

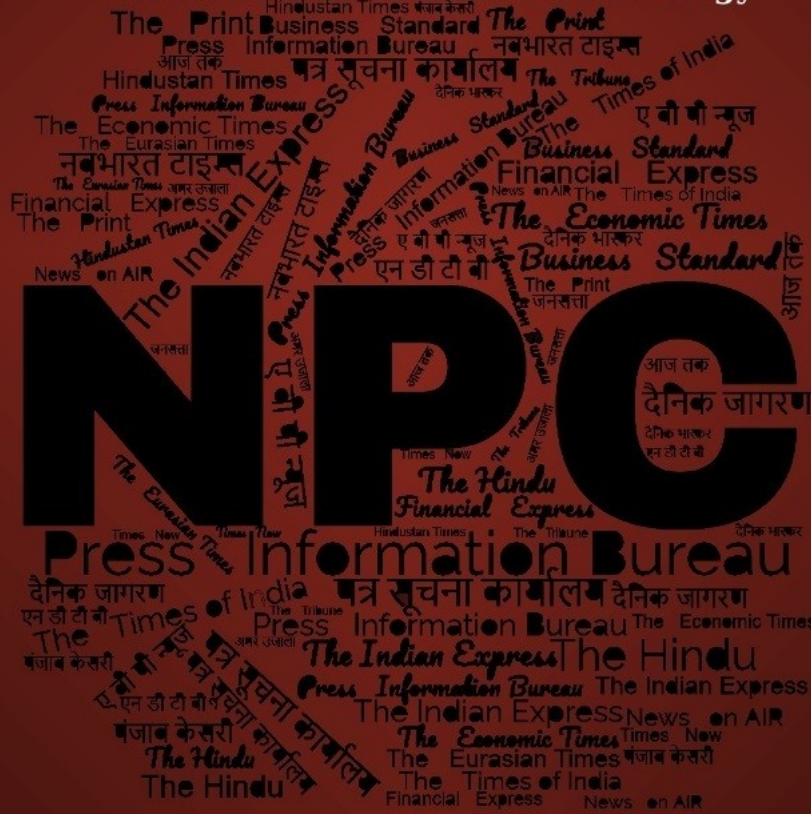
अगस्त
Aug
2024

खंड/Vol. : 49 अंक/Issue : 145
06 /08/2024

समाचार पत्रों से चयनित अंश Newspapers Clippings

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

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Business Standard

Tue, 06 Aug 2024

'Committee has suggested certain reforms to overhaul functioning of DRDO'

A committee has suggested "certain reforms" to "overhaul" the functioning of the Defence Research and Development Organisation (DRDO), the government informed Rajya Sabha on Monday.

Minister of State for Defence Sanjay Seth said this in a written response to a query whether the government has plans to completely overhaul the functioning of the DRDO.

He was also asked whether the government had formed a high-level committee of technocrats on this subject and whether it is planning to raise the budget allocation for different research projects at the DRDO.

"Yes, Sir. A committee headed by Dr Vijaya Raghavan suggested certain reforms to overhaul the functioning of DRDO," Seth said in his response.

The expenses for the different projects are met from the regular budget of the DRDO and the standard increase in the DRDO budget.

Asked whether the government has any plans to enhance the research staff capacity at DRDO, he said, "Yes, Sir. DRDO has plans to enhance the research staff capacity as per project requirements." In response to another query, the minister said an Integrated Capability Development Plan is formulated by Headquarters Integrated Defence Staff in consultation with all stakeholders to address the current and futuristic security needs of the armed forces.

