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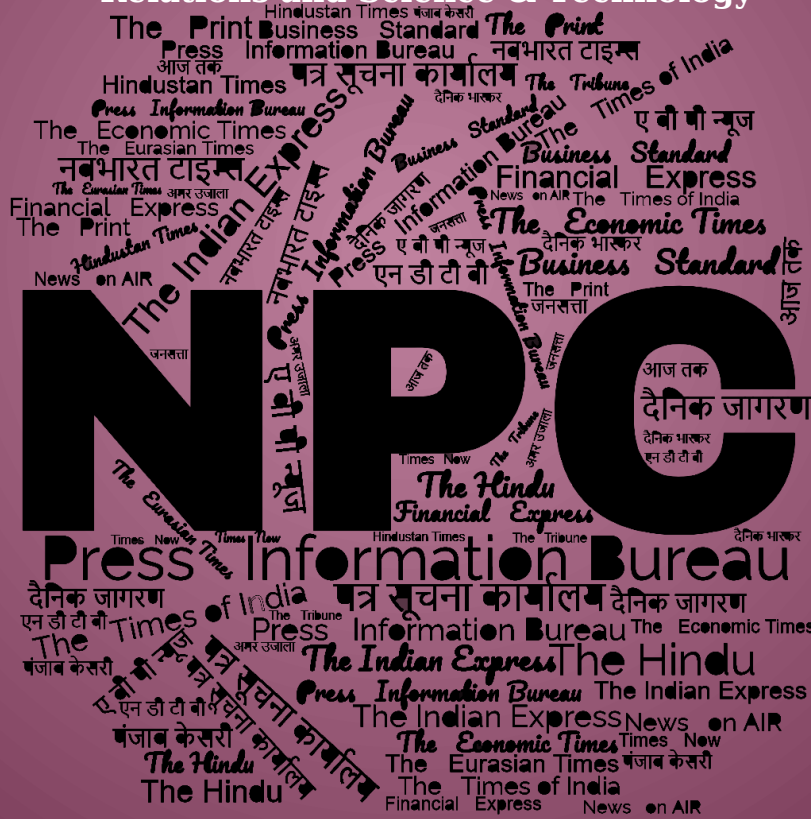
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Press Information Bureau
Government of India

Ministry of Defence

Tue, 03 Oct 2023

Indian and Bangladesh Armies Begin Joint Exercise SAMPRITI-XI in Umroi, Meghalaya

India and Bangladesh commenced the 11th edition of annual joint military exercise, SAMPRITI on 03rd October 2023 in Umroi, Meghalaya. This exercise, alternatingly organised by both countries, signifies strong bilateral defence cooperation initiatives. With its inception in Jorhat, Assam in 2009, the exercise has witnessed ten successful editions till 2022.

SAMPRITI-XI, scheduled for 14 days, will engage approximately 350 personnel from both sides. The exercise underscores the importance of enhancing interoperability between the two armies, sharing tactical drills, and promoting best practices.

The Bangladesh contingent comprises 170 personnel, led by Brigadier General Mohammed Mafizul Islam Rashed, Commander of 52 Bangladesh Infantry Brigade. The lead unit from the Bangladesh Army side is 27 Bangladesh Infantry Regiment. Indian contingent mainly comprises troops from a battalion of RAJPUT Regiment. Brigadier SK Anand, Commander of a Mountain Brigade is leading the Indian contingent. The exercise will also witness participation by personnel from diverse units such as artillery, engineers and other supporting arms and services from both sides.

Centered on the conduct of Sub-Conventional Operations as per Chapter VII of the UN mandate, SAMPRITI-XI will include a Command Post Exercise (CPX) and a Field Training Exercise (FTX), culminating in a Validation Exercise.

20 Officers from each contingent will participate in the CPX, focusing on decision-making after thorough deliberations. This will be followed by FTX wherein grassroots-level operations will be validated. The FTX will include a series of joint tactical drills for counter-terrorist operations such as hostage rescue, crowd control measures, and use of helicopters in counter-terrorist operations. The Validation Exercise will be conducted on 14th and 15th October 2023 in Darranga Field Firing Range, Assam. During the course of the exercise, the participants will also get to witness the prowess of 'Atmanirbhar Bharat' Equipment Display.

SAMPRITI-XI promises to further enhance defence cooperation between India and Bangladesh, fostering deeper bilateral relations, cultural understanding, and mutual benefits from shared experiences in Sub Conventional Operations.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1963629>

Tue, 03 Oct 2023

CDS General Anil Chauhan Chairs Tri-services Commanders Conference to Discuss Tri-services Synergy

Chief of Defence Staff General Anil Chauhan chaired the tri-services commanders' conference of military commanders looking after the western front (western group) on Tuesday to discuss the emerging geopolitical situation and aspects of operational synergy amongst the three services, an official said. "The commanders will deliberate for two days and discuss the emerging geopolitical situation and aspects of operational synergy amongst the three services," defence officials said.

The CDS has already held similar meetings for the northern theatre and maritime theatre in the last few months as part of discussions towards creating theatre commands.

On August 22 this year, while working towards the creation of three new theatre commands, Chief of Defence Staff General Anil Chauhan, began deliberations with top military commanders from the three services about the nuances of maritime theatre commands and the related issues in the maritime domain. The meeting of the Chief of Defence Staff with the commands deployed in the peninsular and island territories of the country comes a few weeks after he held a similar meeting with the military commanders responsible for securing the borders with China.

"CDS is meeting the senior Military Commanders from the three services including the Andaman and Nicobar Command, Southern Air and Naval Commands, and Navy's Western and Eastern Commands to discuss the future structures and responsibilities of the Maritime Theatre Command being created to tackle the threats from that domain," top government sources said.

The Maritime Theatre Command is envisaged to be responsible for tackling threats and security challenges from all sides encompassing the entire Indian Ocean and Pacific region where the activities of the Chinese military have increased in the last many years.

