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# समाचार पत्रों से चयित अंश Newspapers Clippings

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*Thu, 11 Aug 2022*

### **From Agni to Pralay, a look at India's Missile Power**

#### **Agni**

The Agni missile is a family of ballistic missiles with medium-to-intercontinental ranges. It has been named after one of the five elements of nature. Agni variants are long-range nuclear weapons-capable and surface-to-surface ballistic missiles. The first missile of the series, Agni-I, was developed under the Integrated Guided Missile Development Program (IGMDP) and tested in 1989. The Agni family consists of Agni-I, Agni-II, Agni-III, Agni-IV, Agni-V, Agni-VI, and Agni-P. Agni-I has a range of 700-900 km. Agni-II has a range of 2,000-2,500 km. Agni-III can hit targets well beyond 3,500 km. Agni-IV can carry a warhead of 1 tonne and is designed to increase the killing efficiency along with a higher range performance. The Agni-V is capable of striking targets at ranges up to 5,000 km with a very high degree of accuracy. The Agni-VI missile has a range of up to 10,000 kilometres. The Agni-P has a range of up to 2,000 km and has been designed to replace older generation missiles such as the Prithvi, Agni-I and Agni-II. The Agni family is designed and developed by DRDO and inducted into service to act as a deterrent and meet the country's security requirements.

#### **Prithvi:**

Developed by the Defence Research and Development Organisation (DRDO) of India under the Integrated Guided Missile Development Program (IGMDP), Prithvi, meaning Earth, is a tactical surface-to-surface short-range ballistic missile (SRBM). The Prithvi missile project encompassed developing three variants, namely Prithvi-I, Prithvi-II, and Prithvi-III, for use by the Indian Army, Indian Air Force, and the Indian Navy. Prithvi-I has a maximum warhead mounting capability of 1,000 kg, with a range of 150 km (93 mi). Prithvi-II has a warhead mounting capability of 500 kg-1,000 kg and can hit the target up to 250 km away. The Prithvi-III can hit the target at a range of 350 km and has a warhead mounting capability of 1,000 kg. A successful training launch of a short-range ballistic missile, Prithvi-II, was carried out on June 15, 2022, from the Integrated Test Range, Chandipur, Odisha. The missile is a proven system and is capable of striking targets with a very high degree of precision. The Dhanush missile is an Indian short-range, ship-launched ballistic missile (SLBM) and is the third variant of the Prithvi missile family.

## **BrahMos**

Jointly developed by the Indian Defence Research and Development Organisation (DRDO) and the Russian Federation's NPO Mashinostroyeniya, the BrahMos is a universal long-range supersonic cruise missile system. It can be launched from land, sea, or air. The system has been designed with two variants for anti-ship and land-attack roles. The BrahMos Weapon Systems have been inducted and are operational with the Indian Navy (IN) as well as the Indian Army (IA). The missile system is claimed to be the world's fastest anti-ship cruise missile currently in operation. BrahMos Mark II: BrahMos-II or BrahMos-2 or BrahMos Mark II, is a hypersonic cruise missile developed by India's Defence Research and Development Organisation (DRDO) in collaboration with Russia's NPO Mashinostroyeniya. Together, they have formed BrahMos Aerospace Private Limited. The second in the BrahMos series of cruise missiles, the BrahMos-II is expected to have a range of 290 kilometres (180 mi) and a speed of Mach 7.

## **K missiles**

The K family of missiles are submarine-launched ballistic missiles (SLBM) developed by India to boost its second-strike capabilities and thus augment its nuclear deterrence. The missiles have been named after the Indian scientist and former President Dr APJ Abdul Kalam. Reportedly, K-missiles are faster, lighter, and stealthier than their Agni missile counterparts. The missile family consists of the K-15 or Sagarika missile, the K-4 missile, the K-5 missile, and the K-6 missile. Sagarika has a range of 750 kilometres (466 mi). The K-4 missile can hit its target at a maximum range of about 3,500 km. The K-5 is capable of hitting the target at a range of around 5,000-6,000 km. The K-6 missile has a range of around 6,000 to 8,000 kilometres. The most developed variant of the missile can hit the target at a maximum range of 5,000-6,000 kilometres.

## **Shaurya:**

Shaurya, meaning bravery, is a canister-launched hypersonic surface-to-surface tactical missile. It has been developed by the Indian Defence Research and Development Organisation (DRDO) for the Indian Armed Forces. It has a range of 700 to 1,900 km and is capable of carrying a payload of 200 to 1,000 kg of conventional or nuclear warheads. It gives the potential to strike at a very long range against any adversary. The missile is stored in a composite canister, which makes it much easier to store for long periods without maintenance as well as handle and transport.

## **Akash**

Developed by the Defence Research and Development Organisation (DRDO) and produced by Bharat Dynamics Limited (BDL), Akash is a short-range surface-to-air missile system. Designed to protect vulnerable areas and vulnerable points from air attacks, the Akash Weapon System can simultaneously engage multiple targets in Group Mode or Autonomous Mode. It has built-in Electronic Counter-Counter Measures (ECCM) features. The entire weapon system has been configured on mobile platforms. Akash Weapon Systems has been inducted and is operational with the Indian Air Force (IAF) as well as the Indian Army

## **Nag**

Developed by the Defence Research and Development Organisation (DRDO), NAG is a third-generation all-weather Anti Tank Guided Missile (ATGM) with an operational range of 500 m to

20 km. Designed to engage highly fortified enemy tanks in the day and night conditions, the missile has 'Fire and Forget' and 'Top Attack' capabilities with passive homing guidance to defeat all MBTs equipped with composite and reactive armour. It can be launched from the NAG Missile Carrier, NAMICA. Nag), an air-launched version of the Nag missile, is a third-generation fire-and-forget class of anti-tank guided missile (ATGM) system mounted on the Advanced Light Helicopter (ALH). It has been designed to engage the enemy in all weather conditions. It can defeat battle tanks with conventional armour as well as explosive reactive armour. It is capable of engaging targets both in direct hit mode as well as top attack mode. Recently, India successfully flight-tested the missile in Pokhran.

