिस्टिक मिसाइल है. यह जमीन से जमीन पर मार करने के लिए बनाई गई है. यह मिसाइल 150 से 500 किलोमीटर दूर स्थित दुश्मन के ठिकाने को ध्वस्त करने में सक्षम है.

LAC पर तैनात की जा सकती है

इस मिसाइल के हमले को इंटरसेप्टर मिसाइल भी नहीं तोड़ पाएगी. यह हवा में कुछ रेंज तक अपनी रास्ता खुद बदलने में सक्षम हैं. प्रलय मिसाइल को मोबाइल लॉन्चर से लॉन्च किया जा सकता है. जानकारी के मुताबिक इसे भारत-चीन सीमा (LAC) पर तैनात करने की योजना बनाई जा रही है. इसकी मदद से ऊंचाई पर मौजूद चीनी टारगेट्स पर हमला करना आसान होगा.

रॉकेट फोर्स के गठन का प्रस्ताव विचाराधीन

चीनी सैनिकों की घुसपैठ को देखते हुए भारत अब LAC पर सैन्य ताकत को बढ़ाने में लगा है. चीन से खतरे को देखते हुए भारतीय सेना एक 'रॉकेट फोर्स' बनाने पर विचार कर रही है. रॉकेट फोर्स के गठन का प्रस्ताव रक्षा मंत्रालय में विचाराधीन है. इस सप्ताह होने वाली बैठक में इस प्रस्ताव पर भी विचार किया जा सकता है. बता दें कि दिवंगत सीडीएस जनरल बिपिन रावत इस रॉकेट फोर्स के गठन पर विचार कर रहे थे. हाल ही में नौसेना प्रमुख एडमिरल आर हरि कुमार ने इसका खुलासा किया था.

https://www.abplive.com/news/india/indian-forces-acquiring-pralay-ballistic-missile-for-striking-targets-at-150-km-to-500-km-2286729

जागरण

Tue, 20 Dec 2022

'प्रलय' से अब खौफ खाएगा चीन! तवांग संघर्ष के बीच भारतीय सेना को मिली 'गुड न्यूज'

चीन के साथ चल रहे संघर्ष के बीच भारतीय सशस्त्र बल को 'प्रलय' बैलिस्टिक मिसाइल (Pralay ballistic missile) मिलने जा रही है, जो 150 से 500 किलोमीटर तक लक्ष्य को मार सकती है। रक्षा सूत्रों ने बताया कि भारतीय रक्षा बलों द्वारा पेश किया गया प्रस्ताव एक उन्नत चरण में है। इस सप्ताह एक उच्च स्तरीय बैठक के दौरान इसे मंजूरी के लिए लिया जाना है। यह प्रस्ताव इसलिए भी महत्वपूर्ण है, क्योंकि यह ऐसे समय में आया है, जब भारतीय सेना एक रॉकेट फोर्स के निर्माण पर काम कर रही है, जिसकी रक्षा मंत्रालय में उच्चतम स्तर पर चर्चा हो रही है। हाल ही में, नौसेना प्रमुख एडमिरल आर हरि कुमार (Navy chief Admiral R Hari Kumar) ने कहा कि दिवंगत जनरल बिपिन रावत (General Bipin Rawat) सीमा पर दुश्मनों का मुकाबला करने के लिए एक रॉकेट बल के निर्माण पर काम कर रहे थे।

पिछले साल दो बार किया गया परीक्षण

मिसाइल का पिछले साल दिसंबर में लगातार दो दिनों में दो बार सफल परीक्षण किया गया था और तब से सेना इसके अधिग्रहण और शामिल करने की दिशा में काम कर रही है। 150 से 500 किमी की सीमा के साथ, 'प्रलय' ठोस प्रणोदक रॉकेट मोटर (Solid propellant rocket motor) और अन्य नई तकनीकों से संचालित है। मिसाइल मार्गदर्शन प्रणाली (Missile guidance system) में अत्याधुनिक नेविगेशन और एकीकृत वैमानिकी शामिल है।

रास्ता बदलने की क्षमता

'प्रलय' एक अर्ध-बैलिस्टिक सतह से सतह पर मार करने वाली मिसाइल है। इंटरसेप्टर मिसाइलों को हराने में सक्षम होने के लिए उन्नत मिसाइल को विकसित किया गया है। हवा में एक निश्चित दूरी तय करने के बाद इसमें अपना रास्ता बदलने की क्षमता है। सूत्रों ने कहा कि इस तरह की मिसाइलें अपने सैनिकों को दुश्मन के हवाई रक्षा स्थलों या इसी तरह के उच्च मूल्य वाले लक्ष्यों को पूरी तरह से नष्ट करने या नष्ट करने की जबरदस्त क्षमता देती हैं।

ब्रह्मोस सुपरसोनिक क्रूज मिसाइलों (BrahMos supersonic cruise missiles) के साथ प्रलय मिसाइलें रक्षा बलों में सबसे लंबी दूरी की सामरिक हथियार प्रणाली होंगी, क्योंकि लंबी दूरी के सामरिक हथियारों को रणनीतिक बलों की कमान द्वारा नियंत्रित किया जाता है।

https://www.jagran.com/news/national-indian-forces-acquiring-pralay-ballistic-missile-for-striking-targets-at-150-to-500-km-23264875.html

INDIA TODAY

Wed, 21 Dec 2022

Amid Border Row with China, Defence Forces to Induct 'Pralay' Missiles that can Strike Targets 500 Km Away

In a major development, the Indian defence forces are going to induct ballistic missiles for tactical operations, as they are all set to place orders for the 'Pralay' ballistic missiles that can hit targets from 150 to 500 km. This comes days after Indian and Chinese troops clashed in Tawang district of Arunachal Pradesh earlier this month. Top sources in the defence sector told India

Today, “As the forces are working on the creation of a rocket force, the defence ministry is expected to soon clear a proposal to buy and induct the Pralay missiles in the next few days.” Recently, chief of the Indian Navy Admiral R Hari Kumar said that the late Chief of Defence Staff General Bipin Rawat was working on the creation of a rocket force to counter enemies on the border. The missile was successfully tested twice on two consecutive days last year in December and since then, the forces are working towards its acquisition and induction.

‘Pralay' is powered with solid propellant rocket motor with the capability to destroy enemy targets within a range of 150 to 500km. The missile guidance system includes state-of-the-art navigation and integrated avionics.

Pralay is a quasi-ballistic surface-to-surface missile. The advanced missile has been developed in a way such that it can defeat interceptor missiles. It has the ability to change its path after covering a certain range midair. Sources say that such missiles give a tremendous capability to troops to completely destroy or take out enemy air defence sites or similar high value targets.

https://www.indiatoday.in/india/story/defence-forces-to-acquire-pralay-missile-that-can-strike-targets-500-km-away-2311572-2022-12-21

Firstpost.

Tue, 20 Dec 2022

How Lethal is Pralay Missile which India is Acquiring?

Amidst the ongoing LAC standoff with the People’s Liberation Army (PLA) of China, the Indian Army is in line to acquire a new, destructive weapon to counter the formidable Chinese behemoth.

The Defence Research and Development Organisation (DRDO) which has done the nation proud by developing a host of powerful missiles, has added another feather to its already glittering crown with its latest achievement – the Pralay missile. Intended to be India’s answer to the Dongfeng 12 (CSS-X-15) missile of China, Pralay is a canisterised tactical, surface-to-surface, and short-range ballistic missile (SRBM) for battlefield use.

News agency ANI quoted defence officials as saying that the proposal moved by the Indian defence forces is at an advanced stage and is scheduled to be taken up for clearance during a high-level meeting later this week. The proposal is also important as it comes at a time when the Indian forces are working on the creation of a rocket force which has been in discussion at the highest levels in the defence ministry.

The Pralay missile along with the BrahMos supersonic cruise missile will be the longest-range tactical weapon system in the defence forces as the long-range strategic weapons are controlled

by the strategic forces command. DRDO started developing the Pralay missile in 2015 and took four years to test the required technologies. The DRDO conducted the maiden test of the Pralay missile from Abdul Kalam Island off the coast of Odisha on December 22, 2021.

Let us take a look at some of the features of the Pralay missile.

– The Pralay missile has a high explosive preformed fragmentation warhead weighing 350 kg to 700 kg. It boasts Penetration-Cum-Blast (PCB) and Runway Denial Penetration Submunition (RDPS) at a range of 150 km to 500 km.

– The Pralay missile is designed to destroy enemy radar and communication installations, command and control centers and airfields.

– The Pralay missile is road mobile and fulfils the the Indian Army's requirement of a conventionally armed tactical ballistic missile that is not hampered by India's 'No First Use' nuclear policy.

– The Pralay missile is powered by solid fuel rocket motor and follows quasi-ballistic trajectory. It has the ability to evade anti-ballistic missile (ABM) interceptors by perfroming mid-air maneuvers using maneuverable reentry vehicle.

– The Pralay missile combines technologies developed for exoatmospheric interceptor missile Prithvi Defence Vehicle (PDV) from Indian Ballistic Missile Defence Programme and the Prahaar tactical missile.