As part of promoting the Tri-Service culture in the forces, the services are having cross postings of personnel from one force to the other as recently Army officers from Air Defence units are getting posted to the Air Force Surface to Air Missile (SAM) Squadrons. The joint acquisition of weapon systems has already started in the Armed Forces with the case of procurement of Predator drones from the US to be followed up by the Medium Altitude Long Endurance drones being next on the agenda. The Services will also have joint maintenance of their equipment like the Helicopters, Small Arms, Aircraft etc to make significant savings both monetarily as well as in time.

<https://www.aninews.in/news/national/general-news/cds-general-anil-chauhan-chairs-tri-services-commanders-conference-to-discuss-tri-services-synergy20231003235335/>

Tue, 03 Oct 2023

COAS Manoj Pande Addresses Tanzania's National Defence College on Security Scenario

Chief of Army Staff General Manoj Pande Tuesday addressed the faculty at Tanzania's National Defence College on 'Current Security Scenario and need for joint efforts through Bilateral Collaborations'.

General Manoj Pande is on an official visit to Tanzania from October 2 to 5, 2023, reinforcing the long-standing defence ties between the two countries.

His visit also coincides with the second India Tanzania Mini DEFEXPO being conducted at Dar-es-Salaam which will showcase the growing prowess of the Indigenous defence industry complex of India. “General Manoj Pande #COAS addressed the 12th #NDC course and the faculty at the National Defence College #NDC, #Tanzania on the topic ‘Current Security Scenario and need for Joint efforts through Bilateral Collaborations’,” posted Additional Directorate General of Public Information, IHQ of MoD (Army), on social media platform, X.

During his visit, the COAS also called on Major General Wilbert Augustine Ibuge Commandant and the faculty and held discussion on bilateral ties between the two armies.

“#COAS also called on Maj Gen Wilbert Augustine Ibuge, Commandant, #NDC and discussed a wide canvas of defence engagements and bilateral relations between the two Armies,” the post added. The bilateral defence relationship between India and Tanzania has been robust and thriving. The signing of the Memorandum of Understanding on Defence Cooperation in October 2003 laid a strong foundation. This cooperation was further underscored by the second meeting of the India-Tanzania Joint Defence Cooperation Committee held in Arusha, Tanzania on 28th and 29th June this year, Ministry of Defence informed in an official release.

COAS Pande, on Monday, met Tanzanian Defence Minister Stregomena Lawrence Tax and Chief of Defence Force General Jacob John Mkunda. The two sides held discussions on enhancing bilateral defence cooperation and strengthening bonds of friendship between the armies of India and Tanzania.

General Manoj Pande also laid a wreath at the Commonwealth War Memorial in Dar-es-Salaam and paid obeisance to the Indian soldiers who laid down their lives during the First World War.

Both the Indian and Tanzanian Army offer vacancies for each other in professional military courses. This has helped the personnel from both countries build strong bonds, exchange ideas and share best practices. The Tanzanian Army has been consistently participating in the UN Peacekeeping training in India over the last five years. Similarly, a Training Team of the Indian Army has been deployed at Command and Staff College, Duluti since the year 2017, the release added. This visit of the COAS further consolidates the high-level bilateral defence engagements and close defence ties shared between India and Tanzania. The visit promises to not just celebrate the existing collaborations but also pave the way for a stronger future partnership.

Further, General Pande will also be visiting Zanzibar and call on Zanzibar President Hussein Ali Mwinyi. Furthermore, he will have interaction with the Commander of the 101st Infantry Brigade General Saidi Hamisi Saidi, the Ministry of Defence said.

<https://www.aninews.in/news/world/others/coas-manoj-pande-addresses-tanzanias-national-defence-college-on-security-scenario20231003193439/>



Wed, 04 Oct 2023

Seeking Mountain Radars to Look Deep into China, Says IAF Chief as LAC Row Drags

The Indian Air Force will boost its capabilities with locally made military hardware including mountain radars for the disputed frontier with China to look deep inside the neighbour’s territory, long-range surface-to-air missile systems, new fighter jets, upgraded combat planes, light combat

helicopters, tactical ballistic missiles, trainer aircraft and close-in weapon systems, IAF chief Air Chief Marshal VR Chaudhari said on Tuesday.

The induction of this indigenous equipment into IAF during the coming years is expected to cost up to ₹3 lakh crore, with this year alone accounting for a spending of ₹41,180 crore, Chaudhari said at his annual media briefing ahead of the IAF Day on October 8.

The purchases lined up include 97 more light combat aircraft (LCA) Mk-1A worth ₹67,000 crore and 156 Prachand light combat helicopters for ₹45,000 crore, apart from a project to upgrade 84 Sukhoi-30 fighter jets at a cost of ₹60,000 crore, he said.

He said that the situation along the Line of Actual Control (LAC) with China was the same as last year and the IAF would remain deployed along the disputed frontier till complete disengagement took place. The two countries have been locked in a military standoff since May 2020 and a full resolution of the border crisis through ongoing negotiations still appears elusive.

“We are constantly monitoring the situation across the borders through persistent intelligence, surveillance and reconnaissance (ISR). We make note of the build-up of resources and capabilities. Our operational plans are dynamic and keep changing based on the situation that we perceive is developing across any front,” Chaudhari said in response to a question about the Chinese build-up along the LAC.

Chaudhari also drew attention to China’s vast air defence network across the border. The sheer number of radars and surface-to-air guided weapons is quite large, he said.

“In places where we cannot really counter the numbers or the might of the adversary, we will deal with the challenges through better tactics and better training. Our focus will remain to be dynamic and not to have a fixed mindset on deployment of assets in particular areas. We have flexible war plans which we keep revising based on the ISR inputs that we get.”

China has deployed radars all along the northern border and the IAF is aware how deep the neighbour can see inside Indian territory, he said.

“Our counter is through our own mountain radar project. Also, we have low-level lightweight radars that we continuously keep deploying and redeploying based on what we see developing across the borders. In the long run, we are looking at deploying mountain radars at these strategic locations to be able to see equally deep into the adversary’s territory.”

The need to have a strong and credible military has become imperative owing to the volatile and uncertain geopolitical landscape in the region, he said.