"This plan is reviewed annually, as part of two-yearly roll-over Annual Acquisition Plan. The review of Annual Acquisition Plan is undertaken both at Service Headquarters and Headquarters Integrated Defence Staff level," he added.

https://www.business-standard.com/external-affairs-defence-security/news/committee-has-suggested-certain-reforms-to-overhaul-functioning-of-drdo-124080501488_1.html



Press Information Bureau
Government of India

Ministry of Defence

Mon, 05 Aug 2024

Need to embrace changes in financial processes due to rapidly changing nature & character of war: CDS Gen Anil Chauhan

Conference on enhancing financial cohesion and synergy in Armed Forces held in New Delhi

Chief of Defence Staff General Anil Chauhan has stressed the need to embrace changes in financial processes due to the rapidly changing nature and character of war driven by geopolitical dynamics and technological advancements. He was delivering a keynote address at the apex level conference on Aug 5, 2024, in New Delhi on enhancing cohesion and synergy in financial matters pertaining to Armed Forces. CDS said such changes have brought about a non-linear and non-predictable evolution.

Gen Anil Chauhan exhorted all stakeholders to act in cohesion and synergy to safeguard India's strategic interests while working jointly towards ensuring National Security, which is an important pillar of Viksit Bharat. Vice Chiefs of Service HQs attended the conference, along with senior functionaries from Service HQs, Coast Guard HQ, MoD Acquisition, MoD Finance, CGDA, and all Principal Integrated Financial Advisors. The conference was steered by HQ IDS and focused on improving the efficiency in defence procurements while adhering to all financial canons.

In his opening address, Deputy Chief of Integrated Defence Staff (PP&FD) Vice Admiral Sanjay Vatsayan set the pace for discussions by bringing out the intricacies of defence procurements. Financial Adviser (Defence Services) Shri Sugata Ghosh Dastidar stressed on reducing foreign dependence and moving towards Aatmanirbharta while ensuring greater collaboration with Academia towards research and development in defence.

The conference saw all stakeholders putting forth their perspectives and deliberating ways to enhance cohesion and synergy. Service HQs gave insights into their respective challenges in public procurement and methodologies to overcome the same were discussed. The PIFAs participated

actively on critical issues of Capital & Revenue procurements. Positive suggestions and recommendations were elucidated by MoD Finance. Some of the key deliverables of the conference included the importance of Outcome Oriented Budget, Expeditious Procurements, and Financial Propriety. These key takeaways would be forwarded to the MoD for ratification.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2041826>



Press Information Bureau
Government of India

Ministry of Defence

Mon, 05 Aug 2024

Defence Equipment Capability

To address the current and futuristic security needs of Armed Forces, an Integrated Capability Development Plan is formulated by Headquarters Integrated Defence Staff in consultation with all stakeholders. This plan is reviewed annually, as part of two-yearly roll-over Annual Acquisition Plan. The review of Annual Acquisition Plan is undertaken both at Service Headquarters and Headquarters Integrated Defence Staff level.

All three Services have requisite mechanisms to review the Maintenance, Repair and Overhaul (MRO) manuals and procedures. These, inter-alia, include Indian Naval Ship Maintenance Authority (INSMA) for all ships and submarines in the Navy, Central Servicing Development Organisation (CSDO) and Base Repair Depots (BRDs) in IAF for aircraft and systems etc. For indigenous equipment, MRO reviews are also undertaken by the users in consultation with DPSUs/Indian Industry, where applicable. Manuals and procedures related to maintenance and repairs are regularly updated.

This information was given by Raksha Rajya Mantri Shri Sanjay Seth in a written reply to Shri Sujeet Kumar in the Rajya Sabha today.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2041563>

नवभारत टाइम्स

Tue, 06 Aug 2024

**तमिलनाडु में भारत समेत 10 देशों की वायुसेना आज से दिखाएंगी ताकत,
पहली बार होगा ऐसा हवाई अभ्यास**

भारत अपना पहला बहुराष्ट्रीय हवाई अभ्यास 'तरंग शक्ति 2024' आज से तमिलनाडु के सुलूर में शुरू कर रहा है। लगभग 30 देश इसमें हिस्सा ले रहे हैं, जिनमें से 10 देश अपने लड़ाकू विमानों के साथ शामिल होंगे। यह अभ्यास दो चरणों में आयोजित किया जाएगा। इसका उद्देश्य भारत की रक्षा क्षमता का प्रदर्शन करना और भाग लेने वाली सेनाओं को एक-दूसरे के साथ काम करने का मंच प्रदान करना है।