– The Pralay missile utilises the same composite propellant developed by the High Energy Materials Research Laboratory (HEMRL) for the Sagarika missile (K-15) from the K Missile family. This composite propellant is extremely powerful and generates more energy compared to the propellant used for the Agni missile series.

https://www.firstpost.com/india/how-lethal-is-pralay-missile-which-india-is-acquiring-11842451.html

Defence News

Defence Strategic : National/International

Press Information Bureau
Government of India

Ministry of Defence

Tue, 20 Dec 2022

मैसर्स एलएंडटी, कट्टुपल्ली में आज एएसडब्ल्यू एसडब्ल्यूसी (जीआरएसई) परियोजना के पहले जहाज 'अर्नाला' का शुभारंभ किया गया

भारतीय नौसेना के लिए जीआरएसई द्वारा निर्मित आठ एएसडब्ल्यू एसडब्ल्यूसी प्रोजेक्ट में से पहले जहाज 'अर्नाला' 20 दिसंबर, 2022 का चेन्नई के मैसर्स एलएंडटी, कट्टुपल्ली में शुभारंभ किया गया। रक्षा मंत्रालय की वित्तीय सलाहकार (रक्षा सेवा) श्रीमती रसिका चौबे की उपस्थिति में जहाज के शुभारंभ कार्यक्रम में10:40 बजे बंगाल की खाड़ी के पानी में इसे उतारा गया। नौसेना की समुद्री परंपरा को ध्यान में रखते हुए, श्रीमती रसिका चौबे ने अथर्ववेद के मंत्रोच्चारण के साथ जहाज का शुभारंभ किया। महान मराठा योद्धा, छत्रपति शिवाजी महाराज द्वारा अर्नाला द्वीप (वसई, महाराष्ट्र से लगभग 13 किलोमीटर उत्तर में स्थित) को दिए गए रणनीतिक समुद्री महत्व को दर्शाने के लिए जहाज का नाम अर्नाला रखा गया है।

29 अप्रैल, 2019 को रक्षा मंत्रालय और गार्डन रीच शिपबिल्डर्स एंड इंजीनियर्स (जीआरएसई), कोलकाता के बीच आठ एएसडब्ल्यू एसडब्ल्यूसी जहाजों के निर्माण के लिए अनुबंध पर हस्ताक्षर किए गए थे। अर्नाला वर्ग के जहाज भारतीय नौसेना के अभय वर्ग एएसडब्ल्यू जहाजों की जगह लेंगे और तटीय जल में उपसतह निगरानी सहित तटीय जल और कम तीव्रता वाले समुद्री संचालन (एलआईएमओ) में एंटी-सबमरीन संचालन करने के लिए डिजाइन किए गए हैं। इन 77.6 मीटर एएसडब्ल्यू एसडब्ल्यूसी जहाजों में 25 समुद्री मील की अधिकतम गति और 1800 एनएम की सहनशक्ति के साथ 900 टन का विस्थापन है।

कोविड-19 महामारी के कारण चुनौतियों के बावजूद, जीआरएसई ने इस परियोजना के जहाजों पर पर्याप्त प्रगति की है। इस जहाज का शुभारंभ प्रधानमंत्री के 'आत्मनिर्भर भारत' के दृष्टिकोण के हिस्से के रूप में पूरी तरह से स्वदेशी जहाज निर्माण के प्रति हमारे संकल्प को मजबूत करता है। एएसडब्ल्यू एसडब्ल्यूसी जहाजों में 80 प्रतिशत से अधिक स्वदेशी सामग्री होगी, जिससे यह सुनिश्चित होता है कि बड़े पैमाने पर रक्षा उत्पादन भारतीय विनिर्माण इकाइयों द्वारा निष्पादित किया जाता है और देश के भीतर रोजगार और क्षमता का निर्माण होता है।

https://pib.gov.in/PressReleasePage.aspx?PRID=1885216

Press Information Bureau
Government of India

Ministry of Defence

Tue, 20 Dec 2022

Launch of 'Arnala', First Ship of ASW SWC (GRSE) Project on 20 Dec 22 at M/S L&T, Kattupalli

'Arnala', the first of 08 x ASW SWC Project, being built by GRSE for Indian Navy was launched on 20 Dec 22 at M/s L&T, Kattupalli, Chennai. She made her first contact with water of Bay of Bengal at 1040 hrs at the Launch Ceremony graced by Smt Rasika Chaube, Financial Adviser (Defence Services), Ministry of Defence. In keeping with the Naval maritime tradition, Smt Rasika Chaube launched the ship to the chanting of invocation from Atharva Veda. The ship has been named Arnala to signify the strategic maritime importance accorded to the island of Arnala (located about 13 Km north of Vasai, Maharashtra) by the great Maratha warrior, Chhatrapati Shivaji Maharaj.

Contract for building eight ASW SWC ships was signed between MoD and Garden Reach Shipbuilders & Engineers (GRSE), Kolkata on 29 Apr 19. Arnala class of ships will replace the Abhay class ASW Ships of Indian Navy and are designed to undertake anti-submarine operations in coastal waters and Low Intensity Maritime Operations (LIMO) including subsurface surveillance in littoral waters. The 77.6m ASW SWC ships have a displacement of 900 tons with a maximum speed of 25 knots and endurance of 1800 NM. Despite challenges due to COVID-19 pandemic, GRSE has made substantial progress on the ships of this project. Launch of this ship reinforces our resolve towards completely indigenous shipbuilding as part of Prime Minister's vision of 'Aatmanirbhar Bharat'. The ASW SWC ships will have over 80% indigenous content, ensuring that large scale defence production is executed by Indian manufacturing units thereby generating employment and capability build up within the country.

https://pib.gov.in/PressReleasePage.aspx?PRID=1885185

Press Information Bureau
Government of India

Ministry of Defence

Tue, 20 Dec 2022

भारतीय नौसेना को पांचवीं स्कॉर्पीन पनडुब्बी 'वागीर' की डिलीवरी

प्रोजेक्ट -75 कलवरी क्लास सबमरीन की पांचवीं पनडुब्बी यार्ड 11879 आज दिनांक 20 दिसंबर 2022 को भारतीय नौसेना को सौंपी गई । प्रोजेक्ट- 75 में स्कॉर्पीन डिजाइन की छह पनडुब्बियों का स्वदेशी निर्माण शामिल है । इन पनडुब्बियों का निर्माण मैसर्स नेवल ग्रुप, फ्रांस के सहयोग से मझगांव डॉक शिपबिल्डर्स लिमिटेड (एमडीएल) मुंबई में किया जा रहा है । दिनांक 12 नवंबर 2020 को लॉन्च की गई, वागीर ने दिनांक 01 फरवरी 2022 से समुद्री परीक्षण शुरू किया और यह बहुत गर्व की बात है कि इस पनडुब्बी ने पहले की पनडुब्बियों की तुलना में कम से कम समय में हथियार और सेंसर परीक्षणों सहित सभी प्रमुख परीक्षणों को पूरा किया है ।

पनडुब्बी निर्माण एक जटिल प्रक्रिया है क्योंकि कठिनाई तब बढ़ जाती है जब सभी उपकरणों को छोटा करने की आवश्यकता होती है और कड़े गुणवत्ता की आवश्यकताएं भी बनाए रखनी होती हैं। एक भारतीय यार्ड में इन पनडुब्बियों का निर्माण 'आत्मनिर्भर भारत' की दिशा में एक और कदम है और इस क्षेत्र में आत्मविश्वास बढ़ाता है, एक उल्लेखनीय उपलब्धि यह है कि यह 24 महीने की अवधि में भारतीय नौसेना को दी गई तीसरी पनडुब्बी है । पनडुब्बी को जल्द ही भारतीय नौसेना में शामिल किया जाएगा और इससे भारतीय नौसेना की क्षमता में वृद्धि होगी।

https://pib.gov.in/PressReleasePage.aspx?PRID=1885271

THE HINDU

Tue, 20 Dec 2022

Fifth Scorpène-class Submarine Vagir Delivered to Navy

The fifth Scorpène-class conventional submarine, Vagir, was delivered to the Navy by Mazagon Dock Shipbuilders Limited (MDL) Mumbai on December 20. It is scheduled to be commissioned into service next month, a Navy official said. “It is a matter of great pride that Vagir has completed all major trials including the weapon and sensor trials in the shortest time in comparison to the earlier submarines,” the Navy said in a statement. A notable achievement is that this is the third submarine delivered to the Navy in a span of 24 months, it added.

Vagir was launched into water on November 12, 2020 and commenced sea trials on February 1, 2022. The sixth and last of the Scorpène-class submarines, Vagsheer, was launched into water in April 2022 and is expected to be delivered to the Navy by end 2023. Six Scorpene submarines are being built under Project-75 by MDL under technology transfer from Naval Group of France under a $3.75 billion deal signed in October 2005. The project is about four years behind schedule. The first submarine INS Kalvari was commissioned in December 2017, second submarine INS Khanderi in September 2019, third one INS Karanj in March 2021 and the fourth one INS Vela joined service in November 2021.

Parallelly, the tender to build six more advanced conventional submarines under Project-75I is in the Request For Proposal (RFP) stage but has suffered delays. With delays in submarine induction, the SSKs - 209s (German HDWs) and EKMs (Russian Kilo's), are being put through the Medium Refit Life Certification (MRLC) process which will give them additional life of 10 to 15 years.The Navy currently has 15 conventional and one nuclear submarine in service. It includes seven Russian Kilo class submarines, four German HDW submarines, four Scorpene class submarines and the indigenous nuclear ballistic missile submarine INS Arihant.

The Navy has drawn up plans to install Air Independent Propulsion (AIP) modules on all Scorpene submarines as they go for their refit beginning with INS Kalvari in the next couple of years to enhance their endurance. Development of an indigenous AIP module developed by the Defence Research and Development Organisation (DRDO) is in advanced stages.

https://www.thehindu.com/news/national/fifth-scorp%25C3%25A8ne-class-submarine-vagir-delivered-to-navy/article66284661.ece

THE TIMES OF INDIA

Tue, 20 Dec 2022

Navy gets 5th Scorpene-class Submarine Vagir: All You Need to Know

The Indian Navy on Tuesday received the fifth scorpene-class submarine Vagir ahead of its planned commissioning next month. The submarine, built under Project 75, will boost the Indian Navy's combat capability at a time when China has been increasing its presence in the Indian Ocean region.