“The Indo-Pacific region is the new economic and strategic centre of gravity of the world and offers us both challenges and opportunities. The IAF, with its inherent capability to see the farthest, reach the fastest and hit the hardest, will be critical in mitigating these challenges and will remain a fulcrum in projecting India’s might in the region.”

He said the contract for 97 more Mk-1A jets was likely to be concluded soon. This order will follow a ₹48,000-crore contract awarded by the government to Hindustan Aeronautics Limited two years ago for 83 such fighter jets. The IAF chief said the delivery of S-400 air defence was hit by the ongoing Russia-Ukraine conflict. While three of the five systems ordered from Russia have been inducted, the remaining two are expected only next year.

Responding to a question on a midair collision involving a Sukhoi-30 and a Mirage 2000 in Madhya Pradesh on January 28, the IAF chief said human error led to the accident and standard operating procedures stood revised. A pilot was killed in the accident.

Modern warfare is constantly undergoing a transformation due to rapid advancements in technology, he said. “The IAF being a technology-intensive force needs to keep pace with these

advancements and assimilate new technology to remain relevant. Our focus is on hidden force multipliers in the form of AI-based decision tools, electronic warfare equipment, robust networks and harnessing space and cyber capabilities.”

He said the IAF was committed to Atmanirbhar Bharat and was contributing extensively towards enhancing indigenisation in defence production. “Fast-paced development and operationalisation of indigenous aerospace projects, persistent surveillance capability, shortening of sensor to shooter time, long-range precision strikes, and development of multi-domain capability are the focus areas for the IAF,” he added.

<https://www.hindustantimes.com/india-news/seeking-mountain-radars-to-look-deep-into-china-says-iaf-chief-as-lac-row-drag-101696342666077-amp.html>

THE HINDU BusinessLine

Tue, 03 Oct 2023

IAF Lines up Massive Acquisition of Aircrafts & Weapon Systems Worth at Least ₹2.5-Lakh Crore

The Indian Air Force (IAF) is planning massive acquisitions of aircrafts, helicopters and other weapon systems over a period of seven to eight years at a staggering cost of ₹2.5 lakh crore to ₹3-lakh crore, Air Chief Marshal Vivek Ram Chaudhari said on Tuesday. The Air Chief’s announcement was in the run-up to Air Force Day which would be celebrated in Prayagraj on Sunday.

While orders for acquisitions of some of the platforms and systems have already been issued, others are in the pipeline. “Overall value of these contracts will well pass ₹2.5 to ₹3lakh crores...The cash inflow of course will depend on the allotted budget. These contracts will be fulfilled over a period of 7 to 8 years. So we will plan our budget accordingly,” the Air Force Chief stated on Tuesday while sharing the roadmap for addressing the capability deficiency, some of which has been existing for a long time.

Addressing the media, Air Chief Marshal Chaudhari elaborated that the IAF is acquiring 87 more Light Combat Aircraft (LCA) Mk-1As, which add to the existing order to the state-owned Hindustan Aeronautics Limited (HAL) for 83 LCAs, and at a cost of Rs 1.15 lakh crore. The total strength of LCA Tejas would go up to 180 and they would replace the ageing Mig 21 squadrons that would be entirely number plated by 2025. The Mig 21s will be participating in the last flypast at the Air Force Day on October 8, stated the IAF officials.

According to the Air Chief, the contract for additional 97 LCA Mk-1As will be signed with the HAL which may decide to increase the production lines in partnership with any Indian defence industry or upgrade its own facility to meet the timelines. The LCAs that IAF would induct through the next contract is likely to have some additional features to accommodate technological advancements, Chaudhari told reporters.

Similar contracts

Similarly, the IAF inducted ten Light Combat Helicopters (LCHs) last year. “We are looking at signing the contract in the coming year for a total of 166 and 56 out of that will be with the Indian Air Force, and the contract would be somewhere around ₹4,500 crore,” Chaudhari said.

Apart from this, the IAF has already inked a ₹6,000 crore worth deal with the HAL for 70 trainer aircrafts HTT-40, he said while adding that in the pipeline is also upgrade of 84 SU-30 MKIs multirole fighter jets. The value of SU-30 MKI deal is anticipated to be over Rs 60,000 crore, the Air Chief stressed.

The weapon systems such as new generation medium range mobile surface-to-air Akash missile systems, Long Range Surface to Air Missile (LRSAM) Project Kusha, and ballistic missile systems Pralay are also awaiting to fill the IAF inventory which would be largely indigenous but for multi role fighter aircraft (MRFA)s. The government has been dragging its feet on buying 114 MRFAs and it's not clear whether the aerial platforms have to be acquired through inter-government route by tendering. The Ministry of Defence (MoD) has recently cleared five units of Project Kusha, the LRSAM having similar capabilities of the Russian-origin S-400 air defence missile systems. The Air Chief Marshal stated that the IAF has allotted budget for Kusha which would be designed and developed by Defence Research and Development Organisation (DRDO).

He also said that supplies of some spares and systems like S-400s have been delayed due to ongoing Russian-Ukraine war. Three S-400s have come while the remaining two are expected in a year's time, he stated. To ensure smooth flow of spares and sub-systems, the government has encouraged defence companies of Russia and Ukraine to invest in Aatmanirbhar Bharat scheme and a lot of these companies are coming up, some have already signed JVs and spares are being indigenised, Air Chief Marshal Chaudhari stated.

The Chief of Air Staff also spoke on the IAF's preparedness on the threats on Western and Eastern borders, Pakistan getting military assistance from China and Turkey.

<https://www.thehindubusinessline.com/news/iaf-lines-up-massive-acquisition-of-aircrafts-weapon-systems-worth-at-least-25-lakh-crore/article67376307.ece>



Tue, 03 Oct 2023

IAF's Vigilance and Preparedness: Addressing China's Military Expansion along the LAC

The Indian Air Force (IAF) will continue to remain deployed along the frontier in the region till complete disengagement takes place in the remaining contested areas in eastern Ladakh.

At the annual press conference ahead of the Air Force Day on Oct 8, Air Chief Marshal V R Chaudhari said "the IAF is constantly reassessing the evolving and dynamic situation along the Line of Control (LAC) and is monitoring it, especially in eastern Ladakh. A strong and capable military is the need of the hour."

