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DECCAN HERALD

Mon, 01 Feb 2021

Tejas at the end of the tunnel

The IAF's Tejas buy is a boost for indigenous fighter development

By Saurav Jha

The recent decision by the Cabinet Committee on Security (CCS) to approve the acquisition of 73 Tejas Mk1A and 10 Tejas Mk1 trainer aircra for the Indian Air Force (IAF), to be built by Hindustan Aeronautics Limited (HAL), for a total outlay of Rs Rs 45,696 crore (approximately $6.26 billion at current rates) has led to some handwringing among sections of the commentariat about the purported 'high cost' of the project. The raised eyebrows are on account of initial press reports that compared the supposed cost per unit of the Tejas Mk1A with that of heavy fourth-generation fighters such as the Su-30 MKI and found the former to be higher.

The Tejas demonstrates mid-air refuelling. Credit: MoD.

These reports were incorrect, however, since they fallaciously compared the basic cost of an Indian-produced Su-30 MKI with the procurement cost per unit of all 83 sanctioned Tejas aircra, with the latter having been obtained by simply dividing the total CCS outlay by 83. Such ludicrous apples to oranges comparisons apart, the actual basic cost of a Tejas Mk1A, arrived at aer stripping away various ancillary allocations included in the CCS approval, is significantly lower than that of not just any medium or heavy fourth-generation fighter, but it is also lower than that of any comparable light fighter. In fact, given the advanced features of the Tejas Mk1A, the aircra is the most cost-competitive multirole capability the IAF could acquire today.

Indeed, since the system-level intellectual property of the Tejas fighter resides with India, a range of emerging indigenous weapons can be easily integrated with it, thereby allowing the IAF to be able to oer flexible response options to emerging requirements. Moreover, the procurement of this indigenous fighter, whose development was initiated in 1983 under Prime Minister Indira Gandhi, is critical to the consolidation of painstakingly developed domestic aeronautical capabilities – developed right through the years when India was a much smaller economy and was under international technology sanctions – and will provide the kernel around which the Indian aerospace sector can grow.

The Cost Fallacy The basic cost of a fighter aircra refers to the actual cost of production, while excluding costs incurred due to R&D and additional costs related to spares, maintenance, support equipment and training. The procurement cost, however, would typically include these heads in addition to the basic cost. The total CCS sanction of Rs 45,696 crore is the overall procurement cost for 83 Tejas units, including as it does ancillary allocations for customs duties and GST, maintenance-related spares stockpiling, consultancy charges to the Aeronautical Development Agency (ADA), which is the developer of the Tejas platform, training and ground support

equipment, as well as exchange rate variation. These ancillary allocations account for over Rs 20,000 crore, with the total basic cost of acquiring 73 Tejas Mk1A and the 10 Mk1 trainer units being a few hundred crores north of Rs 25,000 crore. However, simply dividing that total basic cost by 83 doesn't give us the basic cost per unit of the Mk1A either, since the Mk1 trainer does not cost the same as the Mk1A. As such, the basic per unit cost of the Mk1A will be Rs 309 crore over the course of production, while that of the Mk1 trainer version would be around Rs 280 crore. These figures have been confirmed by HAL and corroborated to this writer by the Defence Research and Development organisation (DRDO), which controls ADA.

The Capability and what will the IAF get for Rs 309 crore? Quite a lot, actually. The Tejas Mk1A will be a major step up from the Tejas Mk1 fighter version in terms of operational capability, survivability and maintainability. For one, the Mk1A will feature a state-of-the art active electronically scanned array radar (AESA), instead of a mechanically scanned array. Other improvements include the integration of a pylon mounted self-protection jammer pod, soware-defined radio for secure network-centric operations, smart multifunctional displays, an improved radio altimeter, a unified video-cumdigital recorder, satnav, a combined interrogator/transponder, i.e., a contemporary identification friend or foe (IFF) system, besides a new digital flight control computer (DFCC).

While the Mk1's DFCC was based on a 386 series processor, the new DFCC will feature PowerPCbased computing architecture with improved performance. The Mk1A will also incorporate various new line replaceable units (LRUs) to cater to obsolescence issues. The Mk1A's use of a press-fit mechanism, instead of 24 dierent physical connectors as is the case with the Mk1, will reduce maintenance overheads. In fact, the Mk1A will also feature some structural changes, such as the greater use of composites, which will reduce airframe weight; and reduced supersonic drag through the use of more aerodynamic pylons. The outboard pylons will also feature dual-racks which will be able to carry the ASRAAM close combat missile, which is more modern than the R-73 variants used on the Mk1. In general, the Mk1A will feature better weapons in both the air-to-air and air-to-ground regimes.

In terms of overall sensor fit and avionics, the Tejas Mk1A will be superior to any other fighter in the IAF's current inventory barring the recently inducted Dassault Rafale. Even the upgraded Mirage 2000s, which were modified for a per unit procurement cost of Rs 167 crore, do not have an equivalent radar, as revealed in Parliament by the Ministry of Defence in 2013.

Importantly, there is no light fighter in the world with such features (forget about medium or heavy ones) that India can buy at this basic cost, some press reports notwithstanding. And when it comes to procurement cost, the Tejas Mk1A is a hands down winner, judging by fighter tenders worldwide. For example, back in 2016, Botswana was considering the purchase of a mere eight Gripen Cs (a comparable fighter to the Tejas Mk1A but one that does not feature an AESA radar) for $1.7 billion. The only light fighter with an AESA radar that will have a basic unit cost comparable to the Mk1A would be an upgraded Sino-Pakistani JF-17. But in any case, as the IAF Chief confirmed recently, the Mk1A, in terms of overall technology, is "far ahead" of JF-17 variants.

