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# समाचार पत्रों से चयित 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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**Press Information Bureau**  
Government of India

*Ministry of Defence*

*Fri, 17 May 2024*

### **Second India – Australia – Indonesia Trilateral Maritime Security Workshop (TMSW) Conducted at Kochi from 15 – 17 May 24**

The 2nd edition of India – Australia – Indonesia Trilateral Maritime Security Workshop (TMSW) was conducted from 15 – 17 May 24, at INS Dronacharya, Kochi, India. The Theme of the workshop was ‘**Indian Ocean Region: Collaborative Efforts to Enhance Regional Maritime Security**’, which was chosen to discuss ongoing maritime security challenges and opportunities for collaboration between the three maritime neighbours in the region. The Workshop was conducted under the aegis of Headquarters Southern Naval Command and witnessed participation of delegates from the three participating Navies.

The workshop was presided over by RAdm Nirbhay Bapna, ACNS (FCI), and Co-Chaired by Cmde Paul O’Grady, Commodore Flotillas from Royal Australian Navy, FAdm Heri Triwibowo, Assistant for Operations to CIC Indonesian Fleet Command from TNI (AL) and Cmde Manmeet S Khurana, Cmde (Foreign Cooperation) from Indian Navy. During the Workshop, discussions were centered on a wide array of topics, canvassing present day opportunities and challenges in the IOR, including Information Exchange mechanisms and capabilities of IFC-IOR, Maritime Domain Awareness, non-traditional and illicit maritime activities, Maritime Law enforcement, capability enhancement and capacity building, avenues for enhancing interoperability and cooperation etc.

During the workshop, Talks were also delivered by RAdm Upal Kundu, Chief of Staff, Headquarters Southern Naval Command and RAdm Susheel Menon, Flag Officer Sea Training.

A visit to Indian Naval training facilities at Kochi and M/s Cochin Shipyard Limited was also organised for the delegates from Australian and Indonesian Navies during the workshop.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2020956>



**Press Information Bureau  
Government of India**

*Ministry of Defence*

*Fri, 17 May 2024*

## **Second Edition of Lieutenant General PS Bhagat Memorial Lecture Organised by Indian Army**

**Second edition of “Lieutenant General PS Bhagat Memorial Lecture” was organised by the Indian Army and United Services Institution of India (USI) on theme “Armed Forces Contribution to Realise the Vision of a Rising India” at Manekshaw Centre. The lecture was conducted as part of “Lt Gen PS Bhagat Memorial Chair of Excellence instituted at USI, by the Chief of the Army Staff (COAS) on 14th October 2022.**

Lieutenant General KT Parnaik (Retired), Hon’ble Governor of Arunachal Pradesh delivered a Keynote Address, on the theme “Armed Forces Contribution to Realise the Vision of a Rising India”. Covering a wide spectrum of tenants of rising India, the Hon’ble Governor outlined the vital role and contributions of Indian Armed Forces in the Nation Building while also recollecting anecdotes from the rich legacy of Lieutenant General Bhagat’s military career.

The Hon’ble Governor acknowledged the noteworthy contribution of the Indian Armed Forces in Out of Area Contingencies and Defence Diplomacy initiatives. He also shared his thoughts on the Changing Face of Warfare Evolution, Modernisation of the Armed Forces, Self-Reliance & Technology Infusion, Net-Centric and Grey Zone Warfare.

General Manoj Pande, the COAS, delivered a Special Address during the event. He reminded the audience about the raw courage of Lieutenant General Bhagat, who was awarded the Victoria Cross during World War-II, wherein he cleared minefields under enemy fire, encountered mine explosions thrice, and suffered an ear drum puncture, yet executed the assigned task leading his men continuously for 96 hours at a stretch.

The COAS while talking about the vision and foresight of Lieutenant General PS Bhagat, said, “General Bhagat, being a progressive thinker and futurist, had written about the essence of Transformation, almost seven decades ago, as part of his insightful strategic writings in the three books – ‘**Forging the Shield**’, ‘**The Shield and the Sword**’ and ‘**Wielding of Authority in Emerging Countries**’.

The event was attended by a large number of dignitaries including the former Chiefs General JJ Singh (Retired), General Deepak Kapoor (Retired) and General MM Naravane (Retired). A large number of senior serving officers, veterans and civilian dignitaries were also present. The event was an occasion to draw inspiration from the legacy of Lieutenant General PS Bhagat, whose charisma has left an indelible mark on the history of the Indian Army.

During the event, a book titled “The Victoria Cross Icon: Vision and Legacy” on the rich legacy of Lieutenant General PS Bhagat, authored by Major General Shashikant G Pitre (Retired) was released. The book was eloquently introduced by the author giving out a meticulous account of



General Bhagat's military contributions, aptly delving into his military appreciations, concept papers, and his critique of the 1962 War. The book elucidates General Bhagat's prowess as a brilliant military leader with deep strategic vision and insights, exceptional administrative abilities, astute leadership qualities and his intimate connect with the men he commanded.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2020974>

## THE ECONOMIC TIMES

*Fri, 17 May 2024*

### **Indian Army reduces Ammunition Imports, boosts Indigenous production under 'Make in India' policy**

The Indian Army has drastically reduced its dependence on imported ammunition, aligning with the 'Make in India' policy. Senior defence officials emphasized the crucial role of private sector industries in achieving this milestone.

**Reduced Dependence on Imports** The Indian Army, with an annual budget of around Rs 20,000 crore for ammunition, previously allocated 35-40% for imports. This figure has now been cut to less than 10%, with plans to reduce it further. "Now, that requirement has been cut down to less than 10 per cent, and we are looking to reduce it further in the next couple of years," defence officials told ANI. The indigenisation effort includes ammunition for various weapon systems like tanks, artillery guns, air defence missiles, and grenade launchers.

**Expanding Export Base** Indigenisation not only reduces import dependency but also expands India's export base. Indigenous firms, both public and private, are meeting global ammunition demands. Public sector firm Munitions India Limited (MIL) and private companies such as Solar Industries Limited, Adani Defence, Hughes Precision, and SMPP Limited have been pivotal in this transition. MIL, in particular, has received significant export orders for artillery shells, fostering new supporting industries.

**Collaboration with Industry** The Army is actively collaborating with industry partners to develop and enhance ammunition products. This includes supporting new firms and allowing time for product improvements. "The force is also handholding the industry to develop the required ammunition and giving them time to further improve their products," officials said.

**Preparedness for Emergencies** Officials highlighted that increased domestic production capacities ensure the Army can meet all ammunition needs during emergencies. "The enhanced production capacities within the country can help meet all requirements for ammunition in times of emergency from indigenous sources themselves," they stated.

**Future Prospects** The on-going development of high-precision guided artillery ammunition by both private and public sector firms promises further advancements. The emergence of new firms in the ammunition sector is expected to enhance the situation, ensuring the Indian Army remains well-equipped with indigenously produced ammunition. Through focused efforts on indigenous

production, the Indian Army reduces its reliance on imports while strengthening India's position in the global defence market. This strategic shift, driven by the 'Make in India' initiative, underscores the collaborative efforts of public and private sectors in enhancing national security and economic growth.

<https://economictimes.indiatimes.com/news/defence/indian-army-reduces-ammunition-imports-boosts-indigenous-production-under-make-in-india-policy/articleshow/110214373.cms?from=mdr>

# THE ECONOMIC TIMES

*Fri, 17 May 2024*

## **Growing China-Russia Alliance casts shadow over India's Defence Challenges**

Russian President Vladimir Putin met Chinese President Xi Jinping in Beijing on May 16, 2024, at the Great Hall of the People. The meeting featured a guard of honor by China's People's Liberation Army (PLA) and underscored the deepening ties between the two nations. Putin emphasized the nonopportunistic nature of their relationship, while Xi described it as "everlasting" and a model for new international relations. The leaders also attended a concert celebrating 75 years of diplomatic ties.

Impact of Ukraine Conflict Putin's visit to China comes amid the ongoing Ukraine conflict, with Russia maintaining significant control over Ukrainian territories. The Russia-China "no-limits" strategic partnership, signed just before the Ukraine invasion in February 2022, continues to influence global dynamics. The West, particularly the United States, remains concerned about China's role in supporting Russia. U.S. officials have highlighted China's provision of dual-use items crucial for Russia's military operations.