"IAF's operational plans are very dynamic and it will deal with challenges along the Line of Actual Control (LAC) through better tactics and training in places where it cannot counter the "numbers or the might of the adversary".

Procurement Plans

The air chief said the IAF is looking at inducting military platforms, equipment and defence hardware worth Rs 2.5 lakh crore to Rs 3 lakh crore in the next seven-eight years.

Giving details of steps being taken to strengthen the Indian Air Force's operational prowess, he said a contract to procure 97 Tejas Mark 1A aircraft at a cost of around Rs 1.15 lakh crore will be

concluded soon. In February 2021, Defence Ministry sealed a Rs 48,000-crore deal with Hindustan Aeronautics Ltd to procure 83 such jets.

China & IAF

Addressing the issue of China's increasing military infrastructure along the Line of Actual Control (LAC), the Air Chief Marshal stressed that the IAF closely monitors border situations through Intelligence, Surveillance, and Reconnaissance (ISR) methods.

According to IAF is paying close attention to the expansion of infrastructure and deployment of assets near the borders. The operational strategies of IAF are adaptable and change based on evolving circumstances, particularly along any disputed fronts. In areas where they cannot match the adversary's numerical or military strength, they intend to overcome these challenges through improved tactics and rigorous training, stated the air chief.

Regarding the deployment of assets along the LAC, he said the focus of the IAF remains flexible rather than fixed. They maintain dynamic war plans that are regularly updated based on ISR data.

The IAF is currently in the process of deploying mountain radars to enhance border surveillance. They will remain deployed until a complete disengagement occurs in the region.

The Air Chief Marshal also responded to a question related to the impact of the Russia-Ukraine conflict on the delivery of the S-400 Missile System. He mentioned that they have received three units so far and expressed optimism about receiving the remaining two within a year.

Furthermore, he highlighted the importance of the Indo-Pacific region, describing it as the new global economic and strategic center of gravity. The Indian Air Force's unique capabilities, including long-range reach and precision, are essential for addressing the challenges and opportunities in this region. Given the volatile geopolitical landscape, a strong and credible military has become imperative. The chief acknowledged the rapid evolution of modern warfare due to technological advancements and that the IAF is actively investing in technology and undergoing a planned transformation. Their focus includes AI-based decision tools, electronic warfare systems, robust networks, and leveraging space and cyber capabilities.

While acquiring advanced equipment and weapons, they remain committed to the Atmanirbhar Bharat (self-reliant India) initiative, contributing significantly to indigenous defence production and aerospace projects.

Finally, he emphasized key areas of focus for the IAF, including persistent surveillance capabilities, reducing the time from sensor to shooter, developing long-range precision weaponry, and enhancing multi-domain capabilities.

<https://www.financialexpress.com/business/defence-iafs-vigilance-and-preparedness-addressing-chinas-military-expansion-along-the-lac-3261895/>



Tue, 03 Oct 2023

Grand Air Force Day Debut: C295 to Take Center Stage in Spectacular Air Display

The recently inducted C295 will make its debut at the Air Force Day fly past on Oct 8 to be conducted over the 'Sangam' -the confluence of Ganges and Yamuna.

At the annual presser Air Chief Marshal V R Chaudhari said on Tuesday “We have recently witnessed the induction of the first C-295 aircraft. The project is an important milestone in boosting our defence industry and will contribute immensely.”

According to the air chief this project is an important milestone in boosting the country’s defence industry and will contribute hugely by creating 42.5 lakh man-hours of work involving over 6000 direct and indirect jobs and skill employment opportunities.

And, “Around 125 MSMEs, spread over seven states, will be involved in the manufacturing of over 13,400 parts, 4600 sub-assemblies and all the seven major component assemblies.”

This new military transport aircraft joined the 11 Squadron last month, and it’s here to replace the old Avros-748 planes used by the Indian Air Force (IAF). The first tranche of 16 C295s will be made in Seville, Spain, with the second one expected to arrive in May 2024. The remaining 14 aircraft will come one per month until August 2025.

To boost India’s defence manufacturing, the other 40 C295s from the IAF order will be made and assembled in partnership with Tata Advanced Systems Limited (TASL). They’re setting up a Final Assembly Line (FAL) in Vadodara, Western India. Right now, they’re already making aircraft parts in Hyderabad, South India, and these parts will be sent to the Vadodara FAL. It should start working by November 2024.

The very first ‘Make in India’ C295 is expected to be ready in Vadodara’s FAL by September 2026, which is a big deal for India’s aerospace industry. The last plane should be handed over to the IAF by August 2031.

The C295 is quite special because 41 operators have ordered 283 of them. It’s really versatile – it can carry up to 71 troops or 50 paratroopers, do cargo airdrops, help with medical evacuations, and take off and land on short and rough runways. It’s a strong and adaptable aircraft.

<https://www.financialexpress.com/business/defence-grand-air-force-day-debut-c295-to-take-center-stage-in-spectacular-air-display-3261810/>



Tue, 03 Oct 2023

Final Flight of MiG-21 Fighter Jets Marks the End of an Era in the Indian Air Force

For the last time MiG-21 fighter jets of the Indian Air Force will fly in India as well as globally in any air-display later this week as part of 91st anniversary parade.

Addressing the annual press meet ahead of the Air Force Day on Oct 8, Indian Air Force Chief Air Chief Marshal VR Chaudhari said: “These MiG21s will be replaced by indigenous Light Combat Aircraft (LCA) `Tejas’.”

The air chief said that besides the earlier contract for 83 LCA-Mk1A, order for 97 more Light Combat Aircraft (LCA) Tejas Mark-1A fighter jets will be placed later this year. “We will sign with Hindustan Aeronautics Limited (HAL). They may further allocate work to the private sector.” The number of 97 is not to reduce the existing projection of the Tejas Mark

Air Display over Sangam

On Oct 8 over Sangam in Prayagraj three MiG 21s will fly for the last time in the Indian skies.

Entire fleet grounded

As previously reported, the entire fleet of MiG-21 fighter jets, which have been in active service for over five decades, has been grounded following an incident in Rajasthan in May.