Renergising the Ecosystem And let us not forget that most of what will be spent to procure the Tejas Mk1A will remain in India and support about 50,000 jobs. Indeed, the CCS sanction will serve to re-energise the Tejas supplychain, which was getting eroded due to a lack of fresh orders and has been further dented by Covid-19 disruptions. At present, the Tejas ecosystem has 563 domestic suppliers; the Mk1A will boost that number to over 600, according to HAL. Today, HAL also outsources major subassemblies for the Tejas platform, such as the front, centre and rear fuselages, wings as well as tail fins and rudder to key private players and then integrates the same.

A re-energised supply chain will ensure that India's aerospace technical repertoire built through the LCA programme does not go to waste. This repertoire includes the ability to design, develop and build unstable high-performance aircra, fly by wire systems, avionics and computercontrolled electrical and mechanical systems. Importantly, substantive flight-testing infrastructure has also been put in place alongside various facilities for the design and qualification of combat aircra and

their sub-systems. Today, many firms who cut their teeth supplying parts and developing soware for the LCA-platform are now suppliers to international aerospace and defence majors.

The Mk1A, after all, will feature sub-systems and components that are being developed for new programmes, such as the Tejas Mk2 and the fih-generation-plus advanced medium combat aircra (AMCA). For instance, beyond the first 20 units, the projected Mk1As will sport the indigenous Uttam AESA radar, whose successors will find their way onto future Indian fighter developments. The SDR used on the Tejas Mk1A can also be expected to be replaced by an indigenous alternative for which work is underway in public-private partnership mode. As DRDO Chhairman Sateesh Reddy said to this writer: "The CCS clearance is a major boost to the existing aerospace ecosystem while making it ready to graduate to the creation of fih-gen aircra. It is therefore a harbinger of self-reliance in the domain of fighter aircra development."

Indeed, the 83-unit order will help increase the overall indigenous content of the Tejas platform to over 60% from the current 50% or so. Several fuel, hydraulic and electro-mechanical LRUs will be sourced from domestic vendors. Naturally, this growing vendor base will make it easier to both prototype and manufacture future ADA-developed combat aircra. For the immediate, the Tejas ecosystem is being used to build five Tejas Mk-2 prototypes, with the first of these being rolled out in 2022. Greater indigenous content will also help address criticism about the substantial imported content of the Tejas. Of course, it is another matter that those who adopt this line of criticism oen have no problem with wholly imported systems over which India has no design control and has had to pay a small fortune for upgrades. However, for true 'Atmanirbharta', India will have to develop its own fighter-class low bypass turbofan jet engines, but then that is a story for another day.

(The writer is Chief Editor, Delhi Defence Review)

https://www.deccanherald.com/specials/sunday-spotlight/tejas-at-the-end-of-the-tunnel-945482.html

THE HINDU

Mon, 01 Feb 2021

Tejas Mark II to roll out next year; high-speed trials in 2023: HAL Chief Madhavan

New Delhi: A more potent version of the indigenous Tejas multirole combat jet featuring a much powerful engine, greater load carrying capability, next-generation electronic warfare system and an array of superior avionics is expected to be rolled out next year and its first high-speed trials will start in 2023, Chairman and Managing Director of Hindustan Aeronautics Ltd. R. Madhavan has said.

He said the structural package and other work on the Tejas Mark II is progressing well and its production is likely to start somewhere around 2025.

He said the upgraded version will have a bigger fuselage, longer range, better maintainability, greater load carrying capability, much stronger engine power and superior net-centric warfare systems.

With increase in range and payload capability, Mr. Madhavan said the new variant will be much superior than Tejas Mark-IA, 73 of which are being procured by the Indian Air Force from the HAL under a ₹48,000 crore deal that was approved by the government on January 13.

File photo of Tejas-Mk 1A. With increase in range and payload capability, the new variant will be much superior than Tejas Mark-IA, HAL chief R. Madhavan said.

"Tejas Mark II is likely to roll out by August-September of 2022 after that the first flight will take some time. The first high-speed trial of the jet will start in 2023 and we expect the production to start somewhere around 2025," Mr. Madhavan told *PTI*.

Asked about the weapon package for Tejas Mark II, Mr. Madhavan did not give a direct reply and said it will be decided at a later stage depending on requirement and changing dynamics.

Tejas is a single engine and highly agile multi-role supersonic fighter manufactured by the State-run HAL.

The aircraft is a potent platform for air combat and offensive air support with reconnaissance and anti-ship operations as its secondary roles.

The Tejas Mk-1A will be equipped with an active electronically scanned array radar, beyond visual range missile, electronic warfare suite and air-to-air refuelling system.

On the next generation advanced multi-role combat aircraft (AMCA) project, the HAL chairman and managing director said the aim was to implement the project under the framework of a special purpose vehicle also involving private sector players.

India is working on the fifth-generation medium weight deep penetration fighter jet and the project is estimated to cost around $5 billion.

Mr. Madhavan said the prototype of the aircraft is likely to be ready by 2026 and its production could start by 2030. He added that the Defence Research and Development Organisation (DRDO) was working on the timelines for the project.

"It is still in the initial design stage. We are trying to get into a SPV route where HAL and DRDO will be partners and we will try to bring in some private players, at least two. We want them [private players] to have a slight majority [stakes] so that it does not become a government entity," he said.

Mr. Madhavan said the thinking has been that the private players could hold 50.5% stakes in the venture so that it is deemed as private though there will be provisions for audit by the Comptroller and Auditor General (CAG).

"What we are planning to do is to get the prototypes made by the HAL without going to any SPV route. Once we do that, then we will ask them [private players] to join hands. They will have to put in at least ₹2,500 crore. We will put in ₹2,500 crore as initial investment," he said.

Mr. Madhavan suggested that the implementation of the project under the SPV route will cut procedural delays.

The HAL chairman and managing director said the ₹48,000 crore Tejas project will significantly boost the aerospace sector in India and it will have ripple effects on implementation of various ambitious programmes.