### **Nirbhay**

Nirbhay is a long-range, all-weather, subsonic cruise missile. It is designed and developed by the Aeronautical Development Establishment (ADE) functioning under the Defence Research and Development Organisation (DRDO). The missile is capable of deep penetration into adversary territory to strike high-value targets with precision. Presently, Nirbhay is launched from a mobile articulated launcher. This missile is being adopted for launch from sea and air platforms. India is one of the selected nations having the capability to design and develop this class of cruise missiles.

### **Pralay**

Pralay is India's first conventional quasi-ballistic missile, powered by a solid propellant rocket motor and many new technologies. The missile has a range of 150-500 kilometres and can be launched from a mobile launcher. The missile guidance system includes a state-of-the-art navigation system and integrated avionics. Last year, the Defence Research and Development Organisation (DRDO) successfully conducted a maiden flight test of an indigenously developed surface-to-surface missile from Dr APJ Abdul Kalam Island off the coast of Odisha on December 22.

<https://www.news9live.com/photogallery/knowledge-images/in-pics-from-agni-to-pralay-a-look-at-indias-missile-power-188753?infinitemscroll=1>

# DRDO On Twitter





**Press Information Bureau**  
**Government of India**

**Ministry of Defence**

*Thu, 11 Aug 2022 7:00 PM*

### **Minister of State for Defence Reviews Preparations for Independence Day Celebrations**

**NCC cadets who are engaged in the preparations for the ceremony felicitated  
with mementos**

Minister of State for Defence Shri Ajay Bhatt addressed the NCC cadets who are participating in the 76th Independence Day celebrations at the Red Fort in New Delhi, on August 11, 2022. These cadets have been chosen from all districts in the country. Addressing the cadets, Shri Ajay Bhatt said that the warriors who sacrificed their lives for the country will always be a source of inspiration for all of us. He described NCC cadets as the future soldiers who would be a strong pillar for maintaining the unity and integrity of this country. He hoped that some of these cadets will bring the country fame by reaching top positions in different fields.

The Minister of State for Defence said that on Independence Day, Prime Minister Shri Narendra Modi will unfurl the National Flag from the ramparts of the Red Fort and address the nation with his energetic voice. He encouraged the NCC cadets to implement the essence of the Prime Minister's message in their lives with utmost integrity. He appreciated their enthusiasm and morale and felicitated them with mementos. The Minister of State for Defence inspected the preparations related to the Independence Day celebrations at the Red Fort and appreciated the efforts of the NCC cadets, concerned officers and personnel deployed on duty.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1851013>



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Thu, 11 Aug 2022 4:39 PM*

**Defence Secretary & Principal Staff Officer of Armed Forces  
Division of Bangladesh Co-Chair 4th India-Bangladesh Annual  
Defence Dialogue in New Delhi;**

**Agree to Strengthen Defence Cooperation & Elevate Military Engagements**

The 4<sup>th</sup> India-Bangladesh Annual Defence Dialogue, co-chaired by Defence Secretary Dr Ajay Kumar and Principal Staff Officer of Armed Forces Division of Bangladesh Lt Gen Waker-Uz-Zaman, was held in New Delhi on August 11, 2022. During their interaction, they reviewed ongoing defence cooperation between the two countries and expressed satisfaction that collaboration is growing despite difficulties imposed by the COVID-19 pandemic. The talks covered the existing bilateral exercises & training and agreed to increase the complexity of these exercises. Both the sides reviewed the progress on various bilateral defence cooperation initiatives and expressed commitment to further elevate engagements between the Armed Forces. Various aspects of defence industrial and capability building cooperation came up for detailed discussions. Both sides emphasised the need to work closely to implement the USD 500 million line of credit extended from India for defence items.

The Defence Secretary commended the Bangladeshi side for their efforts in UN peace keeping. The Armed Forces of both countries continue to seek bilateral cooperation in multiple fields and the increased engagements are a positive sign for the future of the relations of both countries. Dr Ajay Kumar also invited the Bangladeshi delegation for the upcoming Def-Expo 2022 and stated that in the domain of defence industry both countries have great potential of cooperation in defence trade, co-development and joint production.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1850924>



*Fri, 12 Aug 2022*

**HAL Should March Ahead with the Tejas Project Despite  
the Constant Criticisms**

*By GirishLinganna*

Despite the still dubious experience in developing its own weapons systems, India should march ahead with developing indigenous systems and exporting them. The light combat aircraft program (LCA) is 15 years behind its original plans. However, according to the various governments that came in, the project was non-negotiable. Our experience shows that foreign



companies are reluctant to part with critical technologies. There are delays in delivering necessary spare parts and an exorbitant price rise. Equipment maintenance also shows that we cannot constantly depend on foreign suppliers and platforms. The Tejas project was set up in India in 1983 as successors to the British Folland Gnats fighters in the Indian Air Force (IAF) service. Called Ajeet fighters in the IAF, the Gnats proved to be nimble fighters and slayed the North American F-86 Sabre and F-104 Starfighters in air combat during the 1971 war with Pakistan. While the concept has not changed yet, the LCA project began when Gnats were already on their way out and by the time Soviet MiG-21 fighters filled the IAF fleet. As a result, LCA was tasked with entering service to replace the Mig-21s. However, the LCA project and the plans to replace the Mig-21 have dragged on. LCAs are on their way in, and MiG-21s are on their way out. The intended goal will be met after the Mig-21s are phased out by 2025, and TEJAS squadrons are replacing them.

Another important aspect of the LCA project was to build an aircraft industry in India. This objective is also achieved as the spin-offs of the LCA project infrastructure have resulted in many projects, including the fifth generation Advanced Medium Combat Aircraft (AMCA). If all the three objectives, a fighter like Gnat, replacement of MiG-21 and aircraft industry development, have been met, then what is the criticism about? Of course, one can say that the Kaveri engine is a failure and the indigenisation percentage is also not achieved. This is a valid criticism, and there are hits and misses in the project. But, the Kaveri engine is finding other uses, and the critical avionics, including the Uttam AESA radar, is close to achieving. A new generation engine project is being discussed with foreign manufacturers, and India is discussing closing the technology gap instead of commissioning a foreign company to supply the complete engine.