Here's all you need to know ...

* Launched in November 2020, the submarine commenced her sea trials from February 2022 and completed all the tests including the weapons and sensor trials in the shortest possible period compared with the earlier submarines.

* It will be commissioned into the Indian Navy soon as 'INS Vagir', a fully combat-worthy submarine that is capable of operation in all modes and regimes of deployment.

> The 5th submarine of Project–75 #Vagir, delivered to #IndianNavy on #20Dec 22.Built indigenously at… https://t.co/AugI1P7vU3
>
> — SpokespersonNavy (@indiannavy) 1671530292000

* 'Vagir' is built to undertake multifarious missions like anti-surface, anti-submarine, intelligence gathering, mine-laying, area surveillance, operate in multiple theatres of operation, showcasing interoperability with other components of the Naval Task Force.

* Project-75 includes the indigenous construction of six submarines of Scorpene design. The submarines are being constructed at Mazagon Dock Shipbuilders Limited (MDL) in Mumbai in collaboration with the Naval Group of France.

* Earlier, the Mazagaon Dock Shipbuilders Ltd (MDL) had delivered the submarines 'Kalvari', 'Khanderi', 'Karanj', 'Vela'.

* The Scorpene submarines encompass superior stealth features like advanced acoustic absorption techniques, low radiated noise levels, hydro-dynamically optimised shape, etc, and the ability to launch a crippling attack on the enemy using precision guided weapons.

* India has been focusing on shoring up its maritime capability with a focus on the Indian Ocean in the backdrop of concerns over China's growing forays into the region, considered the backyard of the Indian Navy.

* Navy Spokesperson Commander Vivek Madhwal said the construction of these submarines in an Indian yard is another step towards 'Aatmanirbhar Bharat'.

* In a related development, 'Arnala', the first of anti-submarine warfare corvette being built by the Garden Reach Shipbuilders and Engineers for the Indian Navy, was launched on Tuesday in Chennai.

* On the launch of 'Arnala', the Navy said the name has been chosen to signify the strategic maritime importance accorded to the island of Arnala (located about 13 km north of Vasai, Maharashtra) by the great Maratha warrior Chhatrapati Shivaji Maharaj.

https://timesofindia.indiatimes.com/india/navy-gets-5th-scorpene-class-submarine-vagir-all-you-need-to-know/articleshow/96376610.cms

FINANCIAL EXPRESS
Read to Lead

Tue, 20 Dec 2022

Vagir to be Commissioned in 2023. Indigenous AIP not Ready Yet

By Huma Siddiqui

Even as the fifth submarine of the Project – 75, Kalvari Class submarines, `Vagir' (Yard 11879) is set to be commissioned into the Indian Navy early next year as `INS Vagir', the indigenous Fuel Cell based Air Independent Propulsion (AIP) System of the Defence Research and Development Organisation (DRDO) is still not ready. For the Kalvari Class Submarines, Financial Express Online has reported earlier this year that AIP is a critical technology needed to make the diesel electric submarine more lethal. "This is possible by enabling these submarines to stay under water for an extended period of time, around two weeks without having to surfacing

to recharge their batteries. The traditional diesel-electric submarines have to surface every few days," explained a senior officer.

Sources have confirmed to Financial Express Online that "The Indian Navy has urged DRDO to ensure that the Fuel Cell based AIP is ready soon and that it undergoes trials before they can be accepted to be fitted onboard the first boat which will come for retrofit in 2025."

DRDO AIP is not ready

And earlier this year in June the then Secretary, Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy had told Financial Express Online that by 2025 DRDO made AIP will be ready to be fitted on INS Kalvari which is scheduled to come up for retrofit in 2025. DRDO had in 2021 claimed – as compared to other technologies, the Fuel cell-based AIP has merits in performance as compared to other technologies. And all these submarines are expected to be retrofitted with AIP – whether they are from DRDO, Germany, South Korea or France. So far four submarines built under Project-75 — INS Kalvari, INS Khanderi and INS Karanj and INS Vela are already commissioned in the Indian Navy. And `Vagir' is the fifth in the series to be commissioned soon.

More about `Vagir'

India has reaffirmed its membership in the exclusive group of submarine building nations. Sea trials of `Vagir' commenced from early February 2022 and in comparison to the earlier submarines, she has completed all major trials including weapons and sensor trials in the shortest time. Once commissioned this will further enhance the navy's capability. `Vagir,' the fifth submarine under the Project 75, Kalvari Class Submarines which has been constructed at the Mazagon Dock Limited (MDL), Mumbai was delivered to the Indian Navy today (December 20, 2022). This submarine has been built under collaboration with M/s Naval Group of France and is based on `Scorpene' design. This was launched on November 12, 2022 and it had commenced its sea trials earlier this year.

Speaking on the signing of the Acceptance Document with the India Navy, VAdm Narayan Prasad, (Retd), Chairman & Managing Director MDL, said that with the delivery of the fifth submarine to the Indian Navy, the shipyard has lived up to its reputation as one of the leading shipyards in the country with its capacity and its capability to meet requirements of the Indian Navy. RAdm C Raghuram, VSM, Chief Staff Officer (Tech), Western Naval Command in the presence of Commanding Officer (desig) CdrS Divakar, MDL Directors and Navy personnel at MDL were all present at the ceremony of signing the document. CMD, according to an official statement released by the MDL has mentioned that the building of Scorpene has been challenging. As all the work was being done in most congested spaces and dovetailed by stringent clearances and tolerances –required to be maintained throughout the process of the construction. The state-of-the-art technology has been used to ensure that the boat has superior stealth features and these include low radiated noise levels, hydro-dynamically optimized shape, advanced acoustic absorption techniques, and more.

It has the ability to attack the enemy using precision guided weapons. An attack can be launched underwater or on surface using torpedoes and tube launched anti-ship missiles. Its stealth has been enhanced by providing her characteristic underwater signature.

https://www.financialexpress.com/defence/vagir-to-be-commissioned-in-2023-indigenous-aip-not-ready-yet/2920792/

THE TIMES OF INDIA

Wed, 21 Dec 2022

5TH OF INDIA'S 6 DEADLIEST SUBS DELIVERED

VAGIR TO BE 18TH OF NAVY'S IN-SERVICE FLEET

The fifth of six Scorpene-design submarines, Vagir, was delivered to the Navy by Mazagon Dock Shipbuilders Limited (MDL) on Tuesday and will soon be commissioned. The sixth sub is under sea trials and is expected to be delivered within a year. With advanced stealth features, this class of subs is a major boost to India's naval might. But how strong is the Navy's submarine fleet and how does it compare with regional rivals?
V Narayan reports

INDIA'S SUBMARINES

In service **17**

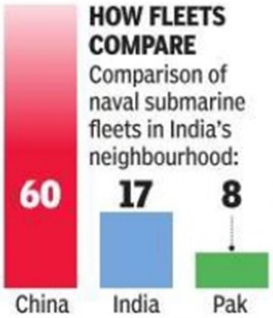
Commissioning soon **1**

Undergoing sea trials **1**

Decommissioned **3**

HOW FLEETS COMPARE

Comparison of naval submarine fleets in India's neighbourhood:



The numbers pertain to what is known. Countries keep a lot of data on submarines secret, including information on the exact number of submarines they have

SUBS AT NAVY'S SERVICE

The class features diesel propulsion and additional air-independent propulsion. Built under Project 75*

Sub	Commissioning
Kalvari	Dec 2017
Khanderi	Sept 2019
Karanj	Dec 2020
Vela	Dec 2021
Vagir	Dec 2022
Vagsheer	2023**

*The name of the Navy's Scorpene programme at MDL
**Expected

4 subs in service
1 about to be commissioned
1 undergoing sea trials

Stealth factor | Scorpene-class submarines have advanced acoustic silencing techniques, low-radiated noise levels, hydro-dynamically optimised shape. They can launch attacks using precision-guided weapons including torpedoes and missiles

Type | Attack submarine
Armaments | Torpedos (or mines), anti-ship missiles
Length **67.5** metres

Sindhughosh Class
(Russian Design)
7 subs in service. 3 decommissioned

- Kilo class diesel-electric submarines. Were built under a contract between the erstwhile USSR's Rosvooruzhenie and the Ministry of Defence (India)

Type | Attack submarine
Armaments | Club-S missile, torpedo, anti-submarine missile, active-passive homing torpedo
Length **72.6m**

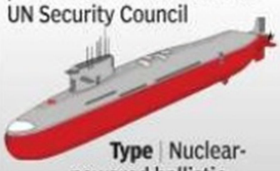
Shishumar Class
(German Design) 4 subs in service

- These are diesel-electric submarines, developed by the German yard Howaldtswerke-Deutsche Werft (HDW). The first two were built by HDW at Kiel, Germany, and the rest at MDL Mumbai. The ships were commissioned between 1986 and 1994

Type | Attack submarine
Armaments | Torpedoes, external strap-on mines, Harpoon Block II missiles
Length **64.4m**

Arihant Class
(Indian Design) 2 in service

- The nuclear subs INS Arihant and Arighat are a class of Indian nuclear-powered ballistic missile subs classified as 'strategic strike nuclear submarines'. Arihant (launched in 2009, and after extensive sea trials, commissioned in 2016) was the first ballistic missile sub to have been built by a country other than one of the five permanent members of the UN Security Council



Type | Nuclear-powered ballistic missile submarine
Armaments | Torpedoes, cruise missiles and mines
Length **111m**

Tue, 20 Dec 2022

चीनी सेना की जड़ें हिला देगा इंडियन आर्मी का Zorawar, देश का पहला Mountain Tank

ज़ोरावर (Zorawar) यानी पंजाबी भाषा में बहादुर और ताकतवर. यह भारतीय सेना के अत्याधुनिक लाइट टैंक (Indian Light Tank) का नाम है. यह एक आर्मर्ड फाइटिंग व्हीकल (AFV) है. इसे इस तरह से बनाया जाएगा कि इसके कवच पर बड़े से बड़े हथियार का असर न हो. इसके अंदर बैठे लोग सुरक्षित रहे. इसकी मारक क्षमता घातक हो. साथ ही यह बेहतर स्पीड में चल सके. इसके अंदर आधुनिक संचार तकनीक लगाई जाएगी.