Mr. Madhavan said that Tejas Mark 1A jet has superior performance levels compared to China's JF-17 combat aircraft as it has better engine, radar system, electronic warfare suit besides having edge on the overall technology.

https://www.thehindu.com/news/national/tejas-mark-ii-to-roll-out-next-year-high-speed-trials-in-2023-hal-chief-madhavan/article33708634.ece

Defence News

Defence Strategic: National/International

THE ECONOMIC TIMES

Mon, 01 Feb 2021

Defence Budget 2021: With challenges on two fronts, all eyes on Defence Budget

Synopsis

In 2020, the defence ministry was allocated Rs 4.71 lakh crore but a significant part of this (Rs 1.3 lakh crore) went to just pensions. The budget was highly skewed in terms of revenue and capital allocations, especially for the army. Over 82% of the army's budget was under the revenue head, leaving little for modernisation and capital expenses.

New Delhi: With a clear two-front challenge manifesting itself on the ground, all eyes are on how much resources finance minister Nirmala Sitharaman will be able to allocate to the defence forces.

There is an expectation for a significant increase in the allocations, given the added strain of deployments in the Ladakh and other parts of eastern borders, and a build-up of urgent procurements that have not gone through in the last three years due to limited allocations.

The army's revenue expenses are expected to go up significantly, given the large deployment of troops in Ladakh, which had swelled to 50,000 in November. Beyond Ladakh, the army has moved ahead assets all along the Line of Actual Control (LAC) to counter

The year gone by also brought massive operational challenges that led to large-scale emergency purchases of things ranging from ammunition to winter weather clothing and small arms. The forces are believed to have spent more than Rs 10,000 crore for the emergency procurements and have moved plans to enhance the 2020-2021 allocations at the RE stage.

In 2020, the defence ministry was allocated Rs 4.71 lakh crore but a significant part of this (Rs 1.3 lakh crore) went to just pensions. The budget was highly skewed in terms of revenue and capital allocations, especially for the army. Over 82% of the army's budget was under the revenue head, leaving little for modernisation and capital expenses.

> **"In 2020, the ministry got Rs 4.71L cro but a big part of it (Rs 1.3L cr) went for just pensions"**
>
> *— Big Pension Spend*

The army's revenue expenses are expected to go up significantly, given the large deployment of troops in Ladakh, which had swelled to 50,000 in November. Beyond Ladakh, the army has moved ahead assets all along the Line of Actual Control (LAC) to counter Chinese moves.

The Line of Control (LoC) with Pakistan also remains fully manned, with terrorists testing alertness and deployment levels with constant attempts to infiltrate. The armed forces have also projected requirements to meet new challenges, including loitering munitions, unmanned aerial vehicles for surveillance and modern small arms, all of which will require additional resources.

China, which already has an advantage over India in terms of military hardware, has been investing heavily in its armed forces. China's annual defence spending – unofficial and concealed – is pegged at around $261 billion, while India's is approximately $71 billion, according to Stockholm International Peace Research Institute (SIPRI) Yearbook 2019.

According to defence ministry projections, there has been a consistent 25% shortfall between budget allocations and forces projections.

The total projection for both capital and revenue expenditure in 2017-20, according to the defence ministry's calculations, was a little over Rs 13.4 lakh crore. What it has actually got was about Rs 8.39 lakh crore, with an approximate shortfall of Rs 5 lakh crore.

https://economictimes.indiatimes.com/news/defence/with-challenges-on-two-fronts-all-eyes-on-defence-budget/articleshow/80617731.cms?from=mdr

THE HINDU

Mon, 01 Feb 2021

HAL all set to deliver last of SU-30MKIs to IAF

Company gearing up for the order of 83 indigenous Light Combat Aircraft (LCA)

By Dinakar Peri

The Hindustan Aeronautics Limited (HAL) has manufactured the last two Su-30MKIs of the 272 aircraft contracted from Russia and is all set to deliver them to the IAF.

"One aircraft is certified and inducted for BrahMos modification. Another aircraft has been produced and planned to be certified by February end," a HAL official said. The delivery formalities for acceptance by the customer are being finalised.

India had contracted the Su-30s from Russia in batches of which 222 were assembled by HAL at its Nasik plant under Transfer of technology (ToT) since 2004. Of the 272 fighters, 40 are being modified to carry the air launched version of the supersonic cruise missile BrahMos. The IAF has started receiving the aircraft and has deployed some at Thanjavur air base in Tamil Nadu last year.

File photo of Su-30MKI fighter jet. | Photo Credit: AFP

Last of major ToT projects

"This is the last of the major ToT projects of HAL," said R. Madhavan, Chairman and Managing Director as it has completed manufacturing the British Hawk Advanced Jet Trainers (AJT) and for the Dornier aircraft the full design and manufacturing licence is with India.

Last July, the Defence Acquisition Council (DAC) approved the procurement of 12 Su-30MKI aircraft from Russia to be licence-produced by HAL at an estimated to cost of ₹10,730 crore. These are meant to replace the Sukhois in the inventory that had crashed over the years. On the progress on this, a defence official said the Russians have quoted a very high (price) and negotiations are under way.

While the Sukhoi assembly line would largely wind down, the Aircraft Overhaul Division at Nasik would continue the repair and overhaul of the MiG series and the Su-30s. Over the years, HAL has developed over 2000 Micro, Small and Medium Enterprises (MSME) vendor base for the Sukhoi project.

HAL is now in the process of ramping its capacity to overhaul the SU-30MKIs from 15 aircraft per year to 25.

Major upgrade programme

A major upgrade programme for the entire fleet is under negotiation with Russia to give the aircraft better radar, avionics and weapons among others. Initially, it was envisaged that all upgrades would be incorporated per aircraft at one go but given the cost and time that it would take to cover the entire fleet, the IAF has decided to go for capability upgrades in phases. "Some of the most pressing upgrades would be taken up in the first phase," the defence official said and some of the modifications being pursued locally are already under way.