वायु सेना के उप प्रमुख एयर मार्शल एपी सिंह ने नई दिल्ली में पत्रकारों को बताया कि पहला चरण आज से 14 अगस्त तक तमिलनाडु के सुलूर में आयोजित किया जाएगा। दूसरा चरण 29 अगस्त से 14 सितंबर तक राजस्थान के जोधपुर में होगा। उन्होंने कहा कि ऑस्ट्रेलिया, बांग्लादेश, फ्रांस, जर्मनी, ग्रीस, स्पेन, संयुक्त अरब अमीरात, यूनाइटेड किंगडम, यूएसए और सिंगापुर सहित 10 देश अपने विमानों के साथ अभ्यास में शामिल होंगे। 18 देश पर्यवेक्षक के रूप में शामिल होंगे।

स्वदेशी लड़ाकू विमानों और उपकरणों का प्रदर्शन

एयर मार्शल एपी सिंह ने आगे बताया कि भारत अपने स्वदेशी लड़ाकू विमानों और उपकरणों का प्रदर्शन करेगा। उन्होंने कहा कि भारत के तेजस, राफेल, मिराज 2000, जगुआर, मिग 29 विमान, और अन्य लड़ाकू विमान अभ्यास में भाग लेंगे। अभ्यास के दौरान उड़ान और जमीनी प्रशिक्षण, रक्षा प्रदर्शनी और सांस्कृतिक आदान-प्रदान कार्यक्रम भी आयोजित किए जाएंगे। भाग लेने वाले देशों के रक्षा कर्मी भारत की तकनीकी कंपनियों का भी दौरा करेंगे। भारत ने 50 से अधिक देशों को अभ्यास में भाग लेने के लिए आमंत्रित किया था।

'रक्षा सहयोग को मजबूत करना' यह अभ्यास भारत के लिए अपनी सैन्य शक्ति और कूटनीतिक कौशल का प्रदर्शन करने का एक महत्वपूर्ण अवसर है। इतने सारे देशों की भागीदारी क्षेत्रीय स्थिरता और सुरक्षा के प्रति भारत की प्रतिबद्धता को दर्शाती है। 'तरंग शक्ति 2024' भाग लेने वाले देशों के बीच रक्षा सहयोग को मजबूत करने और एक-दूसरे से सीखने का एक अनूठा अवसर प्रदान करेगा।

<https://navbharattimes.indiatimes.com/state/tamil-nadu/chennai/tarang-shakti-2024-air-forces-of-10-countries-including-india-will-show-their-strength-in-tamil-nadu-from-today/articleshow/112303817.cms>



Tue, 06 Aug 2024

Mother Of All IAF Exercises! After 61 Years Of Post China War, India Begins Its 2nd Ever Multilateral Drills 'Tarang Shakti'

Indian Air Force (IAF) kicked off its Mother-of-all-Exercises, "Tarang Shakti," with a Press Conference in New Delhi on 31 July 2023. It is the first-of-its-kind and largest multinational air exercise in India.

In fact, the last multilateral exercise in India involving more than one foreign air force was "Exercise Shiksha" in 1963 after the 1962 war with China. That one included the air forces of the USA, UK, and Australia.

For Tarang Shakti, the IAF extended an invitation to 51 friendly foreign countries. In its briefing, chaired by Air Marshal AP Singh, Vice Chief of Air Staff, the IAF explained that the focus was on enhancing mutual understanding of air power, realistic operations, strengthening military ties, and showcasing indigenous defense equipment.

Tarang Shakti was earlier planned to be held in late 2023 but had been deferred. The exercise is planned in two phases.