ज़ोरावर टैंक को भारतीय रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने डिजाइन किया है. यहां इस खबर में आप जो तस्वीरें देख रहे हैं, वो डीआरडीओ के डिजाइन मॉडल हैं. इसे बनाने का काम लार्सेन एंड टुर्बो को दिया गया है. अगले दो साल में इनका उत्पादन शुरू हो जाएगा. भारतीय सेना को ऐसे 350 टैंक्स की जरुरत है. ये टैंक मात्र 25 टन के होंगे. इन्हें चलाने के लिए सिर्फ तीन लोगों की जरुरत होगी. इस टैंक का नाम जनरल ज़ोरावर सिंह कहलूरिया के नाम पर रखा गया है, जिन्होंने 1841 में चीन-सिख युद्ध के समय कैलाश-मानसरोवर पर मिलिट्री एक्सपेडिशन किया था. भारत को यह सूचना मिली थी कि चीन ने लद्दाख सेक्टर में अपनी सीमा की तरफ ZTZ-04A और Type-15 लाइट टैंक तैनात कर रखे हैं. भारतीय सेना भी अपनी तरफ से लाइट टैंक तैनात करना चाहती है. पहले भारत ऐसे टैंक्स रूस से खरीदना चाहती थी. लेकिन बाद में फैसला ये हुआ कि ये अपने देश में ही बनेंगे.

प्रोजेक्ट ज़ोरावर को अनुमति मिल चुकी है. असल में यह देश का पहला ऐसा टैंक होगा, जिसे माउंटेन टैंक (Mountain Tank) बुलाया जा सकता है. हल्का होने की वजह से इसे उठाकर कहीं भी पहुंचाया जा सकेगा. माना जा रहा है कि इसकी मुख्य तोप 120 मिलिमीटर की होगी. ऑटोमैटिक लोडर होगा. रिमोट वेपन स्टेशन होगा, जिसमें 12.7 मिलिमीटर की हैवी मशीन गन इस पर तैनात होगी. असल में यह कम वजन का ही होगा, लेकिन ताकत मुख्य युद्धक टैंक जैसी होगी. ज़ोरावर लाइट टैंक (Zorawar Light Tank) साल 2023 से रोल आउट होना शुरू हो जाएगा. 2024 तक इसके ट्रायल्स चलेंगे. उसके बाद इसे भारतीय सेना को एक के बाद एक सौंप दिया जाएगा. ये टैंक बनाया ही जाएगा हाई एल्टीट्यूड के लिए. यानी तवांग हो या लद्दाख. दोनों ही जगहों पर यह दुश्मन पर कहर बरपाएगा.

ज़ोरावर लाइट टैंक में आर्टिफिशियल इंटेलिजेंस, ड्रोन इंटीग्रेशन, एक्टिव प्रोटेक्शन सिस्टम, हाई डिग्री ऑफ सिचुएशनल अवेयरनेस जैसी तकनीके होंगी. साथ ही इसमें मिसाइल फायरिंग की क्षमता होगी. इसमें दुश्मन के ड्रोन्स को मार गिराने की यंत्र, वॉर्निंग सिस्टम भी लगे होंगे. यानी यह मीडियम बैटल टैंक्स के बजाय भारतीय सेना की ज्यादा मदद करेंगे. चीन ने अपनी तरफ जो टैंक लगाए हैं, वो 33 टन से कम वजन के हैं. उन्हें आसानी से एयरलिफ्ट किया जा सकता है. ऐसा नहीं है कि भारत ने फिलहाल सीमा पर कोई टैंक नहीं लगाए हैं. इस समय चीन सीमा पर K9 Vajra Tank तैनात हैं. जो बेहद ताकतवर हैं. इसके अलावा भारतीय सेना के स्वदेशी हॉवित्जर को भी तैनात किया गया है. ये चीन की हालत खराब करने के लिए काफी हैं, लेकिन लाइट टैंक के पहुंचने से चीन की हरकतों पर विराम लगाना आसान होगा.

https://www.aajtak.in/science/story/what-is-project-zorawar-light-tank-specifications-range-fire-power-tstrd-1598429-2022-12-20

Tue, 20 Dec 2022

On Border with China, India's 4-Point Defence Boost: From Roads to Rafales

Days after a clash with China at the border in the Northeast, India's ability to respond to incursions, particularly in Arunachal Pradesh and Sikkim, is set for a boost.

Here are four key points that tell the story:

- All-weather tunnel: Indian troops will by next month get an all-weather tunnel for Arunachal Pradesh's Tawang region -- where the December 9 clash took place -- enhancing the capacity to move troops and equipment at short notice. The Border Roads Organisation (BRO) is constructing the tunnel at Sela Pass as part of the Balipara-Charduar-Tawang (BCT) road connection. It'll be the world's longest bi-lane tunnel at an altitude above 13,000 feet. technically, the project means two tunnels 980 metres and 1.55 km, and about 9 km of approach road.
- Trans-Arunachal Highway: The state government recently pushed the construction on the Trans-Arunachal Highway -- a nearly 2,000-km, two-lane highway from Tawang in the north-west to Kanubari in the east. Some of the road is already built and only needs an upgrade. Started in 2008, the project is likely to be completed by 2024.
- Rail link: The 45-km Sivok-Rangpoo railway link between West Bengal and Sikkim is expected to be completed by next year. It can aid quick movement of troops in large numbers to Nathu La Pass and Doklam regions. Eastern Army Commander Lt Gen RP Kalita has said

there's no fresh issue over infrastructure development at Doklam, the area that witnessed a 73-day standoff between India and China in 2017 over China's attempts to construct a road where there are differing perceptions of the border. There are, however, reports of China setting up a ropeway to the India-Bhutan-China tri-junction, besides strengthening roads.

- Rafale jets: The Air Force Station at Hasimara, a northern tip of Bengal near Bhutan and the northeastern states, received the last of the 36 Rafale jets this month. This further boosts the Eastern Air Command. The plan to station Rafale jets at Hasimara was there before the latest flare-up in Tawang. Some of these jets were already at Hasimara, while the first ones had come to Ambala in Haryana.

https://www.ndtv.com/india-news/on-border-with-china-indias-4-point-defence-boost-highway-to-tawang-arunachal-tunnel-rafale-jets-hasimara-3622278

mint

Tue, 20 Dec 2022

Madhya Pradesh to Tap Opportunities in Aerospace and Defence Sectors

To expand the opportunity for the aerospace & defence industry in the state, MP government is going to organise Invest Madhya Pradesh Global-Investors Summit 2023 on 12 January 2023. The session will entail discussions on the opportunities in the State, expectations of the industry from the State Government, role of mega players and state in promoting start-ups, role of private sector in establishing a robust defence & aerospace ecosystem, industry drivers, policy enablers and more.

Madhya Pradesh, heart of Incredible India, is an emerging destination for the aerospace & defence industry in the country. Its central location gives the state an upper edge in establishing manufacturing and distribution hub. This is very important considering the strategic nature of defence supplies. Over the last decade, State invested significantly in creating conducive environment for industries by developing and upgrading industrial infrastructure and ensuring reliable water & power supply. The same has led to rapid industrial growth with large investments in the core industries. The State has availability of 1.22 lakh acres of land which can be allotted to industries. NCR is just 4 hours' drive from Gwalior. Also, 2 nodes of Bundelkhand Defense corridor (Agra in the North and Jhansi in the South) are just 100 KMs from Gwalior. Major corridors like the East-West & North-South corridors and, Delhi-Mumbai Expressway pass through the state. The upcoming Delhi-Mumbai Industrial Corridor, Atal Pragati Path and Delhi-Nagpur Industrial Corridor will also boost connectivity in the state.

MP will also be home to Rare Earth Metals park which are used extensively in almost every conceivable advanced technology product and have commercial, industrial and military applications. The ever-increasing demand for REE necessitates a concerted effort to augment supply position in the country. At present, MP has 5 operating commercial airports. Additionally, there are 25 government and 3 private airstrips. The state government has also inaugurated a Drone school in Gwalior and, 4 more drone schools will be set up soon. There is also an upcoming Greenfield Airport between Bhopal and Indore. With established defence production centres like Jabalpur, Itarsi and Katni, Madhya Pradesh is an important defence equipment manufacturing destination in the country. Jabalpur, Mhow, Gwalior and Sagar boast of important military cantonments while its capital city Bhopal is base to Strike Corp – Sudarshan Chakra Corps. The State's city of Gwalior is also base to No. 1, 7, 9 Squadrons of IAF. Six defence public sector units are in operation in the state, four in Jabalpur (the vehicle factory, grey iron foundry, gun carriage factory, and ordnance factory, Khamaria), one ordnance factory in Katni and another in Itarsi.