Hindustan Aeronautics Limited (HAL) produces the TEJAS, and the company is also under criticism for its delays in delivering the fighter plane. While HAL is ultimately responsible for the fighter's manufacture, the IAF has not been a proactive client. IAF dithered to induct LCA a decade back when it was clear it had already surpassed the Mig-21 capability. Constant criticism is that the Mig-21s are falling like flies, and the HAL does not deliver them. The question is if IAF has ordered them at all. Now since the IAF has ordered it, each TEJAS being built has a difference from its previous model. The design cannot be frozen unless the TEJAS MK-1A has been frozen. Even if TEJAS MK-1A is delivered, it is scheduled to have a replacement of parts which are import substitutes. Some of the TEJAS MK-1 ordered are not being delivered as it lacks the radar which Israel is supposed to supply and is delayed due to the pandemic induced breaking of supply chains. Why don't we see criticism of Elbit? Did the pandemic hit Elbit alone? I am leaving out criticism of HAL as others have been successfully doing it, and I need not repeat it.

The HAL and LCA project has progressed. So has the criticisms. The criticism has moved from whether LCA can be made to if HAL will deliver LCA and, finally, if HAL can export LCA. Recently the Minister of State for Defence (MoSDefence) said that LCA has been either pitched to or has interests from foreign countries, including Argentina, Australia, Egypt, the USA, Indonesia, and the Philippines. LCA falls in the category of defence products that take a long time to materialise. The decision is not strictly taken on the merits of the aircraft but on the political climate too. The sale of LCA will not just depend on the merits of the HALs pitch alone but also on the government of the day to back it up. Selling weaponry has geopolitical implications that HAL, as a manufacturing firm, cannot address on its own. Even if the US and

Russia have vacated the light fighter aircraft space, they supply components to the rivals of LCA in a more significant percentage than what they sell for TEJAS. Especially in the United States, corporations can influence their government to lobby for certain manufacturers in other countries.

HAL is one of the world's oldest and largest aerospace and defence firms in the world. But it does not have a Chairman as of today. The last one it had retired on July 31. Is it HAL's mistake or the government's mistake? We do not know. Till then, the finance head is doubling as the Chairman. The finance head is a good person, and I have only regard for him. But a part time Chairman is disastrous for the company at this critical juncture. Hope a Chairman is appointed and HAL gets on with its good work.

<http://www.indiandefensenews.in/2022/08/hal-should-march-ahead-with-tejas.html>



*Fri, 12 Aug 2022*

## **Atmanirbhar Bharat, A Rousing Success in the Defence Sector**

The Hon'ble Prime Minister of India Shri Narendra Modi's flagship initiative "Atmanirbhar Bharat" literally stands for India's strength and motive of self-reliance. It was launched in May 2020. This initiative when applied to defence means that India should be ready to face futuristic wars; be it conventional/ nuclear/electronic etc. In military science or defence and strategic studies therein lies the concept of "Revolution in Military Affairs" (RMA). The basic underlying aim is to use smarter, precise, smaller but deadlier systems in place of large, complex and obsolete weapon platforms. India faces a possibility of a two-front war situation in the near future wherein it has to combat its adversary "Pakistan" along with its all-weather friend/iron brother (Peoples Republic of China). The threat from China is much higher than that of Pakistan. The PLA (Army, Navy and Airforce) are expanding their power projection capabilities beyond their borders India faces a "String of Pearls" isolation and encirclement in the Indian Ocean Region (IOR). Recent clashes with China in Galwan, Doklam and Pangong Tso are considered future omens of war and conflict.

Before the Atmanirbhar Policy came into existence, Narendra Modi had developed Innovation for Defence Excellence for promoting and encouraging start-ups, and engaging Research and Development Institutes and Industries. The financial support for the MSME and Start-ups was provided by the Army Bureau of Design. Local firms were allowed to join the defence sector. Atmanirbhar Bharat has largely been very successful. The classic example of this initiative was the development of the IAC-Indigenous Aircraft Carrier Vikrant and the upgradation of the T-90 (Bhishma MBT). Royalty payments were halted by Putin and Modi. The Indian Armed Forces have the first right to use modern technology. In India, new technology is first used for civil purposes and then adopted by the military. China in particular has made deep forays into the arena of Artificial Intelligence and robotics and is way ahead of India. The Chinese threat comes from the LAC in the western sector as well as Arunachal Pradesh in the east. To defend its fronts, the Indian Army has been given a low lightweight radar system known as Ashlesha. It can

track and detect helicopters, fighter jets and drones flying at low and medium altitudes. The best part is that it is suited for all types of terrain (mountains/deserts/jungles etc.)

For the Indian Air Force, Active Electronic Scanned Radar is a vital development. It shall surely enhance the electronic warfare capability which is a necessity for the IAF. This radar is indigenously produced and only a limited number of parts are imported. HAL (Hindustan Aeronautics Limited) has developed India's self-made attack helicopter named Rudra (an armed version of the Dhruv Helicopter). The Air Force has already received the MRSAM (Medium Range Surface to Air Missiles) at Air Force Station, Jaisalmer. It is a joint venture of DRDO and the Israel Aerospace Industry. It will provide air defence support to the ground assets of the military.

For the Indian Navy, former electronic platforms such as the Kite, and Ajanta have been duly upgraded which allows for detection of the enemy without compromising the position. The navy will be armed to the teeth by the Project 75 Scorpene Submarines delivered by France to India. These have added stealth capabilities and these submarines just need to resurface only once and can remain underwater for weeks. This is the basic and core concept of the Independent Air Propulsion System under Project 75. The project will also develop a series of aircraft carriers for the Navy.

Atmanirbhar in Defence is not just limited to the armed forces, it is also for the paramilitary forces of India. The BSF especially will receive sentry guns, detection and tracking of tunnels and even Unmanned Aerial Vehicles (UAV). Though India is behind China as far as AI is concerned, Bharat has made some strides in the AI-related field including Face Recognition Devices. In the sphere of space warfare, DRDO is in the process of building anti-satellites along with kinetic weaponry. The self-reliance policy will also include restructuring of the Ordnance Factories. In the near future, a successor policy called Atmanirbhar -II will be promulgated by the Indian Government. Two aspirational projects or Defence Corridors are planned to be built in Uttar Pradesh and Tamil Nadu. It can be said that Atmanirbhar Policy especially in defence has been and will be a boon to "Bharat".