U.S. Concerns and Chinese Assurances During their visits to China, U.S. Secretary of State Antony Blinken and Treasury Secretary Janet Yellen expressed concerns over China's support for Russia. Despite Xi's assurances to not sell arms to Russia and control dual-use goods, the West remains wary of China's involvement. China's exports of machine tools, computer chips, and logistics equipment have been vital for Russia's military, raising alarms about sustained military support.

Implications for India India faces significant concerns due to the deepening Russia-China ties. With 60-70% of its defense supplies coming from Russia, India's dependency is critical, especially amid its ongoing border tensions with China. Western analysts warn that Russia could become a junior partner to China, complicating India's strategic calculations. The historical context of the Soviet Union's stance during past India-China conflicts adds another layer of complexity to the current geopolitical scenario.

Strategic Calculations and Historical Context The Sino-Russian relationship has evolved from Cold War rivalry to a strategic partnership based on economic ties. China is now Russia's largest trading partner and biggest Asian investor. The West's hostile approach towards Russia, particularly after the annexation of Crimea in 2014, has further strengthened Sino-Russian ties. India, traditionally a

major recipient of Russian defense supplies, must navigate this evolving relationship carefully to maintain its strategic autonomy

**Future Dynamics and Regional Stability** The meeting between Putin and Xi highlights the implications of a stronger Sino-Russian partnership for global politics and regional stability. For India, the primary concern remains ensuring reliable defense supplies while managing its strategic positioning against a backdrop of increasing ChinaRussia cooperation.

The deepening ties between Russia and China pose significant challenges for India, necessitating a careful balance of diplomatic and military strategies. The reinforced Sino-Russian relationship presents a complex challenge for India, with critical implications for its defense supplies and strategic positioning amidst regional tensions. As global dynamics continue to shift, India's approach to managing its relationships with both Russia and China will be crucial for maintaining its strategic interests.

<https://economictimes.indiatimes.com/news/defence/growing-china-russia-alliance-casts-shadow-over-indias-defence-challenges/articleshow/110214673.cms?from=mdr>



*Sun, 19 May 2024*

## **LCA Mark-1A Set to Strengthen Indian Air Force**

The indigenous fighter jet, Light Combat aircraft (LCA) Mark-1A 'Tejas', is nearing delivery to the Indian Air Force (IAF), with expectations set for July following ongoing weapon integration tests. Earlier this year, the aircraft completed its inaugural flight without armaments.

Following a comprehensive review by the IAF and state-owned Hindustan Aeronautics Limited (HAL), the Tejas project is on track for joining the IAF fleet later this summer.

The IAF's procurement of 83 Tejas MK-1A, valued at Rs 48,000 crores, reflects a significant investment in indigenous defence capability. Additional orders for 97 Tejas aircraft signalling a potential outlay of Rs 65,000 crore by year-end, could further bolster the nation's aerial prowess. Noteworthy is the potential invitation to the Prime Minister to commemorate this milestone.

With eyes set on retirement, the Tejas Mark-1A stands poised to replace aging MiG-21, MiG-23, and MiG-27 aircraft, promising enhanced capabilities at forward operating airbases along the Western Border. The impending deployment of the first squadron, dubbed "Cobra," at Nal Airbase in Rajasthan underscores the strategic significance of this modern marvel.

The Ministry of Defence (MoD) has issued a tender to HAL to purchase 97 indigenous fighter aircraft Tejas Mark 1A. This tender is the largest order ever given by the government of India for indigenous military equipment. HAL has to respond to the tender within three months.

### **Tejas will replace MiG-21, MiG-23 and MiG-27 fighter jets**

The first squadron of Mark 1A 'Cobra' will be deployed at Nal Airbase (Bikaner) in Rajasthan, close to the Pakistan border.

It is expected that by the end of 2024, the entire squadron of LCA-Mk1A will be ready at Nal. Initially three squadrons of Mark 1A will be raised. All these three squadrons will be deployed at forward location airbases on the Western Border i.e. the border with Pakistan. It is believed that the second squadron will be deployed at Naliya Air Base in Kutch, Gujarat.

### **Mark-1A is more deadly than LCA Tejas**

Financial Express Online reported in 2021, the MoD signed a deal with HAL for 83 LCA-Mk1A fighter aircraft. These will include 10 Mk1A trainer aircraft. HAL claims that IAF will get all Mk1A by 2027-28. This variant of LCA is more lethal than LCA Tejas Mk1 due to BVR i.e. Beyond Visual Range Missile, Air to Air Refueling, AESA Radar, Electronic Warfare Suite and Early Warning Radar System.

<https://www.financialexpress.com/business/defence-lca-mark-1a-set-to-strengthen-indian-air-force-3493295/lite/>

## **Business Standard**

*Fri, 17 May 2024*

### **Asian Aircraft Carrier race: Which are the others after India and China?**

Following close on the heels of China's third and latest aircraft carrier completing its maiden test voyage, Defence Minister Rajnath Singh on Tuesday said that India would soon commence building its third aircraft carrier, adding that New Delhi has plans to make "five or six more".

At present, the Indian Navy operates two 45,000-tonne aircraft carriers, the INS Vikramaditya and the INS Vikrant. Both are conventionally-powered and use ski-jump ramps to assist aircraft takeoff. The INS Vikrant, India's first indigenous carrier constructed by Cochin Shipyard Ltd, was commissioned in September 2022, while the INS Vikramaditya was bought from Russia and deployed in 2014.

On May 8, China's third aircraft carrier, the Fujian, returned after completing its maiden test voyage. At present, the Chinese People's Liberation Army Navy (PLAN) operates two conventionally-powered, ski-jump ramp aircraft carriers, the 60,000 tonne-class Liaoning and Shandong. Unlike its predecessors, the 80,000 tonne-class Fujian will launch its aircraft using three electromagnetic catapults. These catapults are powered by an electromagnetic system similar to that of the US Navy's Gerald R Ford-class carrier and are more advanced than the ski-jump mechanism used by Indian and other Chinese carriers.



But, India and China aren't the only Asian nations building aircraft carriers, often described as "floating sovereign airfields". In fact, the defence minister's remarks, coupled with developments in other Asian countries, signal the advent of a regional aircraft carrier race.

### **Japan unveils first aircraft carrier since Second World War**

In April, Japan's Maritime Self-Defense Force (MSDF) unveiled its upgraded helicopter carrier Kaga, after completing the first stage of modifications to turn the warship into an aircraft carrier. Once operational, the Kaga will carry Lockheed Martin F-35B Lightning II Joint Strike Fighter jets, which will be acquired by Japan.

The modified Kaga's unveiling means that Japan is one step closer to operating its first full aircraft carrier since the Second World War.

The Kaga's upgrade took two years and includes coating heat-resistant paint on its deck, which will now be also to withstand the exhaust heat caused by the F-35B stealth fighter's takeoff and vertical landing.

Other structural modifications have been made to the Kaga to ensure a safe takeoff for aircraft.

The Kaga is one of the two Izumo-class helicopter carriers operated by Japan's MSDF. With a length of 248 metres and a standard displacement of 19,950 tonnes, these are the MSDF's biggest vessels.

Izumo, the second ship of the class, is also undergoing similar modifications to operate F-35B jets, with the process of making its deck heat-resistant already completed.

Japanese media had reported in April that further modifications to the Izumo were scheduled to start soon.

### **South Korea also wants its own aircraft carrier**

In October 2020, Jane's Defence had reported that driven by the growing naval capabilities of neighbouring countries, South Korea's Joint Chiefs of Staff had called for expediting plans to construct an aircraft carrier.

Subsequently, South Korean officials held the first meeting for building a next-generation aircraft carrier. The meeting was described as "the first step" towards developing "core technologies" for designing and building a light aircraft carrier. According to the report, the development process was expected to be completed by 2024.

Initially, the project envisioned building a 40,000-tonne carrier, which would operate with short take-off and vertical landing F-35B jets.

However, recent developments suggest that the fate of South Korea's future carrier is uncertain.

In December 2023, Naval News reported that the 2024-2028 mid-term defence blueprint released by the South Korean Ministry of National Defense did not include detailed plans or a timeline for the proposed aircraft carrier. However, the blueprint did state that the carrier project would be pursued in the future. According to the report, the South Korean government's budget proposal for 2024 also did not include a budget for the carrier programme.

Over the years, the project has also grown in ambition, with the latest design of the proposed carrier opting for a catapult launch system and a displacement of up to 70,000 tonnes.

### **Chinese carriers could go nuclear**

China's Fujian is considerably larger than carriers made by India, the United Kingdom (UK), and France, but it is still conventionally powered. In comparison, all American carriers and the French Charles de Gaulle carrier are nuclear powered.