Phase-I At Sulur Airbase

Phase I will be held at AF Station Sulur near Coimbatore, Tamil Nadu, in India's southern peninsula from 06-14 Aug 24. The participants will be the air forces of Germany, France, Spain, and the UK. Most of these countries are already engaged in Exercise 'Pitch Black' in Australia and would find it convenient to engage in the first phase while on their way back from Australia. Indian Navy's MiG-29K fighters will join Phase I.

Sulur is the home base of LCA 'Tejas'. This former Royal Navy and Indian Navy base is India's second largest airbase after Hindon. It is one of the bases responsible for the protection of India from the seaside. It is among the few airbases in India that hosts fighters, transports, and helicopters at one location. After gaining independence, the Indian Navy established INS Hansa at this airbase to operate Hawker Sea Hawks. After the liberation of Goa, INA Hansa was shifted to Goa's Dabolim airfield, and Sulur was taken over by the Air Force.

The base is home to 5 Base Repair Depot and 43 Wing of the Indian Air Force. It also houses an Antonov An-32 medium transport aircraft squadron and a Mi-17 V5 transport helicopter unit. The Sarang helicopter display team's home base is also there. Starting in July 2018, it became the base for LCA Tejas.

Phase II at Jodhpur

After a two-week break, the slightly larger Phase-II will be at AF Station Jodhpur, Rajasthan, from 29 Aug to 14 Sep 24. It will include Australia, Bangladesh, Singapore, Greece, UAE, and the USA, along with 18 countries as observers. The Jodhpur Flying Club was established by Maharaja Umaid Singh in the 1920s at a small airfield near his Chittar Palace (Umaid Bhavan Palace) in Jodhpur. Over the next three decades, the airfield grew in stature and was used by the Royal Air Force (RAF) during World War II.

It was upgraded in 1950 after the formation of the Royal Indian Air Force (which later became the Indian Air Force). Jodhpur was home to the IAF's Air Force Flying College until the 1965 war.

It is one of the major airbases facing Pakistan in the desert sector and played a great operational role in both the 1965 and 1971 Indo-Pakistan Wars. Over the years it had been home to many leading IAF aircraft. It was home to the Indigenous HF-24 "Marut," Mikoyan MiG-23 BN, MiG-27, Sukhoi Su-30MKI, HAL Dhruv, Mil Mi-17, and the first base of Indigenous LCH 'Prachand'. The airbase has hosted many bilateral air exercises with the US Air Force (USAF), the "Garuda" series with the French Air and Space Force (FASF), and more recently, air exercises with Oman.

Countries Invited

Air Forces of 51 countries were invited for this first-of-its-kind and largest multinational air exercise. The nations invited are friendly foreign countries with whom the IAF interacts regularly and has a certain degree of interoperability.

Many IAF frequently carry out air exercises in India or elsewhere. These countries cover all the continents. A large number are from the Global South. Many of those invited are from Asia and Africa. All India's friendly neighbors were invited. There are some with which India shares equipment or training teams. Many of these look up to India for guidance and support. Some are using Indian defense equipment.

Continental-sized Australia, which hosted the just concluding “Pitch Black” exercise, is invited. From Africa, invites went to (alphabetically) Algeria, Angola, Botswana, Ethiopia, Egypt, Ivory Coast, Kenya, Morocco, Mozambique, Nigeria, South Africa, Tanzania, and Tunisia. From Asia were Armenia, Bangladesh, Brunei, Cambodia, Indonesia, Japan, Kazakhstan, Kyrgyzstan, Laos, Malaysia, Maldives, Nepal, Oman, Philippines, Republic of Korea (RoK), Saudi Arabia, Singapore, Sri Lanka, Tajikistan, Thailand, Turkmenistan, UAE, Uzbekistan, and Vietnam.

France, Germany, Greece, Italy, Spain, Sweden, and the UK were invited from Europe. The USA is the only North American country. Argentina, Brazil, Chile, Colombia, and Venezuela are from South America. It can be noticed that India’s great military equipment partners, Russia and Israel, are not on the list, though Russia was invited. Both are currently engaged in conflicts in their regions.