<http://www.indiandefensenews.in/2022/08/atmanirbhar-bharat-rousing-success-in.html>



*Fri, 12 Aug 2022*

## **IAF Chief's Greece Visit to be a Game Changer**

The likely visit of Air Chief Marshal V.R.Chaudhari to *Greece* is being seen as a major game-changer, certainly for the *Indian Air Force (IAF)*, but also in terms of strategic messaging. For, Greece, a part of the United States of America-led North Atlantic Treaty Organisation (*NATO*), can be of great tactical help to the IAF as its air force flies not just the Rafale that *India* has acquired from France, but also the F-16 C/D, which the *Pakistan Air Force* has. "The Hellenic Air Force has acquired both planes and will have a clear idea of the operational aspects of a Rafale vs F16 C/D matchup," said high-level sources. Currently, the F16C/D is the best fighter *Pakistan* has. It has the F16A/B, but it belongs to a previous generation. So, the *Greeks*, having both the Rafale and the F16C/D will have a clear and also impartial view as far as the

performances of both planes are concerned and how they compare with each other operationally. This will help the IAF in dealing with the Pakistan Air Force, if necessary. F16C/Ds in the future.

With both countries having the Rafale, it will be an opportunity to work together and share information on the fighter. At the moment, apart from France and India, there are only about half and dozen countries that fly the Rafale. The Greeks have considerable experience with the Rafale. The strategic aspect of the visit comes from the fact that the Greeks have a difficult relationship with Turkey, also a NATO country. This is a problem that has persisted for many years. While India and Turkey have diplomatic and also economic ties, Ankara's military help to Islamabad has caused considerable concern.

Turkey is making four MILGEM-class heavy corvettes for the Pakistan Navy. Three corvettes, called Babur-class by Pakistan are in varying states of readiness, and one has joined the fleet. Turkey has also sold PNS Moawin, a fleet tanker to the Pakistan Navy and repaired PNS Alamgir, a guided-missile frigate, and therefore, a frontline warship. It had problems with its sonar, fire control systems and radar. Besides, PNS Alamgir also participated in a high-profile Turkish naval exercise— DoguAkdeniz—with the Turks in the Mediterranean Sea in November last year. Pakistan and Turkey have frequent consultations about their air force assets— both have F16s.

<https://www.timesnownews.com/india/iaf-chiefs-greece-visit-to-be-a-game-changer-article-93491449>



*Fri, 12 Aug 2022*

## **Indian Navy Ready for Any Threat from Chinese Spy Ship Arriving at Hambantota**

Not only Ladakh, Sikkim or Arunachal, this time China also wants to monitor India on waterways. But India is not a vessel to leave. Internally, the Indian Navy has prepared its own special forces for the China war of the ship to keep an eye on The whole thing is kept very secret. There is growing tension around Chinese ships trying to enter Sri Lankan ports. The spy ship 'Yuan Wang-5' is scheduled to arrive at Sri Lanka's Hambantota port on Thursday. But Colombo has already under pressure from New Delhi requested to postpone the visit of 'Yuan Wang-5' to Hambantota indefinitely. But that request is not working. The Beijing ship is proceeding towards Sri Lanka. It is believed that the ship moving at a speed of 26 kilometers per hour will reach Hambantota on the scheduled day, i.e. 11th morning. India protested after learning of the ship's arrival. Spokesperson of the Ministry of External Affairs Arindam Bagchi said that the government always keeps an eye on the issues that may affect the security and economic interests of the country.

It is clear from his statement that India will keep an eye on Sri Lankan ports. Built in 2007, the 11,000 ton surveillance ship started its journey from the port of Jiangyin to the South China Sea. In early July, Beijing asked Sri Lanka to allow the satellite surveillance ship to use the Hambantota port as a port for a few days. It also received initial consent. But then the situation

changed. Colombo sent a message to Beijing under the pressure of India. The ship has the capability to carry out aerial surveillance in an area of 750 km. So, if desired, the ship can monitor the nuclear research centre and the Kalpakkam and Kudankulam areas along the Indian border. Also can collect information about ports in Kerala, Tamil Nadu and Andhra Pradesh. So the fear will increase if the ship finally arrives at Hambantota. It is said by China that India is trying to prevent the ship from coming to Sri Lanka by talking about security, it is meaningless. All in all, it is clear that Beijing will not back down easily. Now let's see if India comments on this.

<http://www.indiandefensenews.in/2022/08/indian-navy-ready-for-any-threat-from.html>

## THE ECONOMIC TIMES

*Thu, 11 Aug 2022*

### **Three French Rafale Jets Stop Over in India During Indo-Pacific Deployment**

A French Air and Space Force contingent, including three Rafale jets, was hosted in **India** during Indo-Pacific deployment on Wednesday, a statement issued by the French Embassy in New Delhi said. The contingent which was en route to New Caledonia was hosted for a technical stopover at Air Force Station in Sulur town of Tamil Nadu's Coimbatore district on August 10-11 during a long-distance deployment from metropolitan France to the Pacific Ocean. "From 10th August to 18th September, the French Air and Space Force is carrying out a major long-range mission in the Indo-Pacific, code-named Pegase 22. The first stage of this mission aims to demonstrate France's capacity for long-distance air power projection by deploying an Air Force contingent from metropolitan France to the French territory of New Caledonia in the Pacific Ocean in less than 72 hours (10th-12th August). To achieve this unprecedented 16,600-km deployment, the Air Force contingent made a technical stopover in India, at Air Force Station Sulur," the statement read.