However, the Chinese Communist Party's official mouthpiece reported in March that Beijing would unveil its fourth aircraft carrier soon, while speculating that there was a chance that the warship could be nuclear powered.

According to a 2022 report by US think tank Center for Strategic and Budgetary Assessment, China has the required resources to field up to five aircraft carriers by 2030.

The Pentagon's 2023 annual report on China's military power also warned that China was "in the beginning stages of operating what the People's Liberation Army (PLA) calls its 'multi-carrier force'".

### **US still has the most aircraft carriers**

A total of 21 aircraft carriers are in operation around the world, with the US alone accounting for 11, according to [globalfirepower.com](https://www.globalsecurity.org/military/defense/worldaircraftcarriers.html).

China, India, the UK and Italy have two carriers each, while France and Russia have one apiece.

The US also enjoys a qualitative advantage in this domain. In fact, China's latest carrier, the Fujian, is still smaller than the US Navy's latest Gerald R Ford-class carrier, which has a displacement of 100,000 tonnes.

[https://www.business-standard.com/amp/external-affairs-defence-security/news/asian-aircraft-carrier-race-which-are-the-others-after-india-and-china-124051701353\\_1.html](https://www.business-standard.com/amp/external-affairs-defence-security/news/asian-aircraft-carrier-race-which-are-the-others-after-india-and-china-124051701353_1.html)



*Fri, 17 May 2024*

## **India-China Face-Off: PLA readies High-Altitude Rocket Facility; Indian Army sets MRO Unit at Dizzying Heights**

India-China ties have bottomed out in the past four years. This has seen both sides launch infrastructure building on their respective sides of the border. Most recently, India has constructed facilities at the frigid heights of the Himalayas to service its tanks deployed in the Ladakh sector.

This comes as news broke about China constructing a road through Shaksgam Valley that could threaten India's position in Siachen Glacier, known as the highest battleground in the world.

The Indian Army has set up two tank repair facilities in Ladakh close to the Line of Actual Control (LAC) along China. Both units are two of the highest tank repair facilities.

The two facilities are located in the north and east of Ladakh. The one in the north at Daulat Beg Oldie (DBO) is closer to the Shaksgam Valley, where China's infrastructure construction has caused consternation in New Delhi.

The Shaksgam Valley, the 5180 square kilometers of Indian territory, was illegally ceded by Pakistan to China in 1963. The road is China's attempt to link the Karakoram Highway to the Upper Shaksgam Valley, bordering Siachen Glacier. The completion of the road will mean that the Indian Army's positions on the Siachen Glacier will have Pakistan forces in the South and the Chinese forces in the North breathing under its neck.

"To help sustain the armored vehicle operations in the region, we have set up these Medium Maintenance (Reset) Facilities at Nyoma and near KM-148 on the DS-DBO Road in the DBO sector. These are the two main areas where tank and ICV (Infantry Combat Vehicle) operations are focussed in the eastern Ladakh sector," the Army officials told ANI.

India has stationed over 500 tanks and infantry combat vehicles in eastern Ladakh along the Line of Actual Control (LAC). These armored fighting vehicles include T-90 tanks, T-72 tanks, and BMP-2 ICVs.

The T-90 is the main battle tank that India has deployed in the region. It is known for its firepower, mobility, and protection. The T-72 is another main battle tank used by the Indian Army. It provides reliable performance and has been in service for several decades.

The BMP-2 ICVs are tracked armored vehicles designed to transport infantry and provide fire support. They are equipped with a 30mm autocannon and anti-tank guided missiles.

Additionally, Indian-made Quick Reaction Fighting Vehicles (QRFVs) have been deployed in eastern Ladakh. These QRFVs enhance the Indian Army's mobility and response time.

The armored vehicles operate in extreme environmental conditions. The mercury dips to -40 degrees Celsius, and low oxygen conditions impact the performance of tanks, such as their firing systems, hydraulics, and engines.

The repair workshops will ensure rapid maintenance of tanks at high altitudes to allow the continuation of forward deployments. Tanks are airlifted to forward areas in heavy transport carriers like C-17, C-130, and Il-76.

Recently, Chief of Army Staff General Manoj Pande visited forward areas along the LAC in Ladakh to review troops' operational preparedness. He also visited the Medium Maintenance (Reset) Facility for Armoured Fighting Vehicles (AFV), established at a high-altitude area in Ladakh.

The Indian Army called it a unique maintenance facility that promotes enhanced serviceability and mission reliability of AFVs and keeps the combat fleet operationally ready even in rugged terrain and challenging weather.

## The Strategic Importance Of DBO & Nyoma

The DBO has been one of the areas in Ladakh that saw a spurt in Chinese intrusions since 2013. In 2013, Chinese soldiers crossed the LAC and set up a remote camp at DBO in the Depsang Valley, 19 kilometers into the Indian territory. After 21 days of stand-off, both sides agreed to pull forces back to their earlier positions.

DBO is strategically significant as it is close to the Siachen Glacier, the Karakoram Pass, and China's Xinjiang-Karakoram highway. Its airstrip, at an altitude of 5064 meters (16,614 feet), is the world's highest.

It was first activated in the 1962 war with China. It went out of use after being damaged in an earthquake in 1966. Following increased belligerence from China, DBO was reactivated in 2008 with the landing of AN-32.

The second repair site is at Nyoma, where the IAF is building a full-fledged fighter base. The black-topping of the 2.7-kilometre runway has been conducted. It is located around 46 kilometers from the LAC, with China at an altitude of about 13,700 feet. Till now, it was a dirt runway.

In 2020, as the tensions between the two countries were at their peak, the IAF deployed its Mi-17 medium lift, CH-47F Chinook heavy-lift helicopters, and AH-64E Apache attack helicopters to Nyoma. This was done to support troops in forward areas and facilitate surveillance and intelligence gathering.

Once the new runway is up and running, heavier transport aircraft will also be able to operate from Nyoma, adding strategic depth to the Indian military. The IAF has been slowly, away from the spotlight, upgrading its infrastructure facilities in at least 20 air bases along China's border.

These upgrades include the construction of new underground munition centers, hardened aircraft shelters, and taxiways, the upgrade of navigational aids, and the establishment of new radars and base defense systems.

## **China's Construction Spree Along LAC**

As reported by the EurAsian Times earlier, after suffering casualties in the Galwan Valley clash, China accelerated work on a new highway near the border with India, which will be a critical strategic change for India in the region since 1950, when China constructed its only highway, G219, in Ladakh. Earlier, the treacherous terrain in the region thwarted Beijing's plan for infrastructure development. But not anymore.

In the Ladakh region, China has been apprehensive about the G219 (Akshai Chin) highway, which runs along the country's entire western and southern border linking the regions of Xinjiang with Tibet; it is built on Indian land of Aksai Chin gifted to Beijing by Islamabad.

The sole highway has been vulnerable to the Indian military. And now China is close to eliminating its vulnerability by completing an alternate route known as the G216. In case of another episode like this, the Chinese troops will not solely depend on G219 now. The G216 will now help in mobilizing the biggest chunk of the Chinese forces.

“China has been investing in creating infrastructure, especially roads and railways in border areas ostensibly for the benefit of local people. However, in the absence of any sizable local population

to justify such investment, it is apparent that such developments are for military purposes, General MM Naravane (retired) had told the EurAsian Times in response to a query about the realization of the second highway on the Chinese side.

Interestingly, not just India but even China is developing critical facilities in high-altitude regions.

According to the China Aerospace Science and Technology Corporation (CASC), Asia's largest high-altitude rocket test facility and China's first vertical simulation test bench for rocket engines recently completed its ignition test. Developed by the 101st Institute of the Sixth Academy of CASC, this facility is expected to boost next-generation engines for China's space program.

<https://www.eurasiantimes.com/ne-india-china-face-off-pla-readies-largest-high-altitude/amp/>

## THE TIMES OF INDIA

*Sat, 18 May 2024*

### **Indigenisation Catalyst for Growth of Domestic Arms Production: Army Chief**

The cumulative efforts of the armed forces in pursuing indigenous procurements has been a catalyst for the growth of domestic arms production, thereby laying the foundations of a globally competitive defence industry, Army chief General Manoj Pande said Friday.

"From the perspective of national development, self-reliance today is critical for the nation to progress... 'swadeshikaran se sashaktikaran (empowerment through indigenisation)' is the edifice on which our capability-building endeavours are taking shape," General Pande said.