The state offers immense opportunities in defence and aerospace equipment manufacturing related to: Defence Vehicle Manufacturing, development/production of critical defence related equipment, drone manufacturing and testing, opportunity for MRO at vacant airstrips, etc.The State has a proactive and transparent policy offering attractive incentives to the industries in the sector. Moving forward with the country's vision to become 'Atmanirbhar', Government of Madhya Pradesh is poised towards establishing and promoting aerospace and defence manufacturing and service industry in the State. It will help in catalyzing innovation and indigenize the manufacturing in order to attain self-reliance in the sector.

https://www.livemint.com/news/india/madhya-pradesh-to-tap-opportunities-in-aerospace-and-defence-sectors-11671525119597.html

rissadiary.com

Tue, 20 Dec 2022

6th India-Maldives Joint Staff Talks held in New Delhi to Further Bolster Bilateral Defence Cooperation

6th Joint Staff Talks (JST) between India and the Maldives were held in New Delhi on December 20, 2022. The meeting was conducted in a friendly, warm and extremely cordial atmosphere. Discussions focused on the ongoing and new initiatives under the ambit of existing bilateral defence cooperation mechanism of all the three services and further strengthening the engagements.

The meeting was co-chaired by Assistant Chief of Integrated Defence Staff, Headquarters Integrated Defence Staff (HQ IDS) Air Vice Marshal Ashish Vohra and Commandant, Maldives National Defence Force (MNDF) Service Corps Brigadier General Hamidh Shafeeg. The JST is a forum established to boost defence cooperation between India and the Maldives through annual talks at the strategic and operational levels between HQ IDS & MNDF.

https://orissadiary.com/6th-india-maldives-joint-staff-talks-held-in-new-delhi-to-further-bolster-bilateral-defence-cooperation/

BW BUSINESSWORLD

Wed, 21 Dec 2022

American MQ9B Combat Drones Set to be Assembled in India

India has negotiated for local assembly of the world's most advanced High Altitude Long Endurance (HALE) combat and reconnaissance drone, the American MQ9B Sea/Sky Guardian Remotely Piloted Aircraft (RPA). These are more capable follow-ons of the iconic Predator. "Through assertive negotiations, instant acquisition proposal has been leveraged for assembly of at least 60 % of the quantity of aircraft proposed for procurement in India," Chief of Naval Staff Admiral R Hari Kumar told Businessworld in an exclusive interview. A Tri-services case for the procurement of 30 MQ9B from the US under the Government-to-Government Foreign Military Sales (FMS) route is under process.

Initially estimated at $3 Billion, the deal will also involve "collaboration with DRDO for transfer of certain niche technology required for indigenous D&D of HALE RPAS in India," Admiral Hari Kumar disclosed to Businessworld. "Setting up of a Performance Based Depot Level Maintenance Repair and Overhaul (MRO), Sea Guardian Global Sustainment Support (SGSS)" would be part of the programme, the Chief of the Indian Navy stated. "These enabling agreements along with the procurement case would make India a Drone Hub as envisioned by Hon'ble PM," Admiral Hari Kumar added.

Earlier, he had said that a discussion was underway amongst the three services on "whether the (procurement) numbers need to be rationalized". When it matures, the MQ9B deal will be one of the defining symbols of India-US military cooperation. It will also mark the first assembly of the iconic combat and surveillance drone outside of the US. "The MQ-9B is designed to fly over the horizon via SATCOM for up to 40 hours in all types of weather and safely integrate into civil airspace, enabling joint forces and civil authorities to deliver real-time situational awareness anywhere in the world—day or night," it is stated by General Atomics, the manufacturer, which terms these as "the next generation of RPAS, delivering persistent intelligence, surveillance and

reconnaissance (ISR) around the globe". It can fly at altitudes of up to 50,000 feet. While ISR is its bread and butter, it is the combat capability, over-the-horizon targeting, anti-surface warfare, anti-submarine warfare, defensive counter-air, airborne early warning and electronic warfare features which give it the edge.

The MQ9B features nine hardpoints with a maximum external payload capacity of 2155 kg. "This enables armed forces and governments to easily integrate sovereign payloads and mission systems for their own uniquely tailored solutions," General Atomics states. Admiral Hari Kumar recently acknowledged that the Indian Navy found the experience of taking two MQ9As on lease from the US of "great value", expressing confidence that these RPAs would "provide great value to all three services". Recently, these leased drones completed 10,000 flight hours in support of Indian security missions. This was achieved in two years.

"To put this into perspective, 11 P8I Long Range Maritime Reconnaissance aircraft of the Indian Navy were able to fly 29,000 flight hours in 9 years while 2 MQ9A logged 10,000 flight hours in just 2 years. This is the true measure of a long endurance UAV: Persistent surveillance. Imagine what a fleet of about 10 MQ9Bs could do in exercising constant vigilance," an observer pointed out. The original proposal envisaged an equal three-way split of the 30 HALE RPAs to be procured amongst the services.

https://www.businessworld.in/article/American-MQ9B-Combat-Drones-Set-To-Be-Assembled-In-India/20-12-2022-458834/

Tue, 20 Dec 2022

EU's iMUGS Programme Conducts Final Technology Demonstration

Integrated Modular Unmanned Ground System (iMUGS), the European Union's (EU's) programme for a common unmanned ground vehicle (UGV), concluded its fifth and final demonstration on 15 December.The demonstration, which was conducted at the Lehnin Training Area near Berlin, exhibited the programme's swarming and autonomy technologies in their most advanced public display to date, and represented the culmination of iMUGS technological efforts, according to officials and industry representatives working on the iMUGS programme.

During the demonstration, UGVs of various classes autonomously carried out a series of tasks, including mapping and force screening missions, before assisting 'blue' force troops in assaulting a 'red' force fortified position. In the first task, THeMIS medium UGVs acting in an autonomous swarm carried out reconnaissance of the tactical area before the insertion of personnel from the 'blue' force. The THeMIS UGVs utilised local swarming technologies exhibited on basic unmanned platforms in previous iMUGS demonstrations. Janes reported in November that the

iMUGS consortium had commenced the integration of this technology into the far more advanced THeMIS platform.

During the task, sensor data from the UGVs was relayed to a command-and-control centre. The data gathered is intended to create a common operational picture shared by all friendly units. All the vehicles are connected into a mesh network developed by Finnish firm Bittium. In the subsequent task, the UGVs screened a ‘blue' force from the German Army while providing logistical and casualty evacuation support during the assault and capture of the ‘red' force position. German Army troops were shown assaulting ‘red' forces fortified in a small village and subsequently repelling a ‘red' force counterattack.

The test force, understood to belong to the German Army's Concept and Capability Development unit, operated light Ziesel UGVs produced by Diehl Defence alongside the THeMIS vehicles. The Ziesel vehicles were shown operating in autonomous follow-me and waypoint-following functionality. Autonomy capabilities in this case enabled logistics and casualty evacuation tasks to be carried out without removing personnel from the battle.

Speaking to Janes at the demonstration, Kuldar Väärsi, CEO of Milrem Robotics, the company leading the iMUGS consortium, said “what has happened across these demonstrations is that the teams have started to work really functionally together, supporting each other, understanding each other – companies from different countries, of different sizes, and from different organisational cultures”. “Moreover, the technology has proven itself. It actually works – it's not just paper, it's not just research. It works, and works as a system.

“Ukraine has made it clear that war in Europe is possible, which means that the systems we develop are not for experiments, not for wargaming, but can actually be used in real war […]. We are seeing more and more that we need robotic systems to save lives, to keep our troops in safety,” he added.

A total of EUR32 million (USD34 million) was allocated by the European Commission to iMUGS in late 2020. The seven participating EU members – Belgium, Estonia, Finland, France, Germany, Latvia, and, Spain – have agreed on a common set of requirements for a future UGV system and a common understanding of how it can be used.

iMUGS will officially conclude in May 2023. Janes reported in July that iMUGS will be succeeded by a new programme – unofficially dubbed ‘iMUGS II‘ by European officials – due to commence in 2025. Officials familiar with the successor programme are hopeful that it will be among the best-funded European Defence Fund (EDF) projects to date, and will produce a common ‘robotic unmanned wingman', a tracked ground platform of 10–15 tonnes with similar mobility to a main battle tank (MBT) and capable of operating in support of manned vehicles.Although a further and final iMUGS event is to be held in Spain in 2023, no new technologies are expected to be exhibited, and the efforts of iMUGS officials and industry figures are thought to be shifting to the successor project.

https://www.janes.com/defence-news/terror-insurgent-group/latest/eus-imugs-programme-conducts-final-technology-demonstration

The EurAsian Times

Tue, 20 Dec 2022

US Takes 'Ukraine War' Strategy to China; Will Equip Taiwan with Weapons from its own Military Stocks — Reports

By Tanmay Kadam

The US lawmakers recently passed legislation that will finance weapon sales and authorize the potential transfer of weapons to Taiwan from the US military's own stockpiles, just like the US has been doing for Ukraine. The provisions made for Taiwan in this year's $858 billion annual defense policy bill passed by the US Senate on December 15 constitute some of the biggest changes in the US support for Taiwan's defense in decades, according to a report by Wall Street Journal (WSJ) The legislation requires the US government to accelerate arms transfer to Taiwan amid the Ukraine crisis. For the first time, the bipartisan legislation has allocated as much as $10 billion in financing and grants for weapons over five years, providing an additional route for transferring weaponry outside direct military sales to Taiwan.

The legislation also provides the President the authority to draw down the existing stock of the US military to transfer weapons to Taiwan in the event of a Chinese attack or other acts of aggression – similar to what the Biden administration is doing for Ukraine.