The process of gradually retiring these Russian-made jets from the air force had already commenced. The MiG-21 was introduced into the Indian Air Force (IAF) in the 1960s. The frequent crash incidents involving these jets had raised serious concerns.

According to officials from the Defence Ministry, currently, only three operational MiG-21 squadrons exist within the IAF, and all of them are scheduled to be phased out by early 2025.

History, accidents, and their retirement plans

The MiG-21s are among the six fighter jets currently in service with the Indian Air Force (IAF) and have long served as a pillar of the service.

These aircraft are single-engine, single-seater multi-role fighter and ground attack planes. Initially designed as interceptor aircraft in 1963, they underwent numerous upgrades over the following decades to perform various fighter aircraft roles, including ground attack.

Since then, India has acquired over 700 MiG-21 aircraft of different versions, such as the Type-77, Type-96, and the BIS. The most recent variant is the MiG-21 Bison, featuring advanced missiles, radars, and improved avionics. Over 100 MiG-21s in the IAF have been upgraded to Bison since 2006.

These aircraft have demonstrated their effectiveness in several of India's past wars. For instance, during the 1971 Bangladesh Liberation War, the MiG-21s (Type 77 variant) played a significant role in tilting the war in India's favour.

The MiG-21 was also a key asset for the IAF in the 1965 war and the 1999 Kargil conflict with Pakistan.

In 2019, Group Captain Abhinandan Varthaman (then a Wing Commander) of the No 51 squadron, based in Srinagar, was flying a MiG-21 Bison when he successfully downed a Pakistan Air Force F-16 aircraft.

Previous MiG accidents and their causes:

Government data reveals that nearly 500 MiG-21s have crashed over the past six decades, resulting in the tragic loss of over 170 pilots. More than 20 aircraft have crashed since 2010. In fact, in its debut year of 1963, two of these Soviet-era aircraft met with accidents.

In July of the previous year (2022), a trainer version of the fighter plane crashed, claiming the lives of two pilots on board. In 2021, there were five MiG-21 Bison crashes, leading to the loss of three pilots.

The reasons for these crashes vary, including technical flaws, human error, bird strikes, or spatial disorientation of pilots under specific circumstances.

When will these aircraft be phased out?

Currently, there are three squadrons of MiG-21 Bison aircraft in active service within the IAF, each consisting of 16-18 aircraft, with one or two trainer versions.

In September of the previous year, the renowned No 51 squadron was disbanded. The three MiG-21 Bison squadrons are set to be retired by December 2025.

Why does the IAF persist with MiG aircraft?

Although the IAF has an authorized squadron strength of 42, it currently operates with approximately 30 squadrons. Prematurely retiring these fighter jets would reduce the IAF's fighter squadron strength to dangerously low levels, especially until they are replaced by indigenous Light Combat Aircraft Tejas squadrons.

In the previous year, Air Chief Marshal VR Chaudhari stated that, even with new fighter acquisitions and the planned phase-out of aging fighter jet squadrons, the IAF could, at most, reach 35 squadrons by the next decade. Senior IAF officers, particularly those with flight experience in these aircraft, have highlighted the rigorous maintenance and inspections that every fighter aircraft undergoes before embarking on a mission.

<https://www.financialexpress.com/business/defence-final-flight-of-mig-21-fighter-jets-marks-the-end-of-an-era-in-the-indian-air-force-3261795/>



Tue, 03 Oct 2023

S-400 Missile System Supplies Hindered By Russia-Ukraine War: IAF Chief

The supply of two squadrons of the S-400 air defence missile system from Russia has been hindered due to the Russia-Ukraine war but it is now expected to be completed in the next year, Indian Air Force chief Air Chief Marshal VR Chaudhari said today.

"Our contract was for five systems and three have been delivered. There is a hindrance in delivery due to the Russia-Ukraine war and we are sure that in the next one year, we will be getting the remaining systems. We are also using the Indigenous Project Kusha for indigenous long-range air defence system," Air Chief Marshal VR Chaudhari said at the annual press conference.

The IAF had signed a contract for five squadrons of the S-400 air defence missile systems of which three units were received in time but two squadrons have not yet been supplied.

The IAF chief announced that the Indian Air Force has now got clearance from the Defence Ministry to develop five units of Project Kusha under which the Indian version of S-400 missile systems would be developed.

The Indian system includes a multi-layered missile system that would be able to hit targets at almost 400 km and is being developed in partnership with private industry.

<https://www.ndtv.com/india-news/s-400-missile-system-supplies-hindered-by-russia-ukraine-war-air-force-chief-4446671>



Wed, 04 Oct 2023

HSL Signs MoU for Design, Construction of Electric Tugs

In a move towards 'Atmanirbharta' in e-vessel and to minimise emissions in the maritime sector, Hindustan Shipyard Limited (HSL), a public undertaking under the Union Ministry of Defence, has embarked on an initiative to develop an indigenous ecosystem for the design and construction of electric tugs (e-Tugs), equipment and systems.

Towards this end, HSL signed a Memorandum of Understanding (MoU) with Shift Clean Solutions Company, which has been engaged in the design and manufacture of energy storage systems (ESS) and battery management systems (BMS) based on lithium energy technology.

The MoU allows the two companies to jointly explore and establish a path for the future supply and integration of ESS to provide cost effective e-Tugs solutions to the customer.

This collaboration was aimed for development of e-Tugs ecosystem in the country, offering a range of benefits.

As and when production grade Li-ion based cell manufacturing attains regular production, manufacturing of composite ESS in India and development of indigenous BMS for safe utilisation on marine platforms up to 8 Mw/hour capacity and beyond in or around HSL.

HSL, a Visakhapatnam-based public entity, is among India's premier defence shipyards and has delivered 200 ships, catering to the requirements of both defence and commercial sector.

MD of HSL Hemant Khatri said the company was now focussing on the development of a family of green tugs, with bollard pull capacity ranging from 40T to 80 T, using modular concept to enable standardisation, commonality, interchangeability and reducing life cycle cost.