The 12-lakh strong Army, for instance, has 340 indigenous defence industries currently working towards conclusion of 230 contracts by 2025, which entails an outlay of around Rs 2.5 lakh crore.

Apart from the push for self-reliance in acquiring weapons and equipment, Army is also sourcing more and more ammunition and spares domestically, significantly reducing the import bill. "The aim is to stop the import of different kinds of ammunition, with only a few exceptions, within couple of years," an officer said.

Army's ammunition inventory includes 175 variants of different calibre and type, of which 134 have already been indigenised through efforts of DRDO and defense PSUs. A time-bound indigenisation plan for the currently imported ammunition with the help of the private industry has been put in place, the officer said.

[https://timesofindia.indiatimes.com/india/indigenisation-catalyst-for-growth-of-domestic-arms-production-army-chief/amp\\_articleshow/110217684.cms](https://timesofindia.indiatimes.com/india/indigenisation-catalyst-for-growth-of-domestic-arms-production-army-chief/amp_articleshow/110217684.cms)



## Tractor Mounted ATGM: ट्रैक्टर से पाकिस्तान के टैंक तबाह करेगी भारतीय सेना! इस 'जुगाड़' की हो रही खूब चर्चा

भारतीय सेना में 'जुगाड़' बहुत प्रसिद्ध हैं। चाहे 1971 की भारत-पाकिस्तान या करगिल युद्ध की बात करें, तो भारतीय सेना ने अपने कई 'जुगाड़ों' से दुश्मन को जबरदस्त नुकसान पहुंचाया है। यह 'जुगाड़' की परंपरा आज तक जारी है। वहीं स्मार्ट वर्क के मामले में 'जुगाड़' बहुत काम आता है। आपने ट्रैक्टर पर एंटी टैंक गाइडेड मिसाइल (ATGM) कभी लगी देखी है। यह सुन कर आपको आश्चर्य जरूर होगा कि यह कैसे संभव है। एक खेत जोतने के काम आने वाले वाहन का एंटी टैंक गाइडेड मिसाइल से क्या संबंध है। असल में यह भारतीय सेना का एक 'जुगाड़' या यूं कहें कि एक इनोवेशन है। भारतीय सेना ने इस जुगाड़ का नाम दिया है इंप्रोवाइज्ड ट्रैक्टर माउंटेड एटीजीएम।

### वेस्टर्न कमांड ने साझा की फोटो

हाल ही में भारतीय सेना की वेस्टर्न कमांड ने कुछ फोटोग्राफ्स अपने एक्स सोशल मीडिया अकाउंट पर शेयर कीं। उनमें से एक फोटो ने अचानक ही ध्यान खींच लिया। वह फोटो थी ट्रैक्टर पर लगी एंटी टैंक गाइडेड मिसाइल की। फोटोग्राफ्स की डिटेल् थी, जीओसी खड़गा कोर ने जेसोर ब्रिगेड का दौरा किया और जेसोर वॉरियर्स की ऑपरेशनल तैयारियों की समीक्षा की और ब्रिगेड को उनके प्रोफेशनलिज्म के लिए बधाई दी और उन्हें उत्कृष्टता का प्रयास करने के लिए प्रोत्साहित किया। जेसोर ब्रिगेड इन दिनों पंजाब में तैनात है। वहां कुछ दिन पहले जीओसी खड़गा कोर लेफ्टिनेंट जनरल राहुल सिंह जवानों को प्रोत्साहित करने के लिए जेसोर ब्रिगेड पहुंचे थे, तो वहां ब्रिगेड ने अपने कुछ खास इनोवेशंस की जानकारी जीओसी को दी।

### 40 मीटर से चार किमी रेंज तक टैंक बन सकते हैं निशाना

भारतीय सेना के सूत्र बताते हैं कि भारतीय सेना में ऐसे इनोवेशंस बेहद आम हैं, जो उस समय के हालात और जमीनी स्थिति को देखते हुए बनाए जाते हैं। आम बोलचाल में इन्हें 'जुगाड़' कहा जाता है। वह बताते हैं कि ये जुगाड़ पंजाब और राजस्थान सीमा पर ये 'जुगाड़' बेहद काम के हैं। ट्रैक्टर पर लगा एटीजीएम लॉन्चर इन इलाकों की समस्या के लिए एक बेहतरीन भारतीय 'जुगाड़' है। इससे पहले भी भारतीय सेना ने ट्रैक्टर माउंटेड एटीजीएम बनाया था। लेकिन उसमें कुछ खामियां थीं, जो इस बार संभवतया दूर कर ली गई हैं। वह बताते हैं कि ट्रैक्टर 9M113 कोंकुर्स ATGM लॉन्चर और अतिरिक्त मिसाइलों से लैस है। यह लॉन्चर 40 मीटर से चार किमी तक की दूरी पर खड़े टैंक को नष्ट कर सकता है।

### रेतीले इलाकों में एटीवी का विकल्प हैं ट्रैक्टर

वहीं ट्रैक्टर पर एटीजीएम लॉन्चर लगाने की वजह बताते हुए सैन्य सूत्र कहते हैं कि राजस्थान और पंजाब का अधिकांश इलाका पाकिस्तान से सटा है। जहां राजस्थान से सटी सीमा वाला ज्यादातर इलाका पूरा रेतीला है, तो वहीं पश्चिमी पंजाब में खेत पाक सीमा से सटे हुए हैं। राजस्थान में थार जैसे रेतीले इलाके में सेना की गाड़ियां चलाने में काफी दिक्कत आती है। उनके रेत में फंसने का खतरा रहता है। ऐसे इलाकों में एटीवी यानी ऑल टैरेन व्हीकल्स ज्यादा कामयाब हैं। लेकिन वे महंगी होती हैं। वहीं ट्रैक्टर पर एटीजीएम लॉन्चर लगाने से ज्यादा स्पष्ट विजन मिलता है और सामने टैंक को आसानी से निशाना बनाया जा सकता है। इसके अलावा ट्रैक्टर के पिछले पहिए बड़े होते हैं, जिससे उसके रेत में फंसने के चांस बेहद कम होते हैं। वह कहते हैं कि वेस्टर्न कमांड ने जो फोटो शेयर की है, उसमें ट्रैक्टर

को कैमोफ्लॉज से ढका दिखाया है। इस पर वे कहते हैं कि इससे ट्रैक्टर (हीट सिग्नचर) कम गर्मी छोड़ता है। वहीं ट्रैक्टर की वजन ढोने की क्षमता काफी होती है और आसानी से चार लोगों को ले जा सकता है। इसके अलावा खास बात यह है कि यह आसानी से रिपेयर हो सकता है और इसके लिए खास तेल वगैरहा की जरूरत नहीं पड़ती है।

### **पंजाब में खेतों से टैंकों को निशाना बनाने में आसानी**

सैन्य सूत्र कहते हैं कि युद्ध के दौरान कई बार सेना के बड़े वाहन फंस जाते हैं, निकलने की जगह बेहद तंग होती है। वहीं ट्रैक्टर ऑफ रोडिंग भी आसानी से कर सकता है। नहीं तो ऑफ रोडिंग के लिए खास व्हीकल्स की जरूरत पड़ती है, ट्रैक्टर के साथ ये समस्या नहीं है। सूत्र बताते हैं कि पंजाब में जहां खेत फसलों से लहरा रहे होते हैं, तो वहीं से एंटी टैंक गाइडेड मिसाइल के लिए एक ऊंचा प्लेटफॉर्म चाहिए होता है। ट्रैक्टर पर बैठ कर एटीजीएम से आसानी से टैंक को निशाना बनाया जा सकता है। खेत में बड़े सैन्य वाहन तो उतारे नहीं जा सकते। ऐसे में या तो पैदल अटैक करना पड़ेगा या फिर ट्रैक्टर आसान विकल्प है।

### **लागत तकरीबन 6000 रुपये के आसपास**

सूत्र बताते हैं कि इसकी मॉडिफिकेशन कॉस्ट भी बहुत ज्यादा पड़ती और बहुत कुछ करना भी नहीं पड़ता है। इसकी लागत भी तकरीबन 6000 रुपये के आसपास ही पड़ती है। इससे पहले भी सेना की साउथ वेस्टर्न कमांड ने मई 2023 में रेगिस्तानी इलाके का एक फोटो शेयर किया था, जिसमें जॉन डीरे कंपनी के ट्रैक्टर पर एटीजीएम लॉन्चर लगे हुए थे। वहीं पास में एक रॉयल एनफील्ड बुलेट भी खड़ी थी, जिसमें एटीजीएम लॉन्चर लदे हुए थे।

<https://www.amarujala.com/amp/india-news/indian-army-s-anti-tank-guided-missiles-mounted-on-tractors-will-destroy-pakistan-s-tanks-2024-05-18>



*Sun, 19 May 2024*

## **US Marines Eyeing Polaris MRZR ATVs, Deployed by Indian Army for Operational Flexibility**

The US Marines and the Indian Army are both leveraging Polaris MRZR ATVs to enhance their operational capabilities. Polaris has developed an MRZR Alpha variant capable of powering offboard systems, nearing production, and a heavy-payload variant undergoing tests with the Marine Corps and U.S. Special Operations Command.