Bolstering Taiwan's defenses has become an urgent priority for the US. Pentagon officials have warned that China's military is working toward acquiring capabilities that will allow the country to attack or invade Taiwan by 2027.

In a recent interview, the Director of the US Central Intelligence Agency (CIA), Bill Burns, also corroborated the impending invasion. He said that Chinese President Xi Jinping had ordered his military leadership to be prepared to launch a war by 2027.

"He's (Xi Jinping) insisted publicly that his preference is to do that by means short of the use of force. But we know that he's also instructed his military leadership to be ready by 2027 to launch a war," said Burns. An attack on Taiwan can potentially alter the security and economy of the Indo-Pacific region, giving China a larger scope to control vital sea lanes, bully US allies and force the US military out of the area. Therefore, the latest support package is intended to provide Taiwan with sufficient capabilities over time so that the small island nation can deter or forestall potential aggression by China and allow the American forces to position themselves appropriately for the defense of the island, according to Mark Montgomery, a retired US Navy Rear Admiral and currently a senior fellow at Foundation for Defense Of Democracies (FDD).

Montgomery told WSJ that the weapons financing and other changes go beyond the Taiwan Relations Act of 1979, which committed the Americans to support Taiwan's defense. "This goes significantly farther. We will help you pay for weapons, stow weapons for you to access, give you presidential drawdown authority from US stocks, and work together to plan and exercise," said Montgomery.

Backlog Of Arms Deliveries To Taiwan

The new legislation also accelerates the timelines for deliveries of arms. As reported by EurAsian Times in November, US government officials and lawmakers are concerned about the worsening backlog of weapons for delivery to Taiwan. The backlog of arms deliveries to Taiwan, which was already more than $14 billion last December, has now reached up to $18.7 billion, according to US congressional officials. This backlog includes 208 Javelin anti-tank weapons and 215 surface-to-air Stinger missiles ordered by Taiwan in December 2015. Ukraine has received over 8,500 Javelin anti-armor systems and over 1,600 Stinger anti-aircraft systems in US security assistance. Apart from Javelins and Stingers, US foreign military sales to Taiwan include High Mobility Artillery Rocket Systems (HIMARS) and Howitzers that are also being sent to Ukraine. In addition, in March this year, Taiwan signed a contract for Harpoon anti-ship missiles, which will not be delivered until 2026. These weapons are part of Washington's 'porcupine' strategy to arm Taiwan, making it 'costly' for China to invade the island.

In October, Gen. Wang Shin-lung, the vice minister for armaments at Taiwan's Ministry of National Defense, reportedly urged the US to deliver the weapons it sells to Taiwan as scheduled. The delay in arms deliveries to Taiwan has raised concerns that the US might run out of time to help the island defend itself adequately against a Chinese invasion because, unlike Ukraine, Taiwan cannot be effectively armed post-invasion. Some US lawmakers have expressed concern that the US is prioritizing arms assistance to Ukraine over Taiwan. While government officials acknowledge delays in arms deliveries to Taiwan, they maintain that Ukraine is not the reason behind it, as Taiwan's purchases are all new off the production line, whereas the Stingers and Javelins sent to Ukraine are from the US military's existing stockpiles.

"The real issues and the challenges in front of us now are how do we expand that production capacity, and how do we increase the diameter of the soda straw for the production of those in-demand items," a US State Department official told reporters. Executives from various defense companies, including Lockheed Martin and Boeing, say that supply chain problems due to the COVID pandemic have reduced production for several weapon systems. The companies have been struggling to fulfill orders even before the Russian invasion of Ukraine.

The Biden administration is making efforts to increase arms production, but it may take months or even years to ramp up weapons production significantly. James Taiclet, the CEO of Lockheed Martin, which produces Javelin and HIMARS, said on October 18 that the company would increase production of HIMARS up to 96 units per year from 60, but it will take years to reach that number.

Even if the conflict in Ukraine is not the primary reason behind delays in delivery, it is still a factor, according to some officials like the US Army's chief acquisition official, Doug Bush, who said that while no single delay could be attributed to Ukraine war, the war does affect "prioritization" in the short term. As EurAsian Times reported earlier, the war in Ukraine is eating into the US military's inventory of weapons, so much so that the country's stockpiles are reaching the minimum levels needed for war plans and training, raising concerns about the US ability to respond if another conflict breaks out. This means that even if American industrial bases fire up their production, the priority will be to replenish the US military's stockpiles first and then service the foreign purchase orders. Therefore, the provision to supply arms to Taiwan by drawing down US military stocks is a significant measure in ensuring that the US fulfills its commitment to Taiwan.

https://eurasiantimes.com/edited-us-to-send-weapons-to-taiwan-from-its-own-military-stocks/

THE HINDU

Wed, 21 Dec 2022

France has Sent More Air Defence Missiles to Ukraine: Macron

France has delivered more air defence missile systems and other weapons to Ukraine and will send more early next year, French President Emmanuel Macron said in an interview aired Tuesday. "In recent days, France has sent Ukraine more arms, rocket launchers, Crotale (air defence batteries), equipment beyond what we had already done," Macron told France's TF1 and LCI television. He was speaking aboard the French aircraft carrier Charles de Gaulle off Egypt's coast, a day before visiting Jordan for a regional summit on Tuesday.

"We are also working with the armed forces minister (Sebastien Lecornu) to be able to deliver useful arms and ammunition again in the first quarter (of 2023), so that the Ukrainians would be able to defend themselves against bombardments," said Macron. The planned shipments include new Caesar mobile artillery units, but Macron provided no precise figures. The president said the number "will depend" on the outcome of ongoing discussions with Denmark, which had ordered the Caesar guns from France and may agree to give at least some of them to Kyiv.

Since Russia's invasion in February, France has sent Ukraine 18 Caesar units, a 155-mm howitzer mounted on a six-wheeled truck chassis, capable of firing shells at ranges of more than 40 kilometres (25 miles). Macron said that he had two "red lines" when it came to arms deliveries: that it did not affect France's ability to defend itself, and did not make Paris a co-belligerent in the war.

The arms were to "enable Ukraine to defend itself" in the face of a relentless barrage of Russian missiles and drone attacks, he said. Paris has also already delivered anti-tank and anti-aircraft missiles, as well as armoured personnel carriers.

The 44-year-old leader also repeated his controversial statement that Russia would require security guarantees as part of a negotiated end to the conflict. Critics in eastern Europe and Ukraine believe Macron should not be publicly raising making concessions to Russia, at a time when its army is occupying parts of Ukraine and deliberately targeting civilians."If anyone criticises me for projecting forward to this issue, let them explain what they are proposing," Macron said in the interview. "What the people who refuse to prepare or work for it are proposing is total war. It will affect the whole continent," he added. Macron maintains that only Ukraine should define the terms of any armistice with Russia, not the country's Western backers.

https://www.thehindu.com/news/international/france-has-sent-more-air-defence-missiles-to-ukraine-macron/article66286699.ece

The EurAsian Times

Tue, 20 Dec 2022

Ukraine War: Russia's 'Most Advanced' Main Battle Tank, T-90M Proryv, Arrives in 'Special Operation Zone'

By Sakshi Tiwari

Russia's T-90M 'Proryv' Main Battle Tank, the most advanced armored vehicle in the family of T-90 tanks, has arrived in Russia's Central Military District in the so-called "special operation zone." The Russian Ministry of Defense (MoD) announced on December 20 that a group of cutting-edge T-90M "Proryv" main battle tanks have arrived for an armored unit of the Central Military District, state news agency TASS reported. The Central Military district is the largest military theatre in Russia by geographical size. "A batch of advanced upgraded T-90M 'Proryv' tanks has arrived for an armored unit of the Central Military District. The tank crews are honing their gunnery and vehicle control skills. Instructors are training the personnel taking into account present-day combat experience.

After mastering their interoperability, the tank crews will start accomplishing missions within the Otvazhniye (Courageous) battlegroup," the ministry said in a commentary to its video showing the personnel's combat training. According to the Russian MoD, unmanned aerial vehicles control the gunfire as the tank crews practice gunnery with the T-90M tank's standard armament from protected positions and open areas. Additionally, the tank crews train to ride new vehicles over topographical challenges. The development comes even as Russian President Vladimir Putin admitted that the situation in the four regions of Ukraine annexed by Russia was "very difficult" and instructed his troops to protect the people in these regions. Meanwhile, Moscow continued to attack Ukraine's energy infrastructure with its Shahed-136 kamikaze drones.

The Russian T-90M Tanks entered the Central Military District when Ukraine requested the Western countries for advanced battle tanks, like the German Leopard-2, to bolster its ground offensive. The German government is yet to decide on the tank despite securing a 'go-ahead' from the United States. While the T-90M is an upgraded tank with state-of-the-art capabilities, Ukraine's Armed Forces captured this tank from Russia. In September, Kyiv's forces captured a T-90M during their counter-offensive in the Kharkiv region, apparently abandoned by its crew after an attack. Later, the same tank was fielded by Ukraine against Russia.

A second T-90M was reportedly captured earlier this month in the Luhansk region, which was revealed after the Ukrainian forces posted a video of the captured tank on social media. Contrary to the first tank captured in September, the recently captured tank did not sustain much damage. Russia lost several tanks during the war in Ukraine's anti-tank-guided missile attacks. However, the capture of T-90M Proryv Main Battle Tanks has been a worrying precedent for Moscow. Military experts have frequently expressed concerns that this tank could provide the West with critical information about Kremlin's most advanced armored vehicles.