<https://www.thehindu.com/news/cities/Visakhapatnam/hsl-signs-mou-for-design-construction-of-electric-tugs/article67377419.ece>



Tue, 03 Oct 2023

Su-30MKI: India Plans \$7.5B Modernization Drive for its Flankers; Sadly no Changes to Engine, Airframe

By Vijaiinder K Thakur

The ET reported on October 2, quoting sources, that the long-awaited Su-30MKI upgrade plan, valued in excess of Rs 60,000 crore (\$7.5B), will touch all aspects of the fighter jet except for its airframe and engines.

Hindustan Aeronautics Limited (HAL) will be the lead agency for the upgrade in partnership with the Indian Air Force and other partners. The upgrade will be done entirely in India.

The upgrade will initially be limited to 100 fighters in the first tranche and encompass avionics, radars, and electronic warfare suite upgrades.

“The upgrade is likely to include enhanced beyond visual range capability, new electronic warfare suites, and a new radar,” one of ET sources said.

Indigenous Weapon Systems & EW Systems

In October 2022, the Chief of Air Staff, Air Chief Marshal V R Chaudhary, said that “technical parameters for Su-30MKI modernization are now being refined.

“We have decided this upgrade will be done indigenously with a plethora of indigenously-designed weapons, electronic warfare systems, and the like. We are looking at upgrading 84 Sukhois in the first tranche,” he said.

The design and development phase will take four to five years, following which fleet modernization will kick off. The Su-30MKI fleet has been undergoing a “spiral upgrade” with new weapons and sensors for over 10 years now.

“BrahMos and Astra air-to-air missiles, for instance, have been added to Sukhois indigenously,” IAF Vice Chief Air Marshal Sandeep Singh told ToI.

Other indigenous weapons likely to be integrated with Su-30MKI include Rudarm-1 new generation anti-radiation missiles (NGARMs), Rudram-2, Rudram-2, and Astra-2.

The Rudram missiles are designed to destroy a variety of enemy surveillance, communication, and radar targets on the ground from stand-off distances.

The Rudram-1 NGARM was successfully flight tested from a Su-30MKI fighter on October 9, 2020, when it struck a radiating target located on Wheeler Island off the coast of Odisha.

After Rudram-1 with a strike range of 150 km, the DRDO will develop Rudram-2 (350 km range) and Rudram-3 (550 km) air-to-ground missiles.

During Aero India 2023, HAL displayed a schematic for an electronic warfare suite under development for IAF’s Su-30 MKI fleet to replace current Russian SAP-51 pods. In the past, HAL has successfully developed indigenous EW suites for Jaguar & Mig-29 UPG aircraft.

Modernization To Be Done In India With Russian Help

According to ET, talks on the upgrade have been ongoing with Russia since at least 2017, with India looking at maximizing indigenous systems on the aircraft.

Following the 19th IRIGC-M&MTC meeting in Moscow on November 6, 2019, it was reported that Russia will provide support in developing a prototype of an upgraded Su-30MKI at HAL.

Surprising Omission Of Engine Upgrade

The IAF’s decision to omit the upgrade of the Su-30MKI engine is likely based on a desire to keep costs low and the IAF’s faith in beyond-visual-range (BVR) combat which relegates the importance of supermaneuverability.

The decision is surprising because Russia has already developed a variant of the Su-35 fighter’s AL-41F-1S (Product 117S) engine that can be fitted on the Su-27 and Su-30 without any airframe modification.

Russia is already in the process of upgrading its Su-30SM fighters, which are Su-30MKI analogs with Russian avionics, to the Su-30SM2 standard.

Besides improved avionics, weapons, and sensors, the Su-30SM2 features the AL-41F-1S engine of the Su-35S.

Compared with the Su-30MKI’s AL-31FP power plant, the AL-41F-1S features a 16% increase in max thrust (14,500 kgf) and twice the service life (4000 hrs) while retaining the same weight and dimensions. Importantly, the more powerful AL-41F-1S facilitates increased electrical power generation allowing more powerful radar and EW systems to be fitted on the fighter.

The higher-powered Irbis radar of the Su-30SM2 increases the detection range of air and ground targets.

Fighter upgrades tend to add weight to a fighter which adversely impacts the fighter’s thrust-to-weight ratio and, consequently, its combat performance.

The IAF’s experience with Jaguar upgrades is a case in point. Initial variants of the Jaguar assembled at HAL from 1983 onwards had acceptable take-off and medium-altitude maneuvering capabilities.

Following DARIN upgrades, Jaguar performance degraded due to additional weight. The IAF's inability to upgrade Jaguar engines at a reasonable cost is now leading to the Jaguar's early retirement from service.

Radar Upgrade

The ET report quoted above states that the planned upgrade includes a new radar.

The ToI earlier reported on October 7, 2019, that the upgrade would include a much more powerful radar "almost as good as an AESA (active electronically scanned array) one."

It was then speculated that the more powerful radar would likely be the Tikhomirov NIIP N035 Irbis E (Snow Leopard), a 20 kW class steerable hybrid ESA radar currently fitted on the Su-35S.

Operating in the peak power mode, the N135 Irbis radar of the Su-35S can detect an F-35 at a distance of 58 km (36 miles) and an F-22 at a distance of 36 km (22 miles). The detection distances fall to 29km for F-35 and 18 km for F-22 in the tracking mode.

Without an engine upgrade, it is doubtful whether the Su-30MKI would have the electrical power surplus required for the N135 Irbis. It's possible that current plans envisage the use of a more powerful Uttam variant, which is an indigenously AESA radar that is yet to be operationally deployed.

In February 2023, talking to TNIE, Director General – Electronics & Communication Systems (ECS) at DRDO BK Das said, "Another six months to one year we are going to map it [Uttam Radar] with the LCA Mk1."

Das said that following successful integration with Tejas Mk-1, the radar will be integrated with fighter jets like Sukhoi-30MKI and Mig-29. The process of integration of Uttam on these platforms would begin by 2025.

Considering that design and development for the Su-30MKI upgrade variant could take another 3 to 4 years, it is possible that DRDO will have a Uttam variant suitable for use on the upgraded fighters. But then, a new development project is prone to timeline slip-ups.