The contingent which comprises three Rafale jets and support aircraft, landed at Air Force Station Sulur on Wednesday evening and flew out in the early hours of Thursday after refuelling, as per the French Embassy. "The operation demonstrated a high level of mutual trust and interoperability between the French and Indian Air Forces, which has been further boosted by the fact that both Air Forces now fly Rafale jets. It also illustrated the concrete implementation of the reciprocal logistics support agreement signed by France and India in 2018," the statement read further. Lauding the IAF's role in this successful operation, the Ambassador of France to India, Emmanuel Lenain, said: "France is a resident power of the Indo-Pacific, and this ambitious long-distance air power projection demonstrates our commitment to the region and our partners. It is only natural that to carry out this mission, we rely on India, our foremost strategic partner in Asia. My heartfelt thanks to the Indian Air Force for welcoming the French contingent."

In the following stages of Mission Pegase 22, the French Air Force contingent will take part in the "Pitch Black" air exercise taking place in Australia from 17th August to 10th September. The Indian Air Force will also participate in this multilateral drill, along with Australia, Japan, United

States, Germany, Indonesia, Singapore, United Kingdom, and South Korea. Mission Pegase 22 is a powerful demonstration of France's capacity for quick deployment in the Indo-Pacific. The mission is also proof that the security situation in Europe has not diminished the French and European commitment in the Indo-Pacific. In this respect, it also aims to strengthen ties with key strategic partners, such as India, and underline France's support for security and stability in the region. India and France have traditionally close and friendly relations. In 1998, the two countries entered into a Strategic Partnership which is emblematic of their convergence of views on a range of international issues apart from a close and growing bilateral relationship.

<https://economictimes.indiatimes.com/news/defence/three-french-rafale-jets-stop-over-in-india-during-indo-pacific-deployment/articleshow/93506368.cms?from=mdr>

## नवभारत टाइम्स

शुक्रवार, 12 अगस्त 2022

### क्या ताइवान पर गलती कर रहा है चीन

हर्ष वी. पंत

अमेरिकी संसद की स्पीकर नैसी पेलोसी ताइवान आकर तो चली गई, मगर चीन ने अपने आक्रामक रुख में कोई कमी नहीं की। रविवार को लाइव फायर ड्रिल का पहला चरण खत्म हुआ और चीन ने कह दिया कि वह और लाइव फायर ड्रिल करेगा। अपने बड़े जहाज, मिसाइलें और एडवांस तकनीक तैनात करके वह अमेरिका और ताइवान, दोनों को अपना गुस्सा दिखा रहा है। दुनिया को बताना चाह रहा है कि वह अब सन 1996 वाला चीन नहीं है। 1996 में जब ताइवान के नेता अमेरिका गए थे, तब भी चीन ने युद्धाभ्यास करके शक्ति प्रदर्शन किया था। वही फॉर्म्युला वह इस बार भी रिपीट कर रहा है, लेकिन और अधिक आक्रामकता के साथ। तब चीन खुद को उभरता हुआ देश कहता था। आज वह अपने आपको एक सुपर पावर के रूप में देखता है।

#### अलग चीन, अलग चुनौतियां

ताइवान के मामले में चीन के मौजूदा रुख के पीछे दो कारक हैं। पहला, चीन ने यह कहकर कि पेलोसी ताइवान ना जाएं, खुद को परेशानी में डाल लिया। एक बार जब ऐसा बयान दे दिया, तब उसके सामने शक्ति प्रदर्शन के अलावा दूसरा कोई चारा नहीं रहा। दूसरा कारक ज्यादा गंभीर है। इसके कई पहलू हैं:

- चीन में नैशनल पार्टी काँग्रेस होने जा रही है, जिसमें मौजूदा राष्ट्रपति शी चिन फिंग को चुना जाना महज एक फॉर्मैलिटी है। वह नवंबर से अपना तीसरा कार्यकाल शुरू करेंगे।
- शी चिन फिंग इस मौके को ऐतिहासिक तो बनाना ही चाहते हैं, अपना नाम वह तंग श्याओ फिंग और माओ त्से तुंग की तरह इतिहास में भी लिखवाना चाहते हैं। इसके लिए जरूरी है कि वह कहीं से भी कमजोर नेता के रूप में ना दिखें।
- मगर चीन के हालात अच्छे नहीं हैं। उसकी जीडीपी ग्रोथ पिछली तिमाही में सिर्फ 0.4% ही रही। जीरो कोविड रणनीति के चलते चीन व्यापार के लिए भी पूरी तरह से नहीं खुला है। उसकी अर्थव्यवस्था की हालत खराब है।
- अपने नेतृत्व की मजबूती दिखाने के लिए शी चिन फिंग चाहेंगे कि ताइवान का चीन में विलय हो जाए। इसीलिए चीन ने ताइवान के मसले पर इतना आक्रामक होकर युद्धाभ्यास किया।

लेकिन सवाल है कि इससे चीन को फायदा होगा या नुकसान? यह अभी तक साफ नहीं है, क्योंकि इससे कुछ संभावनाएं बन रही हैं। एक तो ताइवान के अंदर चीन का विरोध तेजी से बढ़ेगा, लोगों में आजादी की भावना और प्रबल होगी। दूसरे, जो बाकी देश हैं हिंद प्रशांत में, वे देख रहे हैं कि किस तरह से चीन एक छोटे से देश पर अपनी ताकत दिखा रहा है। ऐसे में साउथ-ईस्ट एशिया या हिंद महासागर के छोटे देश चीन से और सावधान हो जाएंगे। वहीं, हिंद प्रशांत में मौजूद भारत, ऑस्ट्रेलिया, जापान, इंडोनेशिया और फिलिपींस जैसे देशों के आर्थिक सुधारों व विकास पर भी इसका प्रभाव पड़ेगा। इसका खामियाजा चीन को लंबे समय तक भुगतना पड़ सकता है।

### **बेवजह का शक्ति प्रदर्शन**

ताइवान के आसपास चीन अपनी ताकत तो दिखा रहा है, पर वह अच्छे से जानता है कि ताइवान पर सीधे हमला नहीं कर सकता। ताइवान अपनी रक्षा कर सकता है। वह यूक्रेन जैसा नहीं है। उसकी डिफेंसिव तकनीकें बहुत अच्छी हैं। वह तकनीकी रूप से बहुत एडवांस देश है। फिर ताइवान के पास पिछले कई दशकों से अमेरिका का भी बड़ा डिफेंस सपोर्ट है। इसीलिए चीन बस शक्ति प्रदर्शन ही कर सकता है, और कुछ नहीं। इससे यह भी रेखांकित होता है कि चीन और अमेरिका के बीच की समस्या अब शीतयुद्ध से भी बड़ी होती जा रही है। इसे शीतयुद्ध नहीं कह सकते। यह कई मायनों में अमेरिका और सोवियत संघ के बीच चले शीत युद्ध से अलग है।