Participating Forces

Australia will bring the F-18, Bangladesh C-130, France Rafale, Germany Typhoon, Greece F-16, Spain Typhoon, UAE F-16 & AWACS, UK Typhoon, and Singapore C-130.

The US is participating with F-16s, A-10s, and FRAs. The F-35 will not participate. The IAF was exposed to the F-35 elsewhere in Red Flag and the recent Pitch Black exercises. Germany will also showcase the A-400M, which is competing for an IAF tender.

IAF will field LCA ‘Tejas, Su-30 MKI, Rafale, Mirage 2000, Jaguar, Mig-29, LCH ‘Prachand’, ALH Mk IV ‘Rudra’, C-130, IL-78 (FRA), and Netra and Phalcon AEW&C. Many of IAF assets would not typically deploy abroad for bilateral or multilateral drills. Now, they will get a chance to learn from a wealth of global experiences.

IAF’s Growing Large-Scale Military Exercises

The IAF has participated in over 91 international air exercises since the beginning of this century. In the last decade, IAF has begun carrying out multiple military exercises with foreign nations and their air forces to increase interoperability between themselves.

Some are also multinational exercises. Some of the regular exercises where IAF participates include Exercise Garuda (India, France), Cope India (India, USA), SINDEX (India, Singapore), Indradhanush (India, UK), Exercise Red Flag (Multinational, Host: USA), Exercise Desert Eagle (India, UAE), Exercise Eastern Bridge (India, Oman), Siam Bharat (India, Thailand), Exercise INDRA – tri-service (India, Russia), Exercise Blue Flag (Multinational, Host: Israel), Exercise Pitch Black (Multinational, Host: Australia), Shinyuu Maitri (India, Japan), Exercise Desert Knight (India, France, UAE), Cobra Warrior (UK, multinational), Iniochos (Greece, multinational), and Exercise Desert Warrior (India, Egypt).

Some air exercises are carried out within India without foreign participation. These are the Multi-Agency Exercise ‘Pralay Sahayam’ (Disaster response exercise), Exercise DANX (Defence of Andaman & Nicobar Exercise), Gaganshakti, Vayushakti, Exercise Iron Fist, and Bharat Shakti (Tri-service), and they have been of a major scale. Exercise Tarang Shakti will now be the first very large multinational exercise hosted by India.

Exercise & Administrative Complexities

These exercises help the IAF build professional relationships with the world's leading air forces. Hosting a complex multinational exercise has extreme learning value for the host. Over the years, India has very successfully hosted large aviation events such as the Aero India "Airshow" at Yelhanka' Bengaluru and Wings India (formerly the Indian Civil Aviation Airshow) biennial air show held in Hyderabad, Telangana.

India understands the support required to host and position diverse equipment and platforms. Also, it will be a major challenge to accommodate such a large number of personnel in secure hotels nearby.

Operational planning and flying require months of hard work and coordination. Broad arrays of operational scenarios will be evolved. The missions would include beyond-visual-range combat exercises as part of large force engagements (LFE), inoffensive counter-air, and air defense roles.

LFE requires very detailed mission plans. One has to look into de-confliction and flight safety. Every sortie must have a very detailed briefing. Flight safety considerations have to be spelled out. Plan B' will be put on the table.

Mission aims have to be explicit. Electronics briefing will be important. Electronic warfare will be selectively practiced. There will be detailed debriefs to derive lessons and even make amends for future missions. Both phases will be similar in operational complexity and involve the full range of platforms and equipment, including fighters, AEW&C, FRA, transports, helicopters, radars, missile systems, and Special Forces. The exercise will also test the maintenance crew to ensure high serviceability and meet the high mission tempo.

Showcasing India

A large number of Indigenous platforms will be seen in action. "Make-in-India equipment, including LCA Tejas, LCH Prachand, Netra AEW&C, Akash SAM, and some other weapon systems, will be showcased at the ground events.

During the exercise, defense and technology-related industrial exhibitions of Made in India will be held at Sular and Jodhpur. Several high-level military engagements are planned on the sidelines. The IAF's Agniveers will also participate in the Tarang Shakti 2024.