It would be safer to base a fighter upgrade on an existing combat-proven radar. As such, it would make more sense to reserve Uttam AESA radar for the second tranche.

Conclusion

The size of the Su-30MKI gives it a lot of growth potential. Long after it ceases to be the IAF's frontline fighter, it will likely continue to play an important operational role because of its long-range and good payload capability. It is ideally suited to the role of a weapons truck operating with stealth fighters.

The IAF needs to invest in the long-term potential of the aircraft by upgrading its engine so that the aircraft can be fitted with more powerful sensors. The fighter will additionally feature improved fuel efficiency, and its engine life will be doubled.

I am sure that the IAF has its reasons for not opting to fit a more powerful engine. Hopefully, higher upgrade costs or US pressure to minimize military collaboration with Russia are not among the reasons.

<https://www.eurasiantimes.com/su-30mki-india-plans-7-5b-modernization-drive-for-its/>

China, Pakistan to Meet Near Arunachal Border

Pakistan Foreign Minister Jalil Abbas Jilani will attend the 3rd Trans-Himalayan Forum for International Cooperation hosted by China in Nyingchi, Tibet, close to Arunachal Pradesh this week.

Mongolia and Afghanistan will also be in attendance.

Nyingchi in Tibet is 160 km away from Arunachal Pradesh.

The Pakistan foreign ministry, in a statement, said "At the special invitation of the Foreign Minister of China, Wang Yi, Foreign Minister Jalil Abbas Jilani is visiting China to participate in the 3rd Trans-Himalaya Forum for International Cooperation, being held in Nyingchi, Tibet Autonomous Region, from 4-5 October".

During his time in Tibet, Jilani will address the Trans-Himalaya Forum's opening ceremony, besides meeting many dignitaries. These will include Mongolia's deputy prime minister, China's foreign minister, and Afghanistan's interim foreign minister, as per the Pakistan ministry statement.

The Trans-Himalaya Forum was formed in 2018 for deeper practical cooperation among regional nations on myriad subjects, including environmental protection, geographical connectivity, ecological preservation, and enhancing cultural links. The last in-person meet was in 2019, and this year's theme is 'Ecological Civilization and Environmental Protection'.

India and China have shared strained relations over its border issues, with EAM Jaishankar commenting recently that the situation has been 'abnormal' between the nations since the Galwan clash. Matters again became tense with sportspersons from Arunachal being refused visas during the Asian Games.

<https://www.deccanherald.com/world/china-pakistan-to-meet-near-arunachal-border-2710205>

Taiwan Urges US to Speed up Weapons Systems Deliveries, Boost Defence Supply Chain

Taiwan's vice-minister for defence, Hsu Yen-pu, has urged the United States to speed up weapons deliveries to meet a growing military threat from the People's Liberation Army (PLA).

Hsu also called on Washington to help the self-ruled island set up its own system to manage and support the complete life cycles of some of the US weapons it has bought.

Hsu made the appeal on Monday during the annual US-Taiwan Defence Industry Conference, a closed-door event held in the US state of Virginia.

On the sidelines of the conference, Hsu said that because Taiwan was an island, it was more important to be able to quickly acquire American weapons to strengthen its defence capabilities and military self-reliance in the face of persistent pressure from the PLA.

“Given the ongoing Russian-Ukraine war, Taiwan and the US have recognised the importance of speeding up the delivery of weapons systems to Taiwan to urgently beef up its defence capabilities,” Hsu was quoted as saying by the island’s semi-official Central News Agency.

Since last year, Taiwan has complained to the US about delayed weapons deliveries, including the urgently needed Stinger portable air-defence missiles that have proven effective for the Ukrainian resistance against the Russian invasion.

The delays have also prompted US lawmakers from both parties to demand that Washington swiftly fill its backlog of arms sales to Taiwan, reportedly worth US\$19 billion.

Hsu thanked US President Joe Biden for approving 11 rounds of arms sales to Taiwan since taking office in 2021, and granting US\$345 million worth of aid to the island under his presidential drawdown authority.

He said this showed that the US took note of the defence needs and the self-defence capability of the island.

Hsu added, however, that Washington could greatly boost the island’s defence self-reliance by helping Taiwanese forces establish the “Total Life Cycle Systems Management”.

The system is a US military programme that implements, manages and oversees all activities related to the development, acquisition, production, sustainment and eventual disposal of a weapon across its life cycle.

Taipei-based United Daily News described the system as somewhat like the F-16 maintenance centre – a collaboration between Taiwan and US plane maker Lockheed Martin that served as a key part of the fighter jet’s components supply chain, providing parts and repairs as needed for the planes in that region.

The mechanism “would enable more Taiwanese defence companies and contractors to produce and offer maintenance services for US-bought weapons systems”, Hsu said.

This could also “help integrate the US-Taiwan defence industry supply chain” and “enhance Taiwan’s defence autonomy and resilience”, he added.

American officials, including Mira Resnick, the deputy assistant secretary of state for regional security, and Jedidiah Royal, the principal deputy assistant secretary of defence for Indo-Pacific security affairs, were also expected to speak at the three-day event, according to the organiser, the US-Taiwan Business Council.

Emerging threats to Taiwan, supply chain challenges, Taiwan’s defence policy, US-Taiwan defence cooperation, cybersecurity and the strategic paralysis of Taiwan’s critical infrastructure in a potential cross-strait conflict were some of the topics to be discussed.

The conference – attended this year by more than 200 participants from Taiwan and the US – has been considered a semi-official military exchange event between the two sides since it was first held in 2002.

Taipei has previously used the occasion to pass its weapons wish list to the US, seeking items to aid its defence against military attack by Beijing.

Beijing views Taiwan as its territory subject to eventual union by force, if needed. It has intensified military operations around Taiwan since former US speaker of the house Nancy Pelosi visited

Taipei in August last year – a trip it said was a serious violation of its sovereignty and Washington’s breach of its one-China policy.

The US, like most countries, does not recognise Taiwan as an independent state, but is opposed to unilateral change of the cross-strait status quo by force.