- तब सोवियन यूनियन आर्थिक रूप से उतना ताकतवर नहीं था, जितना कि आज चीन है।

- ग्लोबल इकॉनमी में चीन का केंद्रीय रोल है। दुनिया भर की निगाहें चीन की इकॉनमी पर बनी रहती हैं। पिछले कुछ दशकों में चीन दुनिया भर का एक तरह से मैन्युफैक्चरिंग हब बन गया था। दुनिया भर में सप्लाई चीन से आ रही थी, तो एक तरह से वह ग्लोबल इकॉनमी को आगे बढ़ा रहा था।
- हालांकि अब चीन उस रोल को नहीं निभा पा रहा है, लेकिन फिर भी तत्कालीन सोवियत यूनियन के मुकाबले वह कहीं ज्यादा मजबूत स्थिति में है।
- ट्रेड, टैरिफ, साउथ चाइना सी, हिंद प्रशांत- हर जगह चीन ने अपनी दादागीरी दिखाई है। डब्लूटीओ, डब्लूएचओ जैसी ग्लोबल संस्थाओं का उसने दुरुपयोग किया है।
- कुल मिलाकर देखें तो चीन की विशिष्ट स्थिति के कारण अमेरिका से उसका तनाव पिछली सदी के शीत युद्ध जैसा रूप नहीं ले सकता।

कई लोगों ने कहा है कि पेलोसी ने चीन को भड़काया। लेकिन अगर हम ताइवान का इतिहास समझें, तो वहां आजादी और अपनी अलग पहचान बनाने की तलब बहुत ज्यादा है। इसे अगर हम अमेरिका की गलती मानते हैं तो ताइवान के साथ अन्याय होगा। अंततः यह ताइवान और उसके लोगों के ऊपर है कि वे क्या चाहते हैं।

कोई भी देश इस तरह से किसी के खिलाफ शक्ति प्रदर्शन करे तो अंतरराष्ट्रीय समुदाय को उसे गलत ठहराना चाहिए। चीन जिस तरह का दबाव ताइवान पर डाल रहा है, वह अपने आप में गलत है। ध्यान रहे, यह सिर्फ ताइवान का मसला नहीं है। साउथ चाइना सी से लेकर भारत के साथ सीमा विवाद तक कई ऐसे मसले हैं, जहां चीन अपनी ताकत दिखाता रहा है। अगर चीन शक्ति प्रदर्शन के जरिए ताइवान का स्टेटस बदलता है तो हिंद प्रशांत पर तो इसका प्रभाव होगा ही, उससे बड़ा प्रभाव इसका ग्लोबल ऑर्डर पर पड़ेगा।

<https://blogs.navbharattimes.indiatimes.com/nbteditpage/is-china-reaction-wrong-on-taiwan/>

## THE ECONOMIC TIMES

Thu, 11 Aug 2022

### Taiwan Holds Military Drill after China Repeats Threats

Taiwan's army held another live-fire drill Thursday after Beijing ended its largest-ever military exercises around the island and repeated threats to bring the self-ruled democracy under its control. Beijing has raged at a trip to Taiwan last week by US House Speaker Nancy Pelosi -- the highest-ranking elected American official to visit in decades -- staging days of air and sea drills that raised tensions to their highest level in years. Taiwan has accused China of using the Pelosi visit as an excuse to kickstart drills that would allow it to rehearse for an invasion. Lou Woei-jye,



spokesman for Taiwan's Eighth Army Corps, told AFP its forces fired howitzers and target flares as part of the defensive drill on Thursday.

The exercise in Taiwan's southernmost county Pingtung began at 08:30 am (0030 GMT) and lasted about an hour, he said. Artillery tucked in from the coast was lined up side by side, with armed soldiers in units firing the howitzers out to sea one after the other, a live stream showed. Taiwan held a similar drill on Tuesday in Pingtung. Both involved hundreds of troops, the military said. The military has played down the exercises' significance, saying they were already scheduled and were not in response to China's war games. "We have two goals for the drills, the first is to certify the proper condition of the artillery and their maintenance condition and the second is to confirm the results of last year," Lou said, referring to annual drills.

Taiwan routinely stages military drills simulating defence against a Chinese invasion. On Thursday, Taipei's army said it detected 21 Chinese planes and six ships operating in the Taiwan Strait, without specifying if they were conducting operations. Of those, 11 planes crossed the median line, an unofficial demarcation between China and Taiwan that Beijing does not recognise. - 'Prepare for war' - Taiwan's president Tsai Ing-wen thanked troops in a visit to an air force command headquarters on Thursday. "Right now, China's military threat has not lessened," she said in a statement posted on her Facebook page. "I will reiterate, we will not escalate the conflict or cause disputes, we will firmly defend our sovereignty and national security, and defend the front line of democracy and freedom." Taiwan's latest exercise came after China's military indicated its own drills had come to an end Wednesday, saying its forces "successfully completed various tasks" in the Taiwan Strait while vowing to continue patrolling its waters.

But in the same announcement, China said that it would "continue to carry out military training and prepare for war". In a white paper published the same day, China's Taiwan Affairs Office said Beijing would "not renounce the use of force" against its neighbour and reserved "the option of taking all necessary measures". "We are ready to create vast space for peaceful reunification, but we will leave no room for separatist activities in any form," it said in the paper. China last issued a white paper on Taiwan in 2000. Taiwan's Mainland Affairs Council, the island's top policymaking body on China, rejected the paper and said the document was "full of lies that are wishful thinking and disregarding the facts". Taiwan's foreign ministry on Thursday joined the council in rebuffing the "one country, two systems" model that Beijing has proposed for the island.