To Summarise

India's economy and diplomacy have transformed, and the world is wooing it. India has the fourth most powerful military and will soon be the third-largest economy. New Delhi is thus in a position to engage the world on its own terms. Tarang Shakti will also showcase the IAF and India more broadly. The IAF will learn and share best practices with the leading visiting air arms, making this a win-win for all involved.

This theatre-level exercise would involve nearly 70 aircraft at a time. As defense analyst Angad Singh says, "The exercise would provide the conditions for stress testing of participating forces and generate representative outcomes and learnings."

Some of the key takeaways from the exercise would include enhancing interoperability with international partners and a collaborative understanding of employment philosophy in a multinational environment. It will be a huge exposure for young crew members.

The exercise will prove the IAF's professional reputation and cement the country's place as a serious geopolitical player. Will Tarang Shakti become a regular multi-national triennial exercise for years to come? The question will evolve in due course.

<https://www.eurasiantimes.com/mother-of-all-iaf-exercises-after-61-years/>

THE TIMES OF INDIA

Tue, 06 Aug 2024

Hasina's ouster puts a big question mark on IndiaBangladesh defence ties

Just when India was poised to take its traditionally good defence-military ties with Bangladesh on a sharp upward trajectory in a bid to stem China's major strategic inroads into the country, the fleeing of Sheikh Hasina from her country on Monday has injected an air of uncertainty into the entire equation.

Bangladesh Army chief General Waker-Uz-Zaman (58), a career infantry officer who declared his force was taking over the country's reins and would soon announce an interim govt, was in fact slated to visit India later this month.

"It would have been Gen Waker-Uz-Zaman's first foreign visit after becoming the Army chief on June 23 for a three-year tenure. Despite China's expanding influence in Bangladesh, Dhaka's bilateral defence ties with New Delhi were on an upswing. But everything is in a state of flux now," a source said.

Just a month ago, Bangladesh had inked a deal with Indian defence shipyard GRSE in Kolkata to build an 800-tonne advanced ocean-going tug, in the first major deal inked under the \$500-million line of credit for defence purchases extended by New Delhi to Dhaka, which was operationalized last year.

The contract coincided with Navy chief Admiral Dinesh Tripathi's fourday visit to Bangladesh to further consolidate defence ties and explore new avenues for maritime cooperation. Admiral Tripathi held discussions with Gen Waker-Uz-Zaman as well as the naval and air force chiefs, Admiral M Nazmul Hassan and Air Marshal Hasan Mahmood Khan, during the visit.

"Talks were underway for Bangladesh to buy Indian offshore patrol vessels as well as get spares for maintenance for its Russian-origin MiG29 and Mi-17 helicopters. Apart from joint exercises and capacitybuilding programmes, Indian military establishments have been training Bangladeshi defence personnel for decades," the source said.

The Indian defence establishment is now in a wait-and-watch mode to see how events unfold in Bangladesh, including the interim govt's composition and its impact on bilateral military ties.

"Gen Waker-Uz-Zaman is pro-India. As the principal staff officer of the Armed Forces Division of Bangladesh earlier, he co-chaired with the Indian defence secretary the bilateral annual defence dialogues in 2022 and 2023," another source said.

“But if the interim govt is filled with representatives from the anti-India Bangladesh Nationalist Party (BNP) and radical outfits like Jamaat-e-Islami, matters may well head south. The Jamaat has also spread its influence in the Bangladeshi military over the years,” he added.

Then, there is China. Bangladesh was the second biggest recipient globally of Chinese arms in the 2019-2023 timeframe, notching up 11% of them as compared to 61% of Pakistan.

Overall, Bangladesh sources 70-80% of its arms imports from China, which has ranged from F-7 fighter jets, main-battle tanks and corvettes to naval guns, surface-to-air missiles, rifles and ammunition.