While manufacturing of SU-30s comes to an end, HAL is now gearing up for the order of 83 indigenous Light Combat Aircraft (LCA) Tejas-MK-1A the deal for which is expected to be signed at the Aero India later this week estimated at ₹47,000 crore.

https://www.thehindu.com/news/national/hal-all-set-to-deliver-last-of-su-30mkis-to-iaf/article33710152.ece

Hindustan Times

Mon, 01 Feb 2021

IAF to focus on ₹1.3 lakh crore deal for 114 fighter jets

Air Force chief Air Chief Marshal RKS Bhadauria had termed the Rafale as one of the strong contenders for the 114 fighter acquisition project

With the deal for 83 LCA Tejas Mark 1A aircraft set to be signed during upcoming Aero India, the Indian Air Force is now looking to focus on the multirole fighter aircraft project under which it is planning to acquire 114 combat aircraft expected to cost over ₹1.3 lakh crore.

The Air Force had been undertaking one fighter aircraft project at a time and now its 83 LCA Mark 1A fighters have been cleared by the Cabinet Committee on Security led by Prime Minister Narendra Modi and the ₹50,000 crore deal is set to be signed in Bengaluru during Aero India.

"The 83 LCA Tejas would be replacing the four squadrons of the MiG-21 fighter jets which are set to be phased out in near future. The focus would now be on the 114 fighter jets project," government sources told ANI.

CCS chaired by Prime Minister Narendra Modi approved ₹48,000 Cr deal to buy 83 Tejas fighters to strengthen the IAF.(PTI)

The IAF has already issued the Request for Information for the tender and would be soon moving a proposal for getting the Acceptance of Necessity (AoN) before the Defence Ministry for the multi-billion dollar project which would enable it to acquire 4.5 plus generation aircraft in large numbers to match the capabilities of the omni role Rafale fighters 36 of which have started getting inducted from last year.

The Request for Information (RFI) has been responded to by several global players including fighter jet manufacturers from the US, France, Russia and Sweden.

While the Americans are offering from the F-15 Strike Eagle, F-18 Super Hornet and an F-16 variant by the name of F-21, the Russians are likely to offer the MiG-35 and a Sukhoi fighter. Sweden's Saab is looking to pitch in with its Gripen fighter aircraft which it says is far more advanced than the one which was offered in 2007 to the Indian Air Force. France would be participating in the tender with the Rafale fighter jets.

Recently, Air Force chief Air Chief Marshal RKS Bhadauria had termed the Rafale as one of the strong contenders for the 114 fighter acquisition project.

Sources said that for selection in the project, the main aspects would be the capabilities of the aircraft on offer along with the price at which it is offered. The Indian Air Force is also developing the parameters on which it will select the fighters which would be both single-engine and double-engine and would create a level-playing field for them in the competition.

Whichever aircraft is selected by the Air Force would remain the mainstay of the force for almost next four decades and would be required to be fully integrated with the Su-30MKI fighters which would be the mainstay in terms of numbers as 272 of them would be inducted by next year.

The 114 aircraft would also be Made in India and the foreign firms would be required to do a transfer of technology to the Indian partner as part of government's initiative to create a strong domestic defence industry under the Atma Nirbhar Bharat scheme.

Lagging behind the neighbours in terms of fighter aircraft inductions, the Indian Air Force has got deals for 119 of them in the last four years. While in September 2016, it signed a deal for 36 Rafale fighters, it would be signing the deal with a Public Sector Undertaking in next few days for 83 LCA Mark 1A Tejas fighters. In recent times, it has also operationalised two squadrons of the LCA Tejas mark 1.

(This story has been published from a wire agency feed without modifications to the text.)

https://www.hindustantimes.com/india-news/iaf-to-focus-on-rs-1-3-lakh-crore-deal-for-114-fighter-jets-101612085496300.html

दैनिक भास्कर

Mon, 01 Feb 2021

वायुसेना की ताकत बढ़ेगी:83 तेजस एयरक्राफ्ट के बाद अब IAF 114 मल्टीरोल फाइटर जेट खरीदने की तैयारी में, 1.3 लाख करोड़ खर्च होंगे

नई दिल्ली: बॉर्डर पर पड़ोसी देशों से चल रहे तनाव के बीच इंडियन एयरफोर्स (IAF) अपनी ताकत और बढ़ाने की योजना बना रही है। हाल ही में मोदी कैबिनेट ने 83 तेजस एयरक्राफ्ट खरीदने को मंजूरी दी थी। उम्मीद है कि इस डील पर एयरो इंडिया शो के दौरान मुहर लग सकती है। अब वायुसेना 114 और मल्टीरोल फाइटर जेट खरीदने की योजना बना रही है। इस डील पर करीब 1.3 लाख करोड़ रुपए खर्च होंगे।

अमेरिका, फ्रांस, रूस और स्वीडन की फाइटर जेट निर्माता कंपनियों ने वायुसेना के प्रोजेक्ट में दिलचस्पी दिखाई है। अब IAF कीमत और ताकत के आधार पर इनमें से बेहतर एयरक्राफ्ट चुनेगी।

न्यूज एजेंसी ANI ने सरकार के सूत्रों के हवाले से बताया कि प्रधानमंत्री नरेंद्र मोदी की अध्यक्षता में हाल ही में कैबिनेट ने 50 हजार करोड़ रुपए में 83 तेजस विमान खरीदने को मंजूरी दी थी। इसके तहत खरीदे जाने वाले तेजस विमान मिग-21 फाइटर जेट की जगह लेंगे। इसके बाद एयरफोर्स का फोकस 114 एयरक्राफ्ट खरीदने पर है।

4.5 जेनेरेशन के एयरक्राफ्ट खरीदने पर फोकस

एयरफोर्स ने टेंडर के लिए रिक्वेस्ट फॉर इंफॉरमेशन (RFI) पहले ही जारी कर दिया है और जल्द ही इस प्रोजेक्ट के लिए रक्षा मंत्रालय के सामने एक्सेप्टेंस ऑफ नेसेसिटी (AoN) का प्रपोजल भी रखेगी। इसके तहत बड़ी संख्या में