"China's whole statement absolutely goes against the cross-strait status quo and its reality," ministry spokesperson Joanne Ou told a press conference. "China is using US House Speaker Nancy Pelosi's visit as an excuse to destroy the status quo and taking the opportunity to make trouble, attempting to create a new normal to intimidate the Taiwanese people." The Chinese Communist Party's Taiwan Affairs Office said in a statement Thursday that Taipei's "rebellious actions are just a slap in the face and cannot stop the historical trend of reunification" with mainland China. Pelosi has stood by her visit, saying Wednesday she was "very proud" of her delegation and believed China had used her visit as a "pretext" to launch its military exercises. "We will not allow China to isolate Taiwan," Pelosi told reporters in Washington. In response to the Chinese military revealing it was bringing drills to an end, Taiwan's army said it would "adjust how we deploy our forces... without letting our guard down".

<https://economictimes.indiatimes.com/news/defence/taiwan-holds-military-drill-after-china-repeats-threats/articleshow/93503518.cms?from=mdr>

*Fri, 12 Aug 2022*

## **South Korea Sets 2026 Target to Mass-Produce KF-21 Fighter Jets that Could ‘Rival’ Chinese Warplanes: Chinese Media**

South Korea is seeking a niche market for its semi-stealth fighter jets praised for their high agility and low maintenance costs, which are likely to emerge as a cost-effective alternative to Chinese warplanes, analysts in the country have said. The KF-21 "Boramae", meaning "Hawk" in Korean, is likely to provide stiff competition for China's J10 CE and FC31 fighters in the global market, especially in Africa, the observers said. In the latest development surrounding the KF-21, South Korea is seeking to begin mass production of the jets by 2026, with the air force to acquire 40 planes. By 2026, the high-end fighter will focus on having air-to-air combat capabilities. Chinese observers have previously said the new jets were far from comparable to advanced fifth-generation fighters like China's Chengdu J-20 but noted that if mass deployed, the KF-21 could still alter the regional air force power balance.

Built by the Korea Aerospace Industries (KAI), the jet took six-and-a-half years to develop and went on its maiden flight last month, after initial criticism that the 8.8 trillion won (US\$6.7 billion) project was too costly. The South Korean Air Force plans to deploy 120 units of the KF-21, a "4.5-generation" fighter, by 2032 to replace its ageing fleet of F-4 and F-5 fighters, as well as the country's fourth-generation F-16s and F-15Ks. "As we step closer to the successful development of the home-grown fighter, this symbolises a new leap in domestic aviation technology and a rise of the strong hi-tech military," the Defence Acquisition Program Administration (DAPA) said of the maiden flight last month. The air force plans to obtain another 80 jets by 2030 after the military aircraft evolves to have air-to-ground and air-to-ship combat capabilities by 2028.

"KF-21 is likely to emerge as a strong competitor for China's J-10 and FC-31 in developing countries, especially in Africa," said Lee Il-woo, a defence analyst at the Korea Defence Network. With the cost of each jet somewhere between US\$80 million and US\$100 million, it has a good price competitiveness and could find clients in Asia, Africa and the Middle East, Lee added. When armed with the European Meteor air-to-air missiles and home-grown radars, the KF-21 could even match China's J20 stealth fighter in combat capabilities, said Yang Uk, a defence analyst at the Asan Institute for Policy Studies. The fighter will be equipped with high-end Meteor air-to-air missiles manufactured by Europe's MBDA. Separately from F-21 fighters, South Korea already operates 40 F-35 stealth fighters and will acquire another 20 F-35 fighters from 2023 to 2028.

"South Korea's air force is becoming a force to be reckoned with in the region, not only for North Korea but for China as well," Yang said. South Korea's substantial defence build-up is backed by its fast-growing defence industry, whose exports are expected to top US\$10 billion in 2022, more than triple the amount it sold annually between 2010 and 2020. Last year, its defence exports exceeded defence imports for the first time in history. As a sign of its fast-growing presence in the global defence market, South Korea last month signed arms deals with Poland, potentially worth a whopping US\$15 billion. Some of the largest orders would include 48 South

Korea-developed FA-50 light attack fighters, 980 K2 main battle tanks and 648 K9 self-propelled howitzers. The contracts come as Poland strives to refill its armoury after it sent weapons to neighbouring Ukraine to fight Russian forces. “Poland has expressed interest in participating in the KF-21 second-phase project for joint development and production” that could start from 2029, Lee said. This news may raise some eyebrows in Indonesia, which participated as a partner shouldering 20 per cent of the 8.8 trillion won costs in the first phase of the KF-21 development project. Indonesia has been in arrears for 800 billion won (US\$613 million) for its share.

When Indonesian leader Joko Widodo met President Yoon Suk-yeol in Seoul last month, the two reaffirmed their commitment to closely cooperating until the completion of the F-21 project but they did not mention the arrears. South Korea initially sought to secure key technologies for four critical pieces of equipment – an active electronically scanned array (AESA) radar system, infrared search and track (IRST) system, electro-optical tracking pod (EO TGP) and radio frequency (RF) jammer – from its ally, the United States. The US turned it down in 2015, forcing South Korea to rely on local firms to develop the highly sophisticated technologies including the AESA radar that can detect and track multiple targets simultaneously and extensively. DAPA consequently signed a fighter development contract with KAI, the country’s sole aircraft maker, in December 2015. Hanwha Systems Co. successfully developed the AESA radar system, with its prototype unveiled in August 2020, four years after the launch of the radar development effort.

Hanwha Systems has also been in charge of developing the IRST and EO TGP. The IRST system is designed to detect and track objects that give off infrared radiation, while EO TGP is for identifying targets and guiding precision munitions like laser-guided bombs. LIG Nex1 has been working on developing the fighter’s electronic warfare suite, including the RF jammer designed for the disruption of radio signals, Yonhap news agency said.

<http://www.indiandefensenews.in/2022/08/south-korea-sets-2026-target-to-mass.html>



Thu, 11 Aug 2022

## **What is The Controversial ‘Butterfly Mine’ Russia has Allegedly Used in Ukraine?**

The UK Ministry of Defence, in its intelligence assessment of the ongoing war in Ukraine, has sounded an alarm on the possible use of PFM-1 series ‘Butterfly Mines’ by the Russian military in Donetsk and Kramatorsk. What are these mines and what kind of damage can they afflict?