T-90M Proryv 'Breakthrough' Tanks

The Urals Design Bureau of Transport Machine-Building (part of the Uralvagonzavod defense manufacturer) developed the T-90M main combat tank. The "Proryv" is the most sophisticated armored vehicle in the family of T-90 tanks owing to its all-around protection, a contemporary round-the-clock highly automated fire control system, and improved survivability technology. According to its manufacturers, it is most importantly suitable for operations on a modern battlefield. Data from Uralvagonzavod indicate that the T-90M has undergone multilayered upgrading and can legitimately be referred to as a new combat vehicle. The T-90M was first tested during the Zapad-2017 military exercise in September 2017.

It now sports a mostly brand-new turret different from a combat module built-in serial production and a more potent 1,130 hp engine. The "Proryv" is equipped with a 125mm tank cannon that can fire modern, powerful weapons and missiles that can destroy enemy tanks at a distance of up to five kilometers. Thanks to the new multichannel sight, the tank can use its armaments day or night. One of this upgraded tank's key advantages is the real-time data exchange with other combat vehicles.

The anti-slip coating on the T-90 M's armor is comparable to that seen on the ground-breaking T-14 "Armata" main battle tank. The new Relikt ERA (Explosive Reactive Armor) armor is installed on the MBT at the front and on each side of the turret.The Proryv has a similar layout to earlier T-90 variants, with the driver compartment up front, the turret in the middle of the hull, and the engine in the back. Its 1000mm 12-cylinder engine gives it the power to travel at 50 kilometers per hour off-road and 60 kilometers per hour on roads. In the spring of 2020, the 2nd Guards, MI Kalinin Taman Motor Rifle Division, a division of the 1st Guards Tank Army in the Western Military District, started receiving the first production of T-90M tanks. According to estimates, there may have only been 100 or so in use when Russia began its invasion of Ukraine. Due to the advanced features of the tank, the impeccable protection of its armor, and the several upgrades, it is not a surprise that Russia continues to field the T-90M Proryv despite the battlefield risks associated with its deployment.

https://eurasiantimes.com/ukraine-war-russias-most-advanced-main-battle-tank-t-90m-proryv/

The Guardian

Tue, 20 Dec 2022

Russia Plans to Boost Military Links with Iran, says UK Defence Secretary

Russia plans to deepen its military cooperation with Iran in return for Shahed drones that have been used to bomb Ukraine's cities and energy network since September, according to Britain's defence secretary, Ben Wallace. The west must hold Russia's "enablers to account", he said, in a Christmas update in which he was also forced to admit the UK had not completed a Ukraine "action plan" by the end of the year as promised.

Speaking to MPs, Wallace said: "In return for having supplied more than 300 kamikaze drones, Russia now intends to provide Iran with advanced military components, undermining both

Middle East and international security." No other evidence was cited in support of Wallace's statement, which is likely to be based on British intelligence, but it is consistent with warnings made by the US nearly two weeks ago, when it said it was concerned a deal would go ahead.

The prime minister, Rishi Sunak, told MPs shortly afterwards that while Russia remained the UK's "No 1 foreign policy challenge" he was "increasingly concerned about Iran's behaviour," an echo of Wallace's comments. Giving evidence to the House of Commons liaison committee, made up of the MPs who chair select committees, Sunak added that he was focused on "the treatment of their citizens, what they're doing in the region which is destabilising, and indeed the nuclear programme".

The west is closely monitoring Iran's relationship with Russia at a time when the Kremlin is desperate to make up for shortages in munitions. Moscow has also asked Tehran for ballistic missiles to continue its bombing of Ukraine, but there is no sign of that deal going ahead, despite the request being made last month. The defence secretary said Russia was now "resorting to stripping jetliners for spare parts" as it desperately seeks to manufacture fresh missiles. It is estimated by Ukraine that stocks of Iskander missiles are at around a ninth or less of prewar levels. Wallace also sought to emphasise the human and financial costs to Russia of its invasion. There were "more than 100,000 Russians" who were dead, injured or had deserted since 24 February, the minister said, while Moscow's army had lost 4,500 armoured vehicles and 140 aircraft and helicopters. A depleted Russian air force, the minister added, was only "conducting tens of missions a day as opposed to 300 in March" – but the long-range strikes continue to target Ukraine's power grid, with a record 35 drones attacking the country on Monday. However, Wallace was also forced to admit, after questioning by Labour's John Healey, that he had failed to publish the "plan of action" to support Ukraine into 2023 that had been promised in August.

Intended to cover long-term equipment supply, funding and other support to Kyiv, the minister admitted the failure to produce one was disappointing. Instead, he said he hoped to see if it would be possible to debate the issue in parliament in January. There was also public confirmation of Sunak's plan to hold an audit of the UK's Ukraine policy and its weapons supply, criticised by one source as amounting to a "Goldman Sachs dashboard" exercise that could lead to the holding back of future military aid. The defence secretary sought to downplay its significance: "It's understandable that the prime minister, being new in post, would seek an update on Ukraine and want to take a stock check of where we are." Britain has already committed to match 2022's £2.3bn worth of weapons supplies to Ukraine in 2023.

https://www.theguardian.com/world/2022/dec/20/russia-plans-to-boost-military-links-with-iran-says-uk-defence-secretary

THE ECONOMIC TIMES

Tue, 20 Dec 2022

B-52 Bombers and F-22 Fighters are sent Following North Korean Missile Launch

Days after North Korea launched two medium-range ballistic missiles, the United States and South Korea conducted joint air drills on Tuesday with American flight bombers and stealth fighter aircrafts, according to Seoul's defence ministry. The drills involved B-52 bombers and F-

22 stealth fighters. A press release from the ministry informed that the drills took place in the South Korean air defence identification zone southwest of Jeju Island. The American commitment to defend South Korea with all available means, including nuclear weapons, is known as "extended deterrence. To enhance "capabilities to respond to North Korea's nuclear and missile threats," the F-22 fighters were dispatched from Kadena Air Base in Okinawa, Japan, according to reports.

They will engage in separate exercises with the F-35A aircraft of the South. According to a South Korean military assessment, the joint activities were conducted after North Korea launched two medium-range ballistic missiles on Sunday. Defence officials and analysts expressed scepticism after Pyongyang claimed it was testing its first reconnaissance satellite. Before being outlawed, North Korea conducted tests for its intercontinental ballistic missile program under cover of satellite launches.

On Tuesday, Kim Yo Jong, the sister of North Korean leader Kim Jong Un, called any scepticism about the satellite test "nonsense and rubbish.". In a statement published by the government-run Korean Central News Agency, Kim also seemed to threaten an ICBM launch that would demonstrate the missile's capability to reach the U.S. mainland. Analysts disagree over whether North Korea's long-range missiles can successfully re-enter the earth's atmosphere with a nuclear warhead. This year, Pyongyang's ICBM launches have been at lofted angles.

https://economictimes.indiatimes.com/news/international/us/b-52-bombers-and-f-22-fighters-are-sent-following-north-korean-missile-launch/articleshow/96378909.cms

THE HINDU

Tue, 20 Dec 2022

U.S. and Iran Clash at UNSC over Russia using Iran Drones in Ukraine

The United States and its allies clashed with Iran and its ally Russia over Western claims that Tehran is supplying Moscow with drones that have been attacking Ukraine — and the U.S. accused the U.N. secretary-general of “yielding to Russian threats” and failing to launch an investigation. At a contentious Security Council meeting Monday on the resolution endorsing the 2015 nuclear deal between Iran and six major powers, the United States and Iran also accused each other of responsibility for stalled negotiations on the Biden administration rejoining the agreement that former President Donald Trump pulled out of in 2018.

Iran’s U.N. Ambassador Amir Saeid Iravani insisted Iran’s negotiating team exercised “maximum flexibility” in trying to reach agreement and even introduced an “innovative solution to the remaining issues to break the impasse.” But he claimed the “unrealistic and rigid approach” of the United States led to the current stalled talks on the 2015 agreement, known as the JCPOA. “Let’s make it clear: pressure, intimidation and confrontation are not solutions and will get nowhere,” Mr Iravani said. Iran is ready to resume talks and arrange a ministerial meeting “as soon as possible to declare the JCPOA restoration," Mr. Iravani said. “This is achievable if the U.S. demonstrates genuine political will … The U.S. now has the ball in its court.” Speaking before Iravani, U.S. Deputy Ambassador Robert Wood said “the door to

negotiations remains open" for a mutual U.S.-Iranian return to full implementation of the JCPOA. But he said, "Iran's own actions and stances have been responsible for preventing that outcome." In September, a deal that all other parties had agreed to was "within reach" and "even Iran prepared to say yes," Mr. Wood said, "until at the last minute, Iran made new demands that were extraneous to the JCPOA and that it knew could not be met." He said Iran's conduct since September — notably its failure to cooperate with the International Atomic Energy Agency, the U.N.'s nuclear watchdog, and the expansion of its nuclear program "for no legitimate civilian purpose" — has reinforced U.S. skepticism "about Iran's willingness and capability of reaching a deal, and explains why there have been no active negotiations since then." At the end of the council meeting, Mr. Wood asked for the floor to refute Iravani, saying it's "a fact" that Iran's extraneous demands and rejection of all compromise proposals are the reason why there has not been a return to mutual compliance with the JCPOA. "So let me just simply say, The ball is not in the U.S. court," Mr. Wood said. "On the contrary, the ball is in Iran's court."