4.5 जेनेरेशन के ऐसे एयरक्राफ्ट खरीदे जाएंगे, जो हाल ही में खरीदे गए राफेल फाइटर जेट की क्षमताओं की बराबरी कर सकें।

अमेरिका, फ्रांस, रूस और स्वीडन ने दिखाई दिलचस्पी

RFI के जवाब में अमेरिका, फ्रांस, रूस और स्वीडन की फाइटर जेट निर्माता कंपनियों ने दिलचस्पी दिखाई है। अमेरिका की ओर से F-15 स्ट्राइक ईगल, F-18 सुपर हॉर्नेट और F-16 वेरिएंट को F -21 के नाम से ऑफर किया जा सकता है। रूस भारत को मिग-35 और सुखोई फाइटर जेट का ऑफर दे सकता है। वहीं, स्वीडन की साब (Saab) ग्रिपेन फाइटर जेट की पेशकश कर रहा है, यह 2007 में भारतीय वायुसेना को ऑफर किए गए एयरक्राफ्ट से ज्यादा एडवांस है। वहीं, फ्रांस राफेल विमान के साथ टेंडर में शामिल होने की तैयारी कर रहा है।

कीमत के साथ-साथ ताकत पर फोकस

हाल ही में वायुसेना प्रमुख आरकेएस भदौरिया ने राफेल को खरीदने के भी संकेत दिए थे। उन्होंने कहा था कि 114 मल्टीरोल फाइटर एयरक्राफ्ट खरीदने के प्रोजेक्ट में राफेल अहम फाइटर जेट है।

सूत्रों के मुताबिक, प्रोजेक्ट में फाइटर जेट का सिलेक्शन उसकी कीमत के साथ-साथ उसकी ताकत के आधार पर किया जाएगा। IAF का फोकस ऐसे एयरक्राफ्ट पर है, जो अगले चार दशकों तक सेना के मेनस्ट्रीम का हिस्सा रहे।

आत्मनिर्भर भारत पर भी जोर

ये 114 एयरक्राफ्ट मेड इन इंडिया होंगे और विदेशी कंपनियां इंडियन पार्टनर को सिर्फ टेक्नोलॉजी ट्रांसफर करेंगी। जिससे डिफेंस सेक्टर को आत्मनिर्भर बनाने में मदद मिलेगी। भारतीय वायुसेना ने पिछले चार साल में 119 एयरक्राफ्ट के लिए डील फाइनल की है। सितंबर 2016 में IAF ने 36 राफेल के लिए करार किया था। वहीं, 83 LCA मार्क-1ए तेजस के लिए अगले कुछ दिनों में करार हो सकता है।

https://www.bhaskar.com/national/news/indian-air-force-is-planning-to-acquire-114-combat-aircraft-expected-to-cost-over-rs-1-lakh-crore-128179233.html

INDIA TODAY

Mon, 01 Feb 2021

In a rare feat, Indian Army horse awarded Chief's commendation

A 22-year-old Indian Army horse has been awarded the Chief of Army Staff commendation by Indian Army Chief Gen MM Naravane

By Abhishek Bhalla

New Delhi: An Indian Army horse was awarded the Chief of Army Staff commendation for his stellar services being the part of the Republic Day parade for 18 consecutive years.

The commendation was given to Rio, a 22-year-old horse on Sunday at a ceremony held at the Cariappa Ground in Delhi Cantt.

Indian Army Chief Gen MM Naravane pinned the commendation medal.

Rio is the most experienced member of the Republic Day parade making an appearance for the last 18 years. He is the first horse from Indian Army's 61 Cavalry- the only functional horse regiment in the world get the award.

Rio is no stranger to the limelight and has been seen upfront year after year leading the horses as he is also the contingent commander's charger for the last 16 years.

Indian Army Chief Gen MM Naravane pinned the commendation medal on the horse. (Photo: India Today)

Usually, horses retire at 22 years of age but his alertness and sharp response have meant that he has been going strong even at this ripe age.

The 61 Cavalry is the only active serving horse cavalry regiment in the world. The Regiment was raised on August 1, 1953 with the amalgamation of six state forces.

The Regiment has won 39 Battle Honours and has a proud past of accolades in Equestrian and Polo.

The regiment has one Padma Shri, one Sarvottam Jeevan Raksha Padak, 12Arjuna Awards, six Vishisht Seva Medals, 53Chief of Army Staff Commendation, one Chief of Staff Committee Commendation, two Chief of Naval Staff Commendation, eight Vice Chief of Army Staff Commendation, eight Chief of Integrated Defence Staff Commendation and 180General Officer Commanding in Chief Commendations.

The regiment participated in the battle of Haifa in Israel in 1918 during the First World War.

The success of the regiment is celebrated as Haifa Day every year on 23 September to pay tribute to the Indian cavalry regiments of Mysore and Jodhpur, which helped liberate Haifa in 1918 defeating a combined and much bigger force of Turkish, German and Austrian forces.

During the 1965 Indo-Pak war, the 61st Cavalry was deployed in the Ganganagar sector of Rajasthan and the area of responsibility was nearly a hundred kilometres. Then, no cases of infiltration were reported.

During the 1971 war with Pakistan, it protected the Rashtrapati Bhawan.