The ability of these light vehicles to generate electricity for radars, networks, and weapons has been a primary focus for the Marines over the past year. Polaris created a 1-kilowatt exportable power system that can be added to existing vehicles and a 5-kilowatt system for new vehicles. Both systems utilize a DC-to-DC power converter linked to the MRZR's alternator, exporting 24-volt power as needed.

This innovation allows Marines to utilize technology without hauling separate generators, making it possible to power systems like the Networking On-the-Move satellite communications and the Common Aviation Command and Control System.

### **Enhancing Tactical Capabilities with AI and Advanced Mobility**

The power-export technology is designed not to consume cargo space, with the necessary components neatly integrated into the vehicle. Polaris showcased the system at the ModernDay Marine conference, where it demonstrated that unit maintainers can easily install the 1- kilowatt version. The 5-kilowatt variant prototypes are currently being tested at the Nevada Automotive Test Center, with production expected to start later this year.

Polaris is also exploring a heavier payload MRZR variant, capable of carrying 3,600 pounds compared to the original 600 pounds. This extended truck maintains over 90% of parts commonality with the standard MRZR Alphas and can be transported internally by a V-22 Osprey aircraft. The Marine Corps Warfighting Laboratory has tested these prototypes for logistics and precision fires, evaluating their potential to fill gaps in the vehicle inventory between the MRZR and the Joint Light Tactical Vehicle.

Meanwhile, the Indian Army showcased its Polaris ATVs during the 75th Republic Day Parade at Kartavya Path. These ATVs, used by the Quick Reaction Teams, are integral to the Quick Reaction Force Vehicles, including light, medium, and heavy specialist vehicles. Major Toofan Singh Chauhan, leading the ATV segment, highlighted the vehicle's versatility in various terrains, from mountains to deserts and snow-covered regions.

### **Indian Army's Versatile Polaris ATVs for Rapid Deployment**

The Indian Army's Polaris ATVs are designed for rapid troop transportation and operational flexibility. With a seating capacity of six and the ability to mount a Light Machine Gun at the rear, these ATVs are crucial for quick deployment. The vehicles' lightweight design allows for easy airlifting, ensuring swift troop movement in diverse operational environments.

The collaboration between Polaris and the US Marine Corps focuses on integrating advanced technologies into the MRZR vehicles. This includes developing exportable power systems to support various operational needs without additional generators. The ongoing tests and future production of these systems aim to enhance the Marines' tactical capabilities significantly.

<https://www.republicworld.com/defence/global-defence-news/us-marines-eyeing-polaris-mrzs-atvs-deployed-by-indian-army-for-operational-flexibility/?amp=1>



*Sun, 19 May 2024*

## **Military Digest: Colonel Waibhav Kale's death in Gaza highlights sacrifices of Indian troops in UN peacekeeping missions**

The death of Colonel Waibhav Anil Kale (Retd), who was killed in the line of duty in Rafah, Gaza, while serving as a security coordination officer with the United Nations (UN), has brought into focus the risks taken by Indian military personnel in peacekeeping operations across the globe.

Colonel Kale, an Infantry officer with Jammu and Kashmir Rifles (JAKRIF), had taken premature retirement and was working with the UN in a private capacity, yet he died in a conflict zone where the UN flag on his car should have provided him safety and security. Initial UN reports have blamed the Israeli military for targeting Col Kale's vehicle. As per data put out by the UN, as many as 179 Indian military personnel, including some central armed police forces personnel too, have laid down their lives while wearing the blue helmets of the UN peacekeepers.

Soldiers have been awarded gallantry awards ranging from the Param Vir Chakra to the Sena Medal for their efforts in securing peace between warring factions wherever they have been deployed. Captain Gurbachan Singh Salaria always comes to mind when UN peacekeeping operations are referred to. He was awarded the nation's highest gallantry award, the Param Vir Chakra, after he laid down his life in Congo in December 1961. More on him later.

### **India and UN peacekeeping operations**

Since its inception, India has been the largest troop contributor to UN missions. So far, India has participated in 49 peacekeeping missions, with the total contribution exceeding 2,53,000 troops, and a significant number of police personnel.

Since 1948, UN Peacekeepers have undertaken 71 Field Missions. Presently, approximately 81,820 personnel serve on 13 peace operations led by UNDP in four continents, a ninefold increase since 1999. A total of 119 countries have contributed military and police personnel to UN peacekeeping.

Currently, 72,930 of those serving are troops and military observers, and about 8,890 are police personnel.

India has so far provided 17 Force Commanders in various UN missions. Besides the Force Commanders, India also had the honour of providing two Military Advisors and one Deputy Military Advisor to the Secretary General of the United Nations, two Divisional Commanders and seven Deputy Force Commanders.

Indian Army has also contributed lady officers as Military Observers and Staff Officers apart from them forming part of medical units being deployed in UN Missions. The first all-women contingent in peacekeeping missions, a Formed Police Unit (FPU) from India, was deployed in 2007 to the UN Operation in Liberia (UNMIL)

The following have been the missions to which India has contributed since 1950 :

#### **Korea (1950-54)**

A parachute field hospital was deployed to facilitate the withdrawal of sick and wounded in Korea.

Lt Gen K S Thimmaya was appointed chairman of the Neutral Nations Repatriation Commission (NNRC), which the UN established. India also provided a custodian force under Maj Gen SPP Thorat.

#### **Indo-China (1954-70)**

India provided an infantry battalion and supporting staff for control of Indo-China comprising three states of Vietnam, Cambodia and Laos.

### **Middle East (1956 – 67)**

United Nations Emergency Force (UNEF), where armed troop contingents were deployed for the first time. India contributed an infantry battalion and other support elements.

### **Congo (ONUC) (1960-64)**

Two Infantry Brigades participated and conducted operations. A flight of six Canberra bomber aircraft of the IAF also participated in operations. 39 personnel of the Indian contingent laid down their lives. Capt GS Salaria was awarded posthumously the Paramvir Chakra for action in Katanga, Southern Congo.

### **Cambodia (UNTAC) (1992-1993)**

This mission was set up to supervise ceasefires, disarm combatants, repatriate refugees, and monitor the conduct of free and fair elections.

### **Mozambique (ONUMOZ) (1992-94)**

Two engineer companies, an HQ company, a logistics company, staff officers and military observers were provided.

### **Somalia (UNITAF & UNOSOM II) (1993-94)**

Indian Army deployed a brigade group comprising 5,000 all ranks and the Navy deployed four battleships.

### **Rwanda (UNAMIR) (1994-96)**

An infantry battalion group, a signal company, an engineer company, staff officers and military observers were provided.

### **Angola (UNAVEM) (1989-1999)**

Besides providing a Deputy Force Commander, an Infantry Battalion group and an Engineer Company were deployed.

### **Sierra Leone (UNAMSIL) (1999-2001)**

Two infantry battalion groups, two engineer companies, a quick reaction company, an attack helicopter unit, a medical unit, and logistic support, in addition to Sector HQ and Force HQ staff, were deployed.

### **Ethiopia-Eritrea (UNMEE) (2006-08)**

The Indian contribution comprised one infantry battalion group, one construction engineer company, and one force reserve company, as well as staff at various headquarters.

### **Haiti (MINUSTAH) (2004-17)**

India contributed three Formed Police Units (FPU) with approximately 500 police personnel from the BSF, CISF, and Assam Rifles from June 2004 to October 2017.

### **Ivory Coast (UNOCI) (February 2004 to February 2017)**

India had deployed two infantry battalion groups, Sector HQ, an engineer company, a level II hospital, and a large number of military observers and staff officers until February 2017.



### **Liberia (UNIMIL) (2007-16)**

India has been contributing both male and female FPU's ex CRPF/RAF in Liberia. An FPU of 125 all-women police personnel served from 2007 to Feb 2016.