<https://www.scmp.com/news/china/military/article/3236673/taiwan-urges-us-speed-weapons-systems-deliveries-boost-defence-supply-chain?campaign=3236673>

Science & Technology News

THE  HINDU

Tue, 03 Oct 2023

Nobel Prize 2023 in Physics Awarded to Pierre Agostini, Ferenc Krausz, Anne L’Huillier for Research on Electrons in Flashes of Light

The 2023 Nobel Prize in Physics has been awarded to Pierre Agostini, Ferenc Krausz, and Anne L’Huillier “for experimental methods that generate attosecond pulses of light for the study of electro dynamics in matter”, The Royal Swedish Academy of Science announced on October 3, 2023.

The three Nobel Laureates in Physics 2023 are being recognised for their experiments, which have given humanity new tools for exploring the world of electrons inside atoms and molecules. Pierre Agostini, Ferenc Krausz and Anne L’Huillier have demonstrated a way to create extremely short pulses of light that can be used to measure the rapid processes in which electrons move or change energy, the press release said.

Their experiments granted the Laureates to observe extremely brief events that transpire in a few tenths of attoseconds—a quintillionth (10⁻¹⁸) of a second. An attosecond is so short that there are as many in one second as there have been seconds since the birth of the universe.

This brief pulses of light can be used to provide images of what occurs inside atoms and molecules.

The research conducted by the Laureates over a span of several decades allowed them to investigate processes that were so rapid that they were previously impossible to follow. This new technology is important to understand and control how electrons behave in a material.

Last year, The Nobel Prize in Physics was awarded to Alain Aspect, John F. Clauser and Anton Zeilinger for their work on quantum mechanics, the academy announced the winners on October 4, 2022. The award was given for experiments with entangled photons, establishing the violation of Bell inequalities, and pioneering quantum information science..

The physics prize comes a day after Hungarian-American Katalin Karikó and American Drew Weissman won the Nobel Prize in medicine for discoveries that enabled the creation of mRNA vaccines against COVID-19.

On October 4, Nobel Chemistry Prize will be announced followed by the Literature price on October 5.

The Nobel Peace Prize will be announced on Friday and the economics award on October 9.

The prizes carry a cash award of 11 million Swedish kronor (\$1 million) drawn from a bequest left by the prize's creator, Swedish inventor Alfred Nobel, who died in 1896. The prize money was raised by 1 million kronor this year because of the plunging value of the Swedish currency.

The laureates are invited to receive their awards at ceremonies on December 10, the anniversary of Nobel's death. The prestigious peace prize is handed out in Oslo, according to his wishes, while the other award ceremony is held in Stockholm.

<https://www.thehindu.com/sci-tech/science/nobel-prize-physics-winner-2023-pierre-agostini-ferenc-krausz-anne-lhuillier/article67374928.ece>



Tue, 03 Oct 2023

Pioneers of mRNA Technology Win Medicine Nobel

The Nobel Prize in Physiology or Medicine has been announced and it has been awarded to those scientists who developed the mRNA technology that helped in developing mRNA covid vaccines.

Katalin Karikó and Drew Weissman were jointly awarded the prize for advancements that have changed the field of vaccine development. This year's Nobel Prize in Physiology or Medicine is awarded to a transformative medical technology that significantly altered the path of the pandemic, the mRNA vaccines against COVID.

Previously, For developing the mRNA technologies, Katalin Karikó & Drew Weissman along with Pieter Cullis have been awarded the 2022 Tang Prize in Biopharmaceutical Science.

Karikó and Weissman started studying synthetic mRNA technology in the 1990s, when they worked together at the University of Pennsylvania. Their seminal paper in 2005 informed how they were able to successfully deliver modified mRNA into the body and trigger an immune response—the kind that trains the immune system for future viral infections.

Their research opened a new path for possible therapy and vaccine development—one that would prove critical during the COVID pandemic

Messenger RNA (abbreviated mRNA) is a type of single-stranded RNA involved in protein synthesis. mRNA is made from a DNA template during the process of transcription. The role of mRNA is to carry protein information from the DNA in a cell's nucleus to the cell's cytoplasm (watery interior), where the protein-making machinery reads the mRNA sequence and translates each three-base codon into its corresponding amino acid in a growing protein chain.

The mRNA COVID vaccines work by injecting the genetic material specifically for SARS-CoV-2's spike proteins—surface proteins on the virus that allow it to bind to healthy cells. Modified mRNA in the vaccine is taken by cells, which then decode it and produce those spike proteins so that the immune system can better identify and neutralize the real virus in the event of a future infection.

Since the COVID-19 pandemic was declared, vaccines against SARS-CoV-2 were urgently developed around the world. On the basis of the mRNA vaccine technology developed previously, COVID-19 mRNA vaccines were promptly tested in animals, advanced to clinical trials, and then authorized for emergency use in humans.

The development of mRNA vaccine technology, including RNA modification and delivery systems, is well recognized for its contribution to moderating the harms caused by the COVID-19 pandemic.

<https://newsonair.com/2023/10/03/pioneers-of-mrna-technology-win-medicine-nobel/>

THE TIMES OF INDIA

Wed, 04 Oct 2023

Why India's so far Behind in the mRNA Game

By Malathy Iyer

Unless we stop being just vaccine producers & majorly focus on R&D, we will remain dependent on technology transfers & tie-ups

For the scientific community, it wasn't a surprise that Katalin Kariko and Drew Weissman won the 2023 Nobel Prize in Medicine for developing effective mRNA vaccines against SARS-CoV-2 virus. Twenty years of lab work by Hungary-born Kariko on developing the novel concept of mRNA (messenger ribonucleic acid) vaccines clicked just as the world woke to the daily horror, in early 2020, of thousands dying due to the novel coronavirus. While developing a vaccine in the traditional manner could have taken four to 10 years, the mRNA vaccine was developed, mass produced and injected in little over a year. Weissman worked "intensely" with Kariko for more than 20 years, "including middle-of-the-night emails as they both suffered disturbed sleep".

<https://timesofindia.indiatimes.com/blogs/toi-edit-page/why-indias-so-far-behind-in-the-mrna-game/>