The regiment also contributed during the Operation Pawan in 1989, Operation Rakshak in 1990, Operation Vijay in Kargil, 1999 and Operation Parakram in 2001-2002.

https://www.indiatoday.in/india/story/indian-army-horse-awarded-chief-s-commendation-1764442-2021-01-31

नवभारत टाइम्स

Mon, 01 Feb 2021

सेना के अनुभवी घोड़े 'रियो' को मिला सबसे बड़ा सम्मान, आर्मी चीफ ने गाजर और गुड़ खिलाकर बढ़ाया हौसला

रियो इंडियन आर्मी का पहला ऐसा घोड़ा बन गया जिसे यह सम्मान मिला है। रियो इंडियन आर्मी की 61 कैवलरी में है जो दुनिया की अकेली फंक्शनल हॉर्स रेजिमेंट है। रियो जब चार साल का था तब पहली बार गणतंत्र दिवस परेड में हिस्सा लिया था। पिछले 16 सालों से रियो लगातार दस्ते के कमांडर का चार्जर रहा है यानि कमांडर रियो पर सवार होकर दस्ते की अगुवाई करते हैं।

पूनम पाण्डे

नई दिल्ली: इंडियन आर्मी के 61-कैवलरी के घोड़े रियो को चीफ ऑफ आर्मी स्टाफ कमंडेशन मिला है। रियो को उसकी सेवाओं के लिए यह सम्मान दिया गया। इस बार गणतंत्र दिवस परेड में जब रियो शामिल हुआ तो ये रियो की 18वीं गणतंत्र दिवस परेड थी। दिल्ली के करियप्पा परेड ग्राउंड में इंडियन आर्मी के चीफ जनरल एम एम नरवणे ने रियो को सम्मानित किया। कमंडेशन कार्ड के साथ आर्मी चीफ ने रियो को गाजर और गुड़ भी दिया।

रियो इंडियन आर्मी का पहला ऐसा घोड़ा बन गया जिसे यह सम्मान मिला है। रियो इंडियन आर्मी की 61 कैवलरी में है जो दुनिया की अकेली फंक्शनल हॉर्स रेजिमेंट है। रियो जब चार साल का था तब पहली बार गणतंत्र दिवस परेड में हिस्सा लिया था। पिछले 16 सालों से रियो लगातार दस्ते के कमांडर का चार्जर रहा है यानि कमांडर रियो पर सवार होकर दस्ते की अगुवाई करते हैं।

61 कैवलरी के एक अधिकारी ने कहा कि रियो बहुत खास है। जब कमांडर कोई कमांड देता है तो रियो ध्यान से सुनकर उसे फॉलो करता है। आम तौर पर हॉर्स रेजिमेंट से घोड़े 20 साल की उम्र में रिटायर हो जाते हैं, लेकिन रियो 22 साल का है और अब भी अपनी सेवाएं दे रहा है। इंडियन आर्मी में 61 कैवलरी 1 अगस्त 1953 में बनी थी। तब छह राज्यों की फोर्स को मिलाकर इसे बनाया गया था। अभी यह इंडियन आर्मी की ही नहीं दुनिया की अकेली सर्विंग हॉर्स रेजिमेंट है।

1965 में भारत पाकिस्तान युद्ध में 61 कैवलरी को राजस्थान के गंगानगर सेक्टर में तैनात किया गया था। रेजिमेंट के पास 100 किलोमीटर से ज्यादा एरिया की जिम्मेदारी थी। वहां से एक भी घुसपैठ नहीं हुई। 1971 युद्ध के दौरान रेजिमेंट की जिम्मेदारी राष्ट्रपति भवन सुरक्षा की थी। 61 कैवलरी रेजिमेंट ने 1989 में ऑपरेशन पवन, 1990 में ऑपरेशन रक्षक, 1999 में करगिल युद्ध और 2001-2002 में ऑपरेशन पराक्रम में भी योगदान दिया।

https://navbharattimes.indiatimes.com/india/indian-army-horse-has-been-awarded-the-chief-of-army-staff-commendation-by-indian-army/articleshow/80615139.cms

THE HINDU

Mon, 01 Feb 2021

Coast Guard courageously ensuring our seas are safe: PM Modi

The maritime law enforcement agency is celebrating its 45th Raising Day

New Delhi: Prime Minister Narendra Modi on Monday greeted the Indian Coast Guard on its foundation day, saying it was courageously ensuring the country's seas were safe.

The maritime law enforcement agency is celebrating its 45th Raising Day.

From a modest beginning with just seven surface platforms in 1978, the Coast Guard has grown into a formidable force with 156 ships and 62 aircraft in its inventory, and is likely to achieve targeted force levels of 200 surface platforms and 80 aircraft by 2025.

Prime Minister Narendra Modi. File photo | Photo Credit: PTI

"On the Foundation Day of the Indian Coast Guard, my greetings to all their personnel and their families," Mr. Modi said. "Our Coast Guard is courageously ensuring our seas are safe. We are proud of their professionalism and impeccable service."

https://www.thehindu.com/news/national/coast-guard-courageously-ensuring-our-seas-are-safe-pm-modi/article33713877.ece

THE ECONOMIC TIMES

Mon, 01 Feb 2021

In a first, Tata to build military aircraft in India as it acquires IP rights

By Manu Pubby

Synopsis

The high-altitude, twin-engine aircraft, capable of playing multiple roles from signal intelligence to cross-border surveillance, is currently in the final stages of testing in Germany. It is likely to arrive in India in the next three months for further integration.

In a first for the industry, the Tata Group will develop and manufacture a military aircraft in India, having acquired intellectual property rights for a German-origin platform. The plan, ET has reliably learnt, is to integrate indigenous sensors and payloads to convert it into an intelligence gathering asset.

The high-altitude, twin-engine aircraft, capable of playing multiple roles from signal intelligence to cross-border surveillance, is currently in the final stages of testing in Germany. It is likely to arrive in India in the next three months for further integration.

This would be the first time that an Indian private entity is looking at making a full military-grade aircraft, which until now has been the domain of the state-owned HAL.

This would be the first time that an Indian private entity is looking at making a full military-grade aircraft, which until now has been the domain of the state-owned Hindustan Aeronautics NSE 1.28 % (HAL).

Tata Advanced Systems (TASL) will showcase the capabilities of the aircraft at the AeroIndia in Bengaluru next

week. Though the company has not shared details of the design, the aircraft is likely to be based on the Grob G 180 SPn – a German-made jet that never reached serial production due to financial strains.

TASL is yet to get any firm orders for the aircraft in India, but top executives say the investment has been done keeping in mind future requirements of the armed forces. A manufacturing plant will be set up for serial production in the future, they added.