Britain's U.N. Ambassador Barbara Woodward, whose country remains a party to the JCPOA, told the council Iran's nuclear escalation is making "progress on a nuclear deal much more difficult." "Today, Iran's total enriched uranium stockpile exceeds JCPOA limits by at least 18 times, and it continues to produce highly enriched uranium, which is unprecedented for a state without a nuclear weapons program," she said. In addition, Ms. Woodward said, "Iranian nuclear breakout time has reduced to a matter of weeks, and the time required for Iran to produce the fissile material for multiple nuclear weapons is decreasing." She said Iran is also testing technology that could enable intermediate and intercontinental range ballistic missiles to carry a nuclear payload. U.N. political chief Rosemary DiCarlo told the council "the space for diplomacy appears to be rapidly shrinking."She pointed to an IAEA report that Iran intends to install new centrifuges at its Natanz Fuel Enrichment Plant and to produce more uranium enriched up to 60% at the Fordow Fuel Enrichment Plant — a level close to that needed for a nuclear weapon. Iran also removed all IAEA equipment monitoring JCPOA-related activities.

Ms. DiCarlo called on Iran to reverse all steps outside JCPOA limits, and on the United States to lift sanctions on Iran outlined in the nuclear deal, and extend waivers on Iranian oil trading. Iran's Iravani emphasized that all of Iran's nuclear activities "are peaceful" and said Iran is ready to engage the IAEA to resolve outstanding issues on nuclear safeguards. As for what he called the "unfounded allegation" that Iran transferred drones to Russia in violation of the 2015 resolution, Iravani stressed that all restrictions on transferring arms to and from Iran were terminated in October 2020. So he said Western claims that Tehran needed prior approval "has no legal merit." Mr. Iravani also insisted that drones were not transferred to Russia for use in Ukraine, saying "the misinformation campaign and baseless allegations … serve no purpose other than to divert attention from Western states' transfer of massive amounts of advanced, sophisticated weaponry to Ukraine in order to prolong the conflict."

Russia's U.N. Ambassador Vassily Nebenzia called allegations of Iranian drone deliveries to his country for use in Ukraine "patently concocted and false." Russia is well aware that Ukrainian representatives "have been unable to provide Tehran bilaterally any documentation to corroborate the use by Russian military personnel of Iranian-origin drones," he said.Mr. Wood, the U.S. envoy, told the council that Ukraine's report of Iranian-origin drones being used by Russia to attack civilian infrastructure has been supported "by ample evidence from multiple public sources" including a statement by Iran's foreign minister on Nov. 5. He insisted that Iran is barred from transferring these types of drones without prior Security Council approval under

an annex to the 2015 resolution. For seven years, Mr. Wood said, the U.N. has had a mandate to investigate reported violations of the resolution, and he expressed disappointment that the U.N. Secretariat, headed by secretary-general Guterres, has not launched an investigation, "apparently yielding to Russian threats." Russia's Nebenzia reiterated Moscow's contention that investigations are "an egregious violation" of the resolution and the U.N. Charter "and the U.N. Secretariat should not bow to pressure from Western countries." Mr. Guterres told a news conference earlier Monday, when asked about criticism that the U.N. hasn't launched an investigation of Iranian-made drones in Ukraine, that "We are looking into all the aspects of that question and in the broader picture of everything we are doing in the context of the war to determine if and when we should" conduct an investigation.

https://www.thehindu.com/news/international/us-and-iran-clash-at-unsc-over-russia-using-iran-drones-in-ukraine/article66284230.ece

Tue, 20 Dec 2022

NATO Approves 2023 Strategic Direction for New Innovation Accelerator

On 12 December 2022, the Board of Directors of NATO's Defence Innovation Accelerator for the North Atlantic (DIANA) agreed that energy resilience, secure information sharing and sensing and surveillance will be the priority areas of focus for DIANA's work on Emerging and Disrupting Technologies (EDTs) in 2023. The three areas make up the backbone of DIANA's Strategic Direction for 2023. The Strategic Direction will drive the identification of DIANA's first defence and security challenges, for which dual-use technological solutions must be found. "This strategic direction gives the DIANA Executive clear guidance on the development of pilot programmes that we will launch in Spring 2023. These programmes will benefit both civilian and military communities" commented David Van Weel, DIANA's interim managing director.

Energy Resilience will seek to ensure that energy is at all times available and sufficient to sustain NATO's missions and operations. Technological solutions in this area should help Allies better prepare for, minimize, adapt to, and recover from anticipated and unanticipated energy disruptions. Secure Information Sharing addresses the need for protected, reliable collection-through-dissemination of relevant data and ensures that the resultant data-derived information can be trusted. Sensing and Surveillance broadly applies to the detection and systematic observation of physical and digital domains, in order to enable, for example, situational awareness and forecasting.

At the same meeting, the Board of Directors elected its first Chair, Barbara K. McQuiston, Deputy Chief Technology Officer for Science and Technology, US Department of Defense, as well as a Vice Chair, Imre Porkoláb, Ministerial Commissioner for Defence Innovation, Hungarian Ministry of Defence. NATO Allies agreed to establish DIANA at the 2021 Summit in Brussels. DIANA will provide deep tech, dual-use innovators in NATO countries with funding and a fast track to adapt their technological solutions to defence and security needs. This will

also help ensure that the Alliance retains its technological edge in priority areas, including big-data processing, artificial intelligence (AI), autonomy, quantum, biotechnologies and human enhancement, energy and propulsion, novel materials and advanced manufacturing, hypersonics and space. DIANA's Charter was approved at NATO's 2022 Summit in Madrid. The Board of Directors, which held its first meeting in October 2022, is responsible for the organisational governance of DIANA and is comprised of one member from each NATO nation.

https://www.nato.int/cps/en/natohq/news_210393.htm

Science & Technology News

INDIA TODAY

Tue, 20 Dec 2022

IIT Jodhpur Conducts IUMRS ICA International Conference 2022 in Collaboration with Materials Research Society of India

The International Union of Materials Research Society - International Conference in Asia - 2022 (IUMRS-ICA-2022) is being held at the Indian Institute of Technology Jodhpur between December 19 and 23,2022. IIT Jodhpur and the Material Research Society of India (MRS-I) are organising IUMRS ICA 2022 this year. Around 900 participants are expected to attend this conference across all IITs, IISc, IISERs, DRDO, CSIR and DAE institutes.

TOPIC OF IUMRS-ICA-2022

The topics of the IUMRS-ICA-2022 consist of the emerging and cutting edge R&D materials, devices, and related applications with various functional materials for Semiconductors, Energy, Organic and Flexible, 2D, Graphene and Beyond Graphene, III-V and II-VI, Computational, Optoelectronic, Biodegradable, Biomaterials, Soft, Nature Inspired, Neuro-inspired, Quantum Computing, Sensing, Emerging Memory, Biomedical, Hybrid and Biomass, Advanced Structural; and related Processing Strategies, Advanced Fabrication and Characterization, and other Materials-Related Interdisciplinary Areas.

Some of the distinguished "Materials Research Society of India (MRSI)" awardees this year are:

- Judith Driscoll, Cambridge University, UK (MRSI Silver Jubilee International Medal)
- G U Kulkarni, JNCASR, India (CNR Rao Prize Lecture in Advanced Materials)
- D D Sarma, IISC, India (Distinguished Materials Scientist of the Year Award)
- Kulamani Parida, Centre for Nanoscience and Technology, India (MRSI Materials Science Annual Prizes)
- Tata Narasinga Rao, ARCI, HYDERABAD, INDIA (MRSI Materials Science Annual Prizes)
- And MRSI Medal Lectures

A major objective of IUMRS-ICA-2022 is to offer academicians, researchers, and scientists a great opportunity to gain knowledge not only about academics but also about the diverse cultures

of India and lifestyles, which will eventually be expanded to Asian cultures by participants from around the world. As part of the conference, Asian scientists will present and discuss cutting-edge research and development in materials science and form international collaborations.

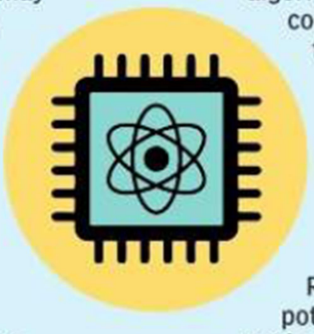
https://www.indiatoday.in/amp/education-today/news/story/iit-jodhpur-conducts-iumrs-ica-international-conference-2022-in-collaboration-with-materials-research-society-of-india-2311277-2022-12-20

THE TIMES OF INDIA

Wed, 21 Dec 2022

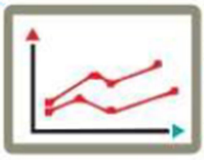
WHAT'S QUANTUM COMPUTING & WHY WE NEED IT

With data exploding and business problems getting more and more complex, today's computers may soon prove to be inadequate to deal with the computational requirements being put on them. So, researchers are banking on quantum computing (QC), systems that harness the phenomena of quantum mechanics, and that have speeds many millions of times that of the fastest supercomputers today. While a classical processor uses bits to process information, a quantum computer uses qubits (CUE-bits) to run multidimensional algorithms – meaning, a quantum computer does not have to wait for one process to end before it can begin another. A lot of research on both the hardware and software sides remains to be done to realise the promise of QCs and make them relevant for real-life applications. Researchers believe it has the potential to change the status-quo in any field involving complex and large data sets.



INDIA BUDGETS RS 8,000 CRORE

Given the extraordinary impact it might make, quantum computing has caught the attention of India's policymakers. In Budget 2020, the government said it is earmarking Rs 8,000 crore to set up the National Mission for Quantum Technologies and Applications. The objective is to ensure India keeps up with global advances in the field, and where possible, even lead the technology.



RESEARCH AREAS AND USE CASES

Drug discovery & development

Material sciences

Efficient and cleaner battery tech

Logistics – traffic and route optimisation

Climate change – better weather forecasting and management

Financial risk modelling