### **Haiti (MINUHJUSTH) (2017-19)**

India contributed two FPU's with approximately 280 police personnel from the BSF, CISF & Assam Rifles from November 2017 to July 2019, which have been hugely successful.

Current UN peacekeeping operations with Indian participation

### **Lebanon (UNIFIL) (Since December 1998)**

One infantry battalion group comprising 762 all ranks and 18 staff officers deployed in the mission.

### **Congo (MONUC/MONUSCO)**

(Since January 2005)

India has deployed an augmented infantry brigade group with a level III Hospital and two FPU's.

### **Sudan (UNMIS/UNMISS) (Since April 2005):**

India has contributed to two infantry battalion groups, an engineer signal company, level-II & level-II-plus hospital.

### **Golan Heights (UNDOF) (Since Feb 2006):**

A logistics battalion with 188 personnel has been deployed to look after the logistics security of UNDOF.

India has also deployed staff officers, experts on mission and military observers and independent police officers in UN operations in the United Nations Peacekeeping Force in Cyprus (UNFICYP), United Nations Truce Supervision Organization (UNTSO), United Nations Mission for the Referendum in Western Sahara (MINURSO), United Nations Interim Security Force for Abyei (UNISFA), United Nations Mission to support the Hudaydah Agreement (UNMHA) and United Nations Assistance Mission in Somalia (UNSOM).

### **Captain Gurbachan Singh Salaria**

Captain Salaria was born on November 29, 1935, and his village was close to Shakargarh (in pre-partition Punjab), and his family later relocated to Jangal, in Gurdaspur district of Punjab.

His parents were Munshi Ram and Dhan Devi. He enrolled in the King George Royal Indian Military College in Bangalore in 1946 before transferring to the King George Royal Military College (now Rashtriya Military School Chail in Himachal Pradesh).

Captain Salaria Joined the National Defence Academy (NDA) as part of its 9th Course and was in the Bravo Squadron. He was subsequently commissioned from the Indian Military Academy, Dehradun into the 3/1 GORKHA RIFLES on June 9, 1957.

3/1 GR was part of the 99 Infantry Brigade Group which marked Indian presence in the United Nations Peacekeeping operation called the Opération des Nations Unies au Congo (ONUC) in 1961-62.

From December 2, 1961, onwards, the number of violent incidents in Katanga increased and ultimately led to open hostilities. The Gendarmerie started attacking the UN troops and set up roadblocks.

On December 5, 1961, under Operation UNOKART, 3/1 GORKHA RIFLES was tasked to clear a roadblock by the gendarmerie at a vital intersection in Elizabethville, Katanga. Captain Gurbachan Singh Salaria was entrusted with this responsibility.

At around 1.12 pm, Captain Salaria and his small force approached the roadblock from a distance of 1,500 yards. They came under heavy automatic and small-arms fire from an undetected enemy position positioned on his right flank. Along with two armoured vehicles, the opposition to Captain Salaria's small squad included roughly 90 men.

Capt Salaria led a charge while armed with a rocket launcher, khukris, and bayonets. He and his troops engaged the enemy in a valiant battle, killing 40 of them while knocking out two armoured vehicles.

However, a burst of automatic fire struck Captain Salaria in the neck, but he kept fighting until he passed out from excessive bleeding. He was posthumously awarded the Param Vir Chakra.

<https://indianexpress.com/article/cities/chandigarh/colonel-waibhav-kales-death-gaza-indian-troops-un-peacekeeping-mission-9338363/lite/>



*Sat, 18 May 2024*

## **Need for MRFA**

**- By Gp Capt AK Sachdev**

In January this year, the Defence Minister Rajnath Singh led a high level delegation to the UK; reportedly, one of the points on the visit's agenda was a possible partnership in the Tempest project, a sixth generation fighter design and development programme in which the UK, Italy and Japan are currently collaborating with 2035 as the target date for the fighter to fly.

The outcome of any discussion on Indian participation is not in the public domain yet but its inclusion in the agenda served to put the spotlight on India's ongoing efforts to bolster up the Indian Air Force's (IAF's) dwindling combat aircraft squadron strength.

A sixth generation fighter appears to be too ambitious and avaricious a dream when India's indigenous aircraft design and development is struggling with its 4 generation aircraft and a 5 generation fighter programme is under progress, albeit at least a decade away from fruition. Meanwhile, the IAF awaits the induction of critically needed combat aircraft. This article looks at the IAF's quest for a Multi Role Fighter Aircraft (MRFA) to meet its inescapable need to meet its shortfall.

## **The IAF's Shortfall**

To situate the MRFA into IAF's need, a look at the current scenario is necessary. The current squadron strength is 31 or 30 (depending on which open source one consults) against a sanctioned strength of 42 squadrons. These include two squadrons of Rafale (the last aircraft arrived in December 2022), 12 of Su-30 MKI, three each of MiG-21, MiG-29 and Mirage 2000, six of Jaguar and two of Tejas (which are of limited operational capability and lack a trainer). By 2025 all the MiG-21 squadrons would have been sent out of service due to their old age and the ever increasing accident rate.

The Jaguars, MiG-29s and Mirage 2000s are already operating on extended life cycles. The Jaguar fleet would be phased out between 2025 and 2032. By then, the MiG-29 and Mirage 2000 squadrons, whose induction began in the 1980s, would start reaching the end of their useful days and all would be phased out of service by 2040. The Jaguar was inducted into the IAF in 1978 and was later produced in India by Hindustan Aeronautics Limited (HAL) under license. With fair use, the thrust of the original engines has reduced by around 20% and replacement engines are horrendously expensive at over Rs 200 crore a pair. Meanwhile, plans to install an Indian engine have been still-born as India has not produced any worthwhile aircraft jet engine so far. Thus, another upgrade is not considered wise and the IAF continues to persevere in using the aircraft.

The MiG-29s were inducted in 1986 and had a life cycle of 25 years which was later extended during the mid-2000s to 40 years. This extension will expire starting 2025 and a second life extension programme for the MiG-29 fleet is being contemplated in view of the grim situation.

The Mirage 2000s are not being given another extension as they have been phased out by the French Air and Space Force. India has contracted to acquire 24 phased out Mirage 2000s from France for the purpose of cannibalising spares and components, thus giving the ageing IAF fleet a sort of extended life 'on a drip'. India was offered the opportunity twice to manufacture the Mirage 2000 in India — at the time of the first induction, and later again in 2000. However, India passed up on those opportunities. With cannibalised parts the last of these would be out of service by 2040. The figure of 31 is far short of 42, the sanctioned strength.

The theatre command concept, when instituted, would have an Air Defence Command theatre which would charge the IAF with the air defence of the nations' territorial frontiers. In addition, IAF would need to execute offensive and defensive tasks associated with any future war — on one front or on two. In the latter case, our long land borders with China and Pakistan, our extensive coastline, and our island territories would need to be protected. Even 42 squadrons may not suffice.

To summarise, the current squadron strength is inadequate to the IAF's envisaged roles and tasks. The fact that it is going to reduce further is alarming. The Chief of Air Staff (CAS) is on record as having stated that IAF requires five to six new squadrons of 4.5 generation aircraft to meet its immediate requirements. Can indigenous aircraft meet this requirement? And if so, how soon?

## **Indigenous Designs**

The IAF currently has two squadrons of the Light Combat Aircraft (LCA) Tejas Mk1 which is not really ready for frontline operations; it is essentially a test bed for the Mk1A which is a slight improvement over the Mk1.

The IAF has 40 of Mk1s and these count as two (albeit non-effective) squadrons of the IAF's 31 squadrons. In June 2021, the IAF ordered 73 Mk1As and 10 Mk1 trainers (which had not been developed alongside the Mk1). At the time of writing this, the first Tejas Mk1A is expected to be inducted at the end of February 2024 into No 3 Squadron at Air Force Station, at Nal.

HAL is expected to deliver 16 (of these 83) every year for the next five years but, given HAL's past track record, this time frame may not be adhered to. The Mk1A is expected to come with more composites (and hence reduced weight), enhanced Electronic Warfare (EW) capability, the indigenous Uttam Active Electronically Scanned Array (AESA) radar (which DRDO is to make available by the time the 17 Mk1A is to be fitted with it as the first 16 Mk1As are planned to be fitted with the Israeli ELM 2052 AESA radars).