The company sources said the aircraft it is developing is designed for flying at 41,000 feet altitude with a maximum altitude of 45,000 feet and can be used for intelligence gathering, surveillance and reconnaissance (ISR) purposes. It is designed to land on grass and gravel. The low-wing, twin-engine composite aircraft is expected to have a range of 1800 nautical miles and 6-7 hours endurance with a payload capacity in excess of 1,000 kg.

"We are now focusing on modifying the aircraft to fit special payloads so that it can undertake a demonstration of surveillance capabilities. For a country like India, with multiple mountain ranges spread across the country, including on international borders, this capacity is extremely vital. India has been dependent on foreign suppliers to meet this need," said Sukaran Singh, MD of TASL.

He added that acquiring such technology will enable India to modify and fit any payloads it wants within the country, reducing dependence on foreign suppliers. "With TASL bringing this aircraft technology to the table, India will have a cutting edge air-borne surveillance platform, with control over the software, customisation as well as maintenance, based within the country," he said.

The need for effective border surveillance has been a focus after recent tensions with China in Ladakh.

https://economictimes.indiatimes.com/news/defence/in-a-first-tata-to-build-military-aircraft-in-india-as-it-acquires-ip-rights/articleshow/80620506.cms

FINANCIAL EXPRESS
Read to Lead

Mon, 01 Feb 2021

South-South Cooperation: Top military officials from Brazil head to Aero-India

By Huma Siddiqui

A high level military delegation from the South American nation Brazil is heading to India for the 13th edition of the Aero-India 2021, next month in Bengaluru. The delegation is led by Major Brigadeiro do Ar Alcides Teixeira BARBACOVI (Equivalent to Air Marshal / 3 star rank), Director, Department of Defence Products, Ministry of Defence (MoD), Brazil. And, he is being accompanied by two officials from the MoD, Brazil: Col (Retd) Carlos COELHO, Coordinator of Department of Trade Promotion, and Major Marcus Vinícius Dornellas FACHINI, Assistant to Director, Department of Defence Products.

Why is the visit important?

Because, in the Plan of Action of Brazil's partnership with India, both security and defence are the central components. The two countries are complementary in this area, says top diplomats of India and Brazil.

Financial Express Online has reported earlier, about the Plan of Action for the Brazil-India strategic partnership, which was signed in 2020, when the Brazilian President Bolsonaro visited India as the chief guest at the Republic Day Parade.

Both countries enjoy a multifaceted relationship and are cooperating both bilaterally and multilaterally at various international foras including the United Nations, G20, International Solar Alliance (ISA) and BRICS (Brazil, Russia, India, China & South Africa), IBSA (India, Brazil & South Africa).

Brazil has earlier expressed interest in participating in joint ventures especially in the defence sector. Why? According to top officials of Brazil, "With such a collaboration between the defence industries in both India and Brazil, the potential to reach the world is huge."

In an earlier interaction, Indian envoy to Brazil, Suresh K Reddy, mentioned the "Triple-Helix" approach.

What is Triple-Helix? It is an approach which is being followed in Brazil and which is focused on innovation, R&D for all the three services — Army, Navy and Air Force.

According to the Indian envoy, there is plenty of scope for the Indian industries in the divisional market for not only joint ventures but for technological partnerships.

How many Indian defence companies are present in Brazil?

Only one. So far only there is only one Indian company from the Defence sector present in Brazil and it is the UP based MKU Company.

Company officials told Financial Express Online that the company has been in Brazil for some years now. So far several defence contracts have been executed by MKU and these include contracts with Federal police, Military Police & Army.

Recently, they won a contract of supplying 14,500 pieces of vest for Policia Militar do Estado de Sao Paulo, and Brazilian Army commission Night vision monocular.

Joint ventures between Indian & Brazilian Companies

As reported earlier, Companhia Brasileira de Cartuchos (CBC) Brazil, the world's second-largest ammunition manufacturer, and Stumpp Schuele & Somappa India (SSS Defence) are going to start production of ammunition in Andhra Pradesh later this year. The joint venture was formed between the two companies last January. And after fulfilling the Indian requirements will be exporting to other countries.

The Brazilian company has plans to manufacture ammunition for different calibres like : 9 mm, 7.62×39 mm,7.62×51 mm, .338 Lapua and 12.7 mm.

There is another Brazilian company Taurus Armas S.A., which has tied up with Jindal Defence. The venture was formed last year and will manufacture small arms.

Sign of close friendship between India and Brazil

It happened for the first time ever that the Brazil President Jair Bolsanaro attended Republic Day celebrations organized by the Indian embassy in the national capital Brasília.

He called India a "brotherly nation".

What is the protocol?

The Presidents and Prime Ministers especially of big countries do not attend the national day events which are organized by the embassies.

The Brazilian President recalled India's assistance during the COVID-19 pandemic when it had sent HCQ and Paracetamol last year. And, earlier this month India fulfilled its commitment and expedited the export of COVID vaccine.

According to the Indian envoy to Brazil, Suresh Reddy "There was not just President Bolsonaro but the entire cabinet of the government was present there."

The foreign minister Ernesto Araujo, economy minister Paulo Guedes, minister for energy, mines & petroleum, and others were present.

Most importantly during the celebrations at the Indian Embassy, senior defence personnel were present too—a sign of increasing engagement at a strategic level. According to the Indian envoy the chief of naval forces, joint Chief of staff were also present.

Export possibilities in South America

A lot of countries in South America are looking at modernizing their military/police forces, and there are opportunities for Indian companies to explore in the region.

What is India planning to export?

Military communications C4I solutions; Artillery systems, protected vehicles, electronic warfare, naval combat management system, small arms, night vision devices, and other related military equipment.