### **What is the intelligence assessment put out by UK ?**

As per an intelligence bulletin put out by UK Ministry of Defence a few days back on the security situation in Ukraine, Russia is likely to have deployed anti-personnel mines to deter freedom of movement along its defensive lines in the Donbas. As per the bulletin, these mines have the potential to inflict widespread casualties amongst both the military and the local civilian population. “In Donetsk and Kramatorsk, Russia has highly likely attempted employment of

PFM-1 and PFM-1S scatterable anti-personnel mines. Commonly called the 'butterfly mine', the PFM-1 series are deeply controversial, indiscriminate weapons.

PFM-1s were used to devastating effect in the Soviet-Afghan War where they allegedly maimed high numbers of children who "mistook them for toys," the bulletin said. It added that it is highly likely that the Soviet-era stock being used by Russia will have degraded over time and is now unreliable and unpredictable. This poses a threat to both the local population and humanitarian mine clearance operations, the bulletin says.

### **What is the 'Butterfly Mine' and why is it called so?**

The PFM-1 and PFM-1S are two kinds of anti-personnel landmines that are commonly referred to as 'Butterfly mines' or 'Green Parrots'. These names are derived from the shape and colour of the mines. The main difference between the PFM-1 and PFM-1S mine is that the latter comes with a self destruction mechanism which gets activated within one to 40 hours. The 'Butterfly mine' has earned a reputation for being particularly attractive to children because it looks like a coloured toy. It is very sensitive to touch and just the act of picking it up can set it off. Because of the relatively lesser explosive packed in this small mine, it often injures and maims the handler rather than killing them. These mines are also difficult to detect because they are made of plastic and can evade metal detectors.

These mines can be deployed in the field of action through several means, which include being dropped from helicopters or through ballistic dispersion using artillery and mortar shells. These mines glide to the ground without exploding and later explode on coming in contact. Since these mines were green in colour when they were first put to use they also earned the name 'Green Parrots'. By some estimates more than a million 'Butterfly mines' litter Afghanistan and were airdropped in valleys and mountain passes to impede the movement of the Afghan Mujahideen. More than 30,000 Afghans are believed to have been victims of these mines and a large number of children were among the casualties.

### **What are the technical specifications of this mine?**

The PFM series mines are moulded in polythene plastic and have two wings, one of which is heavier than the other. The thicker wing is the pressure activation for the main fuse which is contained in the central body. The thinner wing acts as a stabiliser for the mine when it is air-dropped, thus giving it the name 'butterfly'. As per data available on the mine, a pressure exceeding 5 kg will activate the mine which contains 40g of explosive. The rapid means of deployment of the mine and the fact that it can be indiscriminately scattered to impede the advance of an enemy makes it an attractive option for a field commander, regardless of the danger that these can pose for non-combatants living in the area.

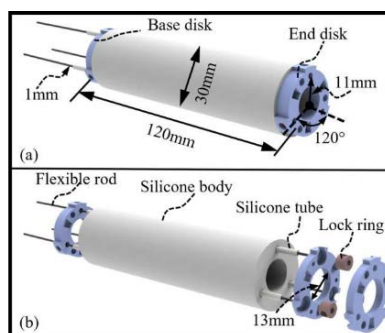
### **Are these kind of mines allowed by international law?**

The anti personal mines are banned by international convention on land lines but Russia and Ukraine are not signatories to it. However, there is a 1996 Amended Protocol II to the Convention on Certain Conventional Weapons-the Landlines Protocol to which Russia and Ukraine are signatories. In the ongoing conflict, both countries have accused each other of having used these mines, since both possess them in sufficient numbers. Allegations and counter-allegations of the use of these mines have been made in Mariupol, Kharkiv and now Donetsk.

<https://indianexpress.com/article/explained/explained-global/explained-what-is-the-controversial-butterfly-mine-russia-used-in-ukraine-8083177/>

## A Flexible, Rod-Driven Soft Robot for Biomedical Applications

Soft robots that can complete tasks with high efficiency, accuracy and precision could have numerous valuable applications. For instance, they could be introduced in medical settings, helping doctors to carry out complex surgical procedures or assisting elderly and vulnerable patients during rehabilitation. Soft robots are more flexible and can deform more. This can result in an increased dexterity (i.e., better manual skills when completing tasks), as well as in a reduction of payload (i.e., the robot capacity to carry a load), because they can produce smaller forces than rigid robotic systems. Researchers at National University of Singapore and Beijing Jiaotong University have recently developed a new rod-driven soft robot (RDSR) that operates through push and pull movements. This robot, presented in a paper published in the *IEEE Robotics and Automation Letters*, combines the mechanisms of two robotic system previously created by members of the research group.



*Structure of the rod-driven soft arm. (a) Design overview. (b) Exploded view.*

"A well-balanced performance in terms of dexterity, accuracy, and payload could have great potential in soft robot applications," Cecilia Laschi, one of the researchers who carried out the study, told TechXplore. "Many studies are focusing on this area and a few works and previous achievements inspired us. For example, in a pioneering research published in *Materials Science and Engineering*, we developed a soft robot inspired by the octopus, driven by longitudinal and transverse tendons, similarly to the octopus' muscles."

The previous robot created by Laschi and her colleagues at the BioRobotics Institute of ScuolaSuperioreSant'Anna in Italy can emulate the way in which an octopus moves by elongating, shortening and bending its tentacles. Their newly developed system could be particularly promising for completing missions in confined spaces, such as cleaning or explorations, accessing deep cavities and intervening inside the human body. "The second study that inspired our recent work was my research team's development of a continuum robot based on push-pull flexible rods," Peiyi Wang, another researcher involved in the study, explained. "By

combining the pure soft body of our octopus-inspired system and the rod-driven arm of Wang's robot, our new robot aims to achieve a balanced performance in motion accuracy, workspace, DOF, stiffness and active output force."

<https://techxplore.com/news/2022-08-flexible-rod-driven-soft-robot-biomedical.html#>