It will also carry the locally assembled, European missile producer MBDA's Advanced Short Range Air-to-Air Missile (ASRAAM) and the indigenously developed Astra Beyond Visual Range (BVR) missile. It will also have some other improvements including air-to-air refuelling capability. The Mk1A is only a slight improvement over the Mk1 but the Mk2, which is expected to be a 4.5 generation Medium Weight Fighter (MWF) would be a jump from the Mk1A.

The Tejas in its name is misleading inasmuch as the Tejas Mk1/Mk1A is a 'light' fighter while the Mk2 is a 'medium weight' aircraft with a Maximum Take Off Weight (MTOW) of 17.5 tons compared to Mk1a's 13.5 tons, a more powerful engine (although still a General Electric (GE) engine and not an indigenous one), and a larger payload of 6.5 tons compared to a little over 4 tons for Mk1A. The Advanced Medium Combat Aircraft (AMCA) is planned to be a twin engine, 5 generation aircraft in contrast to the Tejas Mk1/Mk1A LCA and the Tejas Mk2MWF, both of which are single engine, 4 to 4.5 generation fighters.

AMCA was originally envisaged as a Medium Combat Aircraft (MCA) with an MTOW of 15 tons but subsequently its nomenclature was changed to AMCA and its MTOW upped significantly to 25 tons (with the Tejas Mk2 sliding into the 15 ton space). A power plant for it remains an uncertainty as India has produced none so far. The AMCA may fly with a GE engine (like the Tejas).

An indigenous AESA radar is not yet a certainty, and the stealth technologies and some other minor but critical elements needed as essential criteria for fifth generation are not also available indigenously. The CAS has reportedly called for foreign collaboration for development of niche technologies for the AMCA and has expressed concern over timely delivery of AMCA.

The IAF plans to procure seven squadrons of AMCA, the first two squadrons in Mark1 configuration, equipped with a GE engine, and the remaining five squadrons in Mark2 configuration with an indigenous engine. However, the AMCA is not going to immediately assuage the shortfall problem of the IAF in a hurry. The Cabinet Committee on Security (CCS) is yet to give the go ahead for AMCA

Reportedly DRDO Chief Dr Samir V Kamat is on record as stating that the first AMCA prototype is anticipated to roll out seven years after receiving CCS sanction, with potential induction into IAF approximately ten years later. As a result, the IAF is likely to commence the induction of the AMCA after another decade at least. A 23 ton, twin engine, medium class Omni Role Combat Aircraft (ORCA) is also spoken of sporadically but it will come later than the AMCA and hence will not be a help any time soon. To summarise, an indigenous 4 1/2 or 5 generation aircraft that

meets IAF's needs is unlikely to be inducted into the IAF before 2035. That brings us to the option of the MRFA whose history goes back two decades.

### **MRFA Background**

The LCA project detailed above was begun in 1983 to provide an indigenous replacement for the MiG-21 but its progress was agonizingly slow. During the 1990s, anticipating serious shortfalls, IAF proposed going in for more Mirage 2000 aircraft to be produced under license by HAL in India to cater to the anticipated shortfall. The IAF carried out all the staff work necessary with diligence, but the Defence Acquisition Council (DAC) scrapped the whole idea in 2003.

Instead, a Request For Information (RFI) was floated in 2004 for purchase of 126 Medium Multi-Role Combat Aircraft (MMRCA) possessing 4½ generation capabilities. The plan was to induct the first aircraft by 2010. Bureaucratic stalling kept postponing the final decision but ultimately the IAF shortlisted the Rafale in 2012 and in March 2014, HAL and Dassault signed an agreement for licensed production of the Rafale in India.

While the final details of that deal were being negotiated, in April 2015, the present dispensation dropped a bombshell on the IAF by announcing during an official visit to France, that India would acquire 36 Rafales from France in a fly away condition (neither the IAF nor the Ministry of Defence or MoD appeared to have made that recommendation). As a result of the 36-aircraft deal, the 126 MMRCA deal was scrapped altogether and the Parliament officially informed later on as a fait accompli. All the hard work and diligence by the IAF from 2004 to 2015 for procurement of 126 MMRCA was wasted.

A Memorandum of Understanding (MoU) was signed in 2016 for 36 Rafales which have since been received. However, this number was 90 short of the original figure of 126 and the shortfall had further increased during the decade long wait for the MMRCA. In April 2018, a fresh RFI was promulgated by MoD for the acquisition of 110 Multi Role Fighter Aircraft (MRFA) (the figure was later revised to 114).

Seven aircraft Original Equipment Manufacturers (OEMs) responded initially; the figure has moved up and down since then and currently there are eight contenders. In the single engine category are US Lockheed Martin's F-21 and Swedish Saab JAS-39 Gripen while the twin engine candidates are US Boeing's F/A-18 E/F Super Hornet Block III and F-15EX, French Dassault Rafale, Eurofighter Typhoon, Russian Mikoyan MiG-35 and Sukhoi Su-35.

There is a question mark over the last two contenders as Russia continues to be preoccupied with its ongoing war with Ukraine. As an aside, UAE has suspended its \$23 billion deal with the US for procuring fifty F-35 aircraft and is favouring Russia's Su-57E. Following this, Russia's Rosoboronexport has offered trilateral co-production of the Su-57E fighter jets with India and the UAE, with part production in Russia, India and the UAE. The offer is interesting although there is a question mark on how it will accommodate India's 'Make in India' and 'Atmanirbhar' aspirations.

There is much merit in the suggestion that the deal should favour the Rafale, as that will afford economy of scale in terms of training, equipment and spares, while permitting speedier negotiations as both sides are already aware of the basic facts and figures. Indeed, France sees the 36 Rafale purchase as unfinished business and is making all endeavours to clinch the 114 aircraft deal. Incidentally, the Navy is also looking at Rafales and the commonality of ground equipment



and weaponry may be a factor in favour of the Rafale. The IAF has finalized Air Staff Qualitative Requirements (ASQR) and has had comprehensive discussions with the eight Original Equipment Manufacturers (OEM).

In December last year, the Parliamentary Committee on Defence tabled a report in the Lok Sabha which disclosed that the MRFA procurement is being progressed under the Make In India framework and recommended that, if there are delays in the process, procurement of 5 generation fighters may be considered. However, it is unlikely that the Committee's recommendations will be heeded by the government as the 5 generation aircraft will come at a higher price tag than a 4 generation one. Moreover, the Defence Acquisition Council (DAC) approved purchases of INR 2.23 trillion last year but did not grant Acceptance of Necessity (AoN) for the 114 MRFA proposal.

### **Conclusion**

Government's procrastination over the MRFA deal is not understandable; the shortfall of the IAF is not going to disappear unless new aircraft are inducted. Meanwhile, from arithmetic explained above, the squadron strength of the IAF is likely to dip further before it rises again; how soon the upward trend sets in depends on how fast the MRFA decision is taken.

The IAF Chief of Air Staff is on record as saying that even with an MRFA deal being finalised in the near future the squadron strength of the IAF may touch only 35 over the next decade and that it critically needs at least six squadrons of 4½ or 5 generation fighters to meet its designated roles and tasks (even discounting the increased requirements once theatre commands are introduced). As an indigenous aircraft of that capability is at least a decade away, consummation of the MRFA deal in the near future is inescapable.

Historically, major procurement decisions have not happened during the months preceding a general election so a final decision on MRFA is unlikely before the third quarter of this year. However, what is important is that even after that decision is taken, induction of the new aircraft would not happen immediately thereafter. The progress of the MRFA deal so far since 2018 indicates that the government is in no hurry to bring it to a logical conclusion, just as was the case with 126 MMRCA quest which struggled for 12 years before being smothered to death.

Impressive alacrity was demonstrated by Modi in procuring 36 Rafales earlier; one hopes that a similar sense of urgency can be applied now as the squadron strength has worsened since the 36-Rafale deal. Of course, the 114 MRFA deal is unlikely to be similar to the earlier Rafale deal as the Make In India and Atmanirbhar agendas would have to be satisfied too.

Moreover, if HAL is projected as the Indian partner, there could be further delays as in the case of 126 MMRCA Dassault had refused to take on HAL as a partner if it was to be responsible for the quality and punctuality of the production of Rafales in India. Overcoming all these hurdles and bringing the 114 MRFA deal to fruition remains an urgent and critical need (not want) of the IAF.

<https://www.indiandefencereview.com/news/need-for-mrfa/>

## Indo-Russian Joint Venture handed over 27,000 Ak-203 Assault Rifles to Indian Army

The Indian Army has started receiving the Russian AK-203 assault rifles after the deal with Russia saw back-to-back delays, partly due to the war in Ukraine and payment delays. As many as 27,000 rifles have been handed over to the Army so far by the Indo-Russian joint venture established at Korwa in Uttar Pradesh, according to official sources.