Indo-Russian BrahMos Missiles a major attraction

Top officials from India and Brazil have been in discussion for the BrahMos-NG (New Generation) version of the short-range ramjet supersonic cruise missile.

https://www.financialexpress.com/defence/south-south-cooperation-top-military-officials-from-brazil-head-to-aero-india/2183034/

THE NEW INDIAN EXPRESS

Mon, 01 Feb 2021

Look at Musk! Think crazy, don't bother about failures: ISRO Chief

Talking about the success of India's space programme, Sivan mentioned, "I can say with great confidence that India's (space) programme is built on spectacular failures

Bengaluru: Encouraging students to aim for the stars, ISRO Chairman K Sivan said, "I learnt a valuable lesson — life and career are not about making the best choices, but about making the best of the opportunities available to you."

ISRO Chairman K Sivan at the 55th annual convocation of Bangalore University

Speaking at the 55th annual convocation ceremony of Bangalore University on Saturday, Sivan said, "I also understood that when something is denied to you, something bigger is waiting for you." He told students to shoot for the moon and if they miss, they would land among the stars.

Narrating anecdotes from his life, he said, "I never got what my first choice was — be it Engineering (he ended up studying BSc - Mathematics first), or wanting to join ISRO's Satellite Centre at URSC, Bengaluru, but ending up at the Vikram Sarabhai Space Centre." There too, he said, he wanted to join the Aerodynamics Group, but ended up in the PSLV project.

Talking about the success of India's space programme, Sivan mentioned, "I can say with great confidence that India's (space) programme is built on spectacular failures. Each failure has resulted in improvements in our system."

"I was working on a conventional system, but my guide said always think wildly," he further said, adding that the technological and scientific breakthroughs originate from crazy ideas. "How did Elon Musk become famous? Because of his crazy ideas. Please don't bother about failures, think crazy," he reiterated.

'Green propulsion the way forward'

ISRO is developing green propulsion for the human space flight mission, said ISRO Chairman K Sivan. He added that all propulsion stages may adopt this system going forward. He also stated that the space agency has carried out technology transfer of space-grade lithium-ion batteries to the industry. "This technology is useful for mass adoption of electric vehicles, without remaining perpetually dependent on foreign sources," he said.

https://www.newindianexpress.com/cities/bengaluru/2021/feb/01/look-at-musk-think-crazy-dont-bother-about-failures-isro-chief-2257765.html

mint

Mon, 01 Feb 2021

Scientists decode how coronavirus damages lung cells within hours

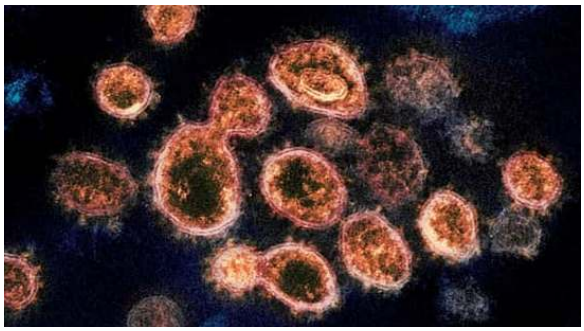
- ***In the research, published in the journal Molecular Cell, the scientists simultaneously infected tens of thousands of lab-grown human lung cells with the SARS-CoV-2 virus, and tracked what happens in these cells during the moments after infection***

Boston: Following months of interdisciplinary research assessing tens of thousands of lung cells infected with the novel coronavirus, scientists have created one of the most comprehensive maps to date of the molecular activities that are triggered inside these cells at the onset of the viral infection, an advance that may lead to the development of new drugs to combat COVID-19.

From their analysis, the scientists, including those from Boston University in the US, discovered close to 18 existing drugs approved by the US Food and Drug Administration (FDA) that could potentially be repurposed to combat COVID-19 soon after a person becomes infected.

They said five of these drugs could reduce the spread of the coronavirus in human lung cells by more than 90 per cent.

In the research, published in the journal Molecular Cell, the scientists simultaneously infected tens of thousands of lab-grown human lung cells with the SARS-CoV-2 virus, and tracked what happens in these cells during the moments after infection.



FILE - This 2020 electron microscope image provided by the National Institute of Allergy and Infectious Diseases - Rocky Mountain Laboratories shows SARS-CoV-2 virus particles which cause COVID-19. (AP)

They said these engineered cells are not completely identical to the living, breathing cells inside our bodies, but are the "closest thing to it."

"What makes this research unusual is that we looked at very early time points [of infection], at just one hour after the virus infects lung cells. It was scary to see that the virus already starts to damage the cells so early during infection," said study co-author and virologist Elke Muhlberger from Boston University (BU).

According to the researchers, "the virus does wholesale remodeling of the lung cells."

"It's amazing the degree to which the virus commandeers the cells it infects," said Andrew Emili, another co-author of the study from BU.

Since viruses cannot replicate themselves, they hijack the host cell machinery to make copies of its genetic material.

In the study, the scientists found that when SARS-CoV-2 takes over, it completely changes the cells' metabolic processes.

The virus even damages the cells' nuclear membranes within three to six hours after infection, which the team said was very surprising.

In contrast, "cells infected with the deadly Ebola virus don't show any obvious structural changes at these early time points of infection, and even at late stages of infection, the nuclear membrane is still intact," Muhlberger said.

The scientists explained that the cell's nuclear membrane surrounds the nucleus, which holds the majority of the genetic information, and controls and regulates normal cellular functions.

With the nucleus compromised by the coronavirus, they said "things rapidly take a bad turn for the entire cell."

The lung cells -- which normally play a role in maintaining the essential gas exchange of oxygen and carbon dioxide that occurs when we breathe -- die under this siege, the study noted.

According to the researchers, the cells also emit distress signals which boost inflammation as they die, triggering a cascade of biological activity that accelerates more cell death.

This eventually leads to pneumonia, acute respiratory distress, and lung failure, they explained.

"I couldn't have predicted a lot of these pathways, most of them were news to me. That's why our [experimental] model is so valuable," said Andrew Wilson, one of the study's senior authors.

https://www.livemint.com/science/health/scientists-decode-how-coronavirus-damages-lung-cells-within-hours-11612090994851.html