China had even supplied two old Ming-class submarines to Bangladesh at a hugely discounted price in 2016. Apart from a wide variety of civil infrastructure projects, China has also helped Bangladesh build its first full-fledged submarine base at Pekua in Cox’s Bazaar, which was commissioned as BNS Sheikh Hasina in Dec last year.

<https://timesofindia.indiatimes.com/india/hasinas-ouster-puts-a-big-question-mark-on-india-bangladesh-defence-ties/articleshow/112297939.cms>



Mon, 05 Aug 2024

Indian Army takes delivery of JF-2 UAVs

Indian firm Johnnette Technologies, based in the northern state of Uttar Pradesh, has conducted a training course to support Indian Army operations of the company's JF-2 unmanned aerial vehicle (UAV). The company started deliveries of the JF-2 in June.

Johnnette Technologies received a government patent for the JF-2 design in October 2023. The army awarded it a contract for an undisclosed number of JF-2 units in December 2023. The company confirmed in a press release that training to support the JF-2 was conducted in July but did not elaborate.

The company has claimed that the JF-2 is India's first fixed-wing, hand-launched, stealth UAV designed for border intelligence, surveillance, and reconnaissance (ISR) operations. Its payload includes day-and-night thermal imaging cameras. Johnnette Technologies said the UAV has anti-jamming and anti-spoofing capabilities and features a crash-resistant avionics bay.

The JF-2 has a range of 15 km and an endurance of up to 90 minutes. The company said the UAV has been tested at a maximum altitude of 18,000 ft.

In addition to the JF-2, the company said it has recently received a contract from the Indian Army to supply more than 150 JM-1 loitering munitions that can operate at 18,000 ft.

According to Johnnette Technologies, the JM-1 is a stealth loitering munition that features artificial intelligence and anti-jamming technologies.

<https://www.janes.com/osint-insights/defence-news/air/indian-army-takes-delivery-of-jf-2-uavs>

Navy seeks international specialists to salvage sunken INS Brahmaputra

The Navy is seeking international salvage specialists to salvage INS Brahmaputra, damaged in a massive fire that took place aboard the warship on July 21. The ship caught fire during refit at the Naval Dockyard in Mumbai and tilted severely to one side (port side).

INS Brahmaputra suffered major damage in the incident, leading to accumulation of water during firefighting operations that began immediately after the incident.

The incident also resulted in the loss of a junior sailor's life. The 24-year-old INS Brahmaputra, which had been deployed on major missions as part of the Western Fleet, was in the final phase of refit before resuming operations.

While a board of enquiry headed by a 2-star Naval officer has been ordered to investigate the cause of the fire, the Navy has also initiated a salvage operation to bring the ship back into action.

Given the extent of damage, it could take at least six months and up to over one year for INS Brahmaputra to become fully operational after the damage assessment is completed, sources in the Navy told India Today TV.

The process to upright the ship and assess the damage will take around 2-3 months. The timeline suggests that the Navy might have to wait over a year to fully operationalise INS Brahmaputra.

The Navy is already in touch with specialised foreign agencies to estimate the losses onboard INS Brahmaputra. The Western Naval Command will be undertaking the entire process to operationalise this major warship.

INS Betwa and INS Beas are the other two ships of the Brahmaputra class that are part of the Indian Navy's fleet of 120 warships.

Chief of Naval Staff Admiral Dinesh K Tripathi visited Mumbai on July 23, two days after the fire. He reviewed the sequence of events leading to the accident and was briefed on the plan to recover and repair the ship to restore its functionality as soon as possible.

He directed that all actions by the Command and Naval Headquarters to make INS Brahmaputra combat-ready be initiated immediately.

A Special Task Force was constituted by the Navy for a complete audit of safety and security procedures followed by the Navy during their overall operations.

This Special Task Force is headed by a Rear Admiral rank officer and will work in coordination with the Naval Headquarters.