“Everything is on track after initial delays, and 27,000 rifles have been given to the Army. Another 8,000 will be handed over in the next two weeks. Indigenisation level achieved is around 25%,” an official in the know said. A source said that more than 10,000 rifles have been handed over to Units and additional ones are being inspected.

Under an over ₹5,000-crore contract signed in July 2021, over 6.1 lakh AK-203 assault rifles are to be manufactured in India with technology transfer from Russia, by a joint venture Indo-Russian Rifles Private Limited (IRRPL). The IRRPL was set up in 2019 between the erstwhile Ordnance Factory Board [now Advanced Weapons and Equipment India Limited (AWEIL) and Munitions India Limited (MIL)] from India and Rosoboronexport (RoE) and Kalashnikov concern of Russia.

As reported by *The Hindu* earlier, as per contractual terms, the first 70,000 rifles will be produced in India with a phased increase in the extent of localisation from 5% to 70%. The remaining rifles will be produced with 100% localisation. The full-scale production of the Ak-203 rifles is expected to be reached within 2-3 years.

### ‘Systematic manner’

On the ongoing process of indigenisation, the source stated that it was being done in an “extremely systematic manner”. “So, the process will be slow. Even our initial timelines catered for two years for this process of 70% indigenous content,” the source said, adding, “We are aiming to achieve it before that.”

As reported earlier, in the backdrop of repeated delays in concluding the deal, India had procured and inducted 70,000 Ak-103 assault rifles off the shelf under a deal signed in August 2021.

For a while, the Army has been looking to replace the indigenous INSAS (Indian National Small Arms System) rifles in use with a modern rifle. The Army has inducted 66,400 of the 72,400 SIG-716 assault rifles procured under a ₹700-crore deal in February 2019 with Sig Sauer of the U.S. which have been provided to frontline troops involved in counter-insurgency operations. The Ak-203 rifles were to meet the larger demand for assault rifles.

However, as the deal conclusion got stuck over the issue of pricing, the Army decided to go for a repeat order of another 72,400 SIG-716 rifles.

<https://www.thehindu.com/news/national/indo-russian-joint-venture-handed-over-27000-ak-203-assault-rifles-to-indian-army/article68193891.ece/amp/>

*Fri, 17 May 2024*

## **North Korea Test-Fires a Ballistic Missile a Day after US and South Korea had a Fighter Jet Drill**

North Korea fired a ballistic missile off its east coast on Friday, South Korea's military said, a day after South Korea and the US flew powerful fighter jets for a joint drill that the North views as a major security threat.

A statement from South Korea's Joint Chiefs of Staff gave no further details about the North Korean launch, such as how far the weapon flew.

North Korea in recent months has maintained an accelerated pace in weapons testing as it continues to expand its military capabilities while diplomacy with the United States and South Korea remained stalled. Observers say North Korea likely believes an upgraded weapons arsenal would give it leverage to win greater concessions from the US if negotiations resume.

Last week, North Korean leader Kim Jong Un supervised another test firing of a new multiple rocket launch system, according to the North's state media.

North Korea has maintained it was forced to boost its nuclear and missile programmes to deal with US-led hostility. North Korea cites the expanded US-South Korean military training that it calls invasion rehearsals.

On Thursday, two South Korean F-35As and two US F-22 Raptors were mobilised for combined aerial exercises over the central region of South Korea. North Korea is extremely sensitive to the deployment of sophisticated US aircraft.

<https://indianexpress.com/article/world/north-korea-ballistic-missile-test-9334733/>

### **Science & Technology News**

## **THE ECONOMIC TIMES**

*Sun, 19 May 2024*

### **"ISRO aims to explore human space flight activities, build space stations": Chairman Somnath**

Indian Space Research Organisation (ISRO) Chairman Sreedhara Panicker Somanath attended a programme at a school on Sunday and said that the space agency aims to explore human space flight activities and build space stations.

While speaking with the reporters, Sreedhara Panicker Somanath lauded the Chandrayaan Mission and said, "I would like to say today, after the successful Chandrayaan Mission, the world is looking at us. We have announced Space Act Reforms in 2020 and there is a new Indian Space Policy 2023 by the government which has enabled private companies and institutions to come and work together." He further added, "We are looking at a substantial growth in the space activity in private but more than that, there are institutional works which are happening. There is a new vision that has been put forward by the government in terms of what we want to do in the space sector in future."

The ISRO Chairman called the vision exciting and said, "And all of that is very exciting. We can explore human space flight activities, moon and other planets, and build space stations. He added, "We also want to do a lot of economic activities in the space sector to create job, industries, and startups in the country."

On being asked about the Prime Minister's vision to send an astronaut to the moon by 2040, Somanath said, "It's already there in the announcement." As per ISRO, the Government of India unleashed reforms in the space domain in 2020, opening the doors for enhanced participation of Non-Governmental Entities (NGEs) in carrying out end-to-end activities in the space domain and providing them a level playing field.

Subsequent to these reforms, the Government sought to provide regulatory certainty for space activities by various stakeholders, to create a thriving space ecosystem. The Indian Space Policy - 2023 was thus formulated as an overarching, composite and dynamic framework to implement the reform vision approved by Cabinet.

<https://economictimes.indiatimes.com/news/science/isro-aims-to-explore-human-space-flight-activities-build-space-stations-chairman-somnath/articleshow/110253716.cms?from=mdr>



*Sun, 19 May 2024*

## **Blue Origin Flight Carrying First Indian Space Tourist set for Launch**

Jeff Bezos-backed Blue Origin is all set to resume flights to space almost two years after a 2022 mission failure brought crewed operations to a pause.

The NS-25 mission will lift off from Launch Site One in West Texas at or after 8.30 am CT on May 19 (7 pm IST). The upcoming NS-25 mission will have six crew members, including **Gopi Thotakura**, a commercial jet pilot and entrepreneur, who will become **the first Indian space tourist**.

The flight will also have former Air Force Captain Ed Dwight, the first Black astronaut candidate in the United States.

This mission will be the seventh human flight for the New Shepard program and the 25th in its history. To date, the program has flown 31 humans above the Kármán line.

In September 2022, the New Shepard rocket was grounded after an uncrewed mission failed roughly a minute after liftoff from Texas, forcing the rocket's capsule full of NASA experiments to safely eject mid-flight.

The US Federal Aviation Administration closed its review of Blue Origin's New Shepard investigation last year, agreeing with the company's findings. It required Blue Origin to make 21 corrective actions, including an engine redesign and "organisational changes".

The US Federal Aviation Administration closed its review of Blue Origin's New Shepard investigation last year, agreeing with the company's findings. It required Blue Origin to make 21 corrective actions, including an engine redesign and "organisational changes".

### **How does New Shepard carry humans to edge of space?**

**New Shepard astronauts ascend toward space at more than three times the speed of sound, passing the Kármán line, the internationally recognised boundary of space 62 miles (100 km) above Earth. After spending time in zero gravity, the crew returns under parachutes.**

Ahead of a spaceflight, a two-day on-site astronaut training program briefs astronauts New Shepard's mission profile, safety systems, zero-g protocols, and execute mission simulations.

After the spaceflight, nearly 99% of New Shepard's dry mass is reused, including its capsule, booster, and engine. Its engine is fueled by highly efficient liquid oxygen and hydrogen. During flight, the only byproduct of New Shepard's engine combustion is water vapor with no carbon emissions.

### **Meet the crew**

The crew flying the NS-25 mission includes Mason Angel, Sylvain Chiron, Kenneth L. Hess, Carol Schaller, Gopi Thotakura, and former Air Force Captain Ed Dwight, who was selected by President John F Kennedy in 1961 as the nation's first Black astronaut candidate but was never granted the opportunity to fly to space.

**Mason is the founder of Industrious Ventures, a venture capital fund supporting early-stage companies that enable or progress new industrial revolutions. Meanwhile, Sylvain is the founder of one of the largest craft breweries in France and Ken is a software engineer and entrepreneur.**

Carol is a retired Certified Public Accountant, while Gopi Thotakura is a pilot and aviator, and also the co-founder of Preserve Life Corp, a global center for holistic wellness and applied health located near Hartsfield-Jackson Atlanta International Airport.

<https://indianexpress.com/article/technology/science/blue-origin-resume-space-flights-two-years-mission-failure-9334160/>