<https://www.indiatoday.in/amp/india/story/navy-seeks-international-specialists-to-repair-sunken-ins-brahmaputra-2577146-2024-08-05>



India can bank on its own natural methane mitigator to tackle climate challenges

India's first cultures of indigenous natural methane mitigating agents reported from rice fields and wetlands, mainly from Western India can help tackle upcoming climate challenges. While the world is experiencing global warming and climate change, there are some diligent micro-organisms in this world, doing their job perfectly in mitigating the ill effects of global warming. Methane, the second most important greenhouse gas, has 26 times more global warming potential compared to carbon-di-oxide. Wetlands, ruminants, rice fields, landfills are sources of methane produced by the action of methanogens. In a counteractive way, methanotrophs or methane oxidizing bacteria oxidize this methane and build up their biomass, breathing oxygen and producing CO₂ and H₂O as we do. Methanotrophs are natural methane mitigating agents and are present in all the environments where methane and oxygen both are available. Wetlands, rice fields, ponds and other water bodies are the habitats where these grow in abundance. It's because of the activities of methanotrophs that atmospheric methane values have not skyrocketed over the years. Dr. Monali Rahalkar, a scientist from MACS Agharkar Research Institute, an autonomous institute of Department Science and Technology, with her team, have isolated and described India's first cultures of indigenous methanotrophs from rice fields and wetlands, mainly from Western India. Isolating methanotrophs from India, they published the first novel methanotroph description from India, a novel genus and species -- *Methylocucumis oryzae*. The specialty of this methanotroph was that it had a characteristic oval and elongated shape, similar to that of a cucumber, and hence the name 'methane eating cucumbers' was given to this novel genus. Her team could culture another similar organism from a rice field again, in subsequent years though the isolation of this particular methanotroph. Recently *Methylocucumis oryzae* were found to be important methanotroph components of a stone quarry in Pune, situated amidst the popular hill, Vetal Tekdi or ARAI hill. This hill has its own unique flora and fauna including the stone quarry water having unique invertebrates and mollusks. Dr. Rahalkar's team also recently documented the abundance of methanotrophs in the water filled quarry, which indicated that an active methane cycle operated in this unique habitat. After about 6 years of description and around 10 years of isolation of its first member, *Methylocucumis oryzae* remain phylogenetically unique. No strains have been reported or cultured from any other country or parts of the world. It has a remarkably large size compared to other bacteria and is equal to the size of a small yeast (3-6 μm). Another unique feature of this

bacterium is that it has a strict mesophilic nature and cannot grow above 37°C while most of the other methanotrophs can tolerate or grow at 37°C or even at 40°C.

The bacterium forms light pale pink colored colonies, and the genome is indicative of a carotenoid pathway. In recent years, this methanotroph was also found to promote the growth of rice plants by inducing early flowering and increased grain yield. Methanotroph was added in transplanted rice plants in pot experiments using the local popular high yielding rice variety Indrayani. The current constraints with *Methylococcus* are slow growth which limits growing this culture on a larger scale, needed for mitigation and biotechnological applications. Nevertheless, there is evidence that this organism exists in nature in abundance in wetlands and rice fields and may be performing its function in a meticulous manner. These insights about the unique methanotroph *Methylococcus oryzae* were published recently in Indian Journal of Microbiology. Earlier reports on the three strains of this methanotroph and its genome have been published in Microbial Ecology, Antonie van Leeuwenhoek, Frontiers in Microbiology and International Microbiology. The discovery of such a unique and probably endemic methanotroph is important for further studies of this important group with respect to the upcoming climate challenges. Further improvements in culture conditions and large-scale cultivation may help in more applications of this organism.

Link to the article: <https://rdcu.be/dMUUw>

[Insights into *Methylococcus oryzae*, a Large-sized, Phylogenetically Unique Type Ia Methanotroph with Biotechnological Potential | Indian Journal of Microbiology \(springer.com\)](#)

[Diverse type I and type II methanotrophs cultivated from an Indian freshwater wetland habitat | International Microbiology \(springer.com\)](#)

<https://pib.gov.in/PressReleasePage.aspx?PRID=2041799>

