

‘Tejas’ is the best example of the catchphrase ‘Made in India’

Dr S. Christopher, secretary, department of defence R&D, MoD, New Delhi, says that homegrown fighter jet “Tejas” is not only combat-ready, but future-ready. In an interview to **B.R. Srikanth**, Dr Christopher attributes the cost and time overruns to indigenous development of several cutting-edge technologies, the role of one too many inspection and certification agencies, and an unrealistic delivery schedule set by the Defence Research and Development Organisation. Excerpts:

What is the significance of commissioning of the first squadron of “Tejas” combat jets by the IAF?

We are very happy that our aircraft has been accepted by the IAF, and this gives us the confidence and encouragement to design more modern aircraft. It (“Tejas”) is not only combat-ready, but future-ready. The IAF is happy because we have told them that it will match parameters of initial operational clearance (IOC). We will work with pilots of the Air Force to improve the capabilities of this aircraft further based on their feedback. The active electronically scanned array (AESA) radar is being developed by Electronics and Radar Development Establishment (LRDE), Bengaluru, and the beyond visual range (BVR) missile will be integrated without further delay because the aircraft has been configured for this missile. We are happy as the efforts of my predecessors, beginning with Dr V.S. Arunachalam, have been recognised by top leaders and we will continue to do our best for the IAF. “Tejas” is the best example of the catchphrase design in India and “Made in India”.

But the project has missed many deadlines. “Tejas” ought to have been delivered to the IAF earlier?

Of course, we own responsibility for the delay, but first, we inadvertently promised an early delivery date without realising that we had to develop technologies and design the fighter simultaneously. We also had to get approvals from one too many inspection and certification agencies, but in reality it took us 23 years from the time the project was formally approved in 1993, and it is on par with the time taken for design and development across the world. Even in the case of advanced version of airborne warning and control system (AWACS) of the US, there were delays. In the case of our airborne early warning (AEW), for which we acquired Embraer aircraft from Brazil, the agency within the aerospace company issues a certificate for the first flight, but in our country we have to wait for inspection and approval from many agencies before we fly the first sortie. So going forward we will ensure that we do not repeat these mistakes and also adopt the model in vogue now across the world to constantly update and make changes to the aircraft required by the IAF so that the jet is future ready. Nobody, however, acknowledges that we took only nine years to design and fly the naval variant of “Tejas”. For the next project, we will have the technology ready and then design the aircraft.

Was IAF chief Air Chief Marshal Arup Raha’s decision to test fly “Tejas” a turning point in formation of the first squadron?

Yes, two deputy chiefs of the IAF had flown “Tejas” earlier, but after Air Chief Marshal Raha flew and made a very positive statement about the feel and capabilities, the Air Force decided it was time to commission the

first squadron. So, his flight was certainly the turning point. The credit must go to defence minister Manohar Parrikar who has been giving us advice and care, which proved an enormous push to formation of the squadron.

Will it be possible to meet all combat parameters set by the IAF and deliver the remaining jets on time?

The IAF will demand the best, and we will meet the challenge in terms of modern technology and systems. Besides, Hindustan Aeronautics Ltd (HAL) is ready to source big systems rather than components from private industries to meet the delivery schedule and later set up an additional production line to match the orders of the IAF. We will complete modifications for air-to-air refuelling, improve the accuracy of weapons, and firing of guns and missiles to meet the requirements set for final operational clearance (FOC) by March 2017.

With the lessons learnt so far and the confidence gained in the “Tejas” project, will the DRDO design another combat aircraft?

Yes, we are not going to rest on our laurels. The Advanced Medium Combat Aircraft (AMCA) will be our next mission. The defence minister has approved it in principle. A twin-engine fighter jet with stealth technology but slightly lesser in weight than the US F-35, AMCA will be designed and manufactured for use after 2020. We have already carried out an analysis on the gap in technologies so that we do not end up repeating the mistakes committed while working on “Tejas”, and also have a clear idea of how our industries could provide advanced systems, subassemblies and components. The IAF has to take a call on whether the engines should be developed here for AMCA or import ones which meet the requirements for this advanced combat aircraft. Meanwhile, discussions are also on with potential collaborators for design and manufacture of these engines in the country.

33 years in making: What took Tejas fighters so long to fly?

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NEW DELHI: The first squadron of the Indian Air Force's light combat aircraft (LCA) took flight on Friday morning. However, getting the two Tejas fighters in the air was a long, three-decade journey plagued with multiple problems.

The project was sanctioned in 1983 as a replacement for the Soviet-origin MiG-21 fleet. However, the Indian Air Force (IAF)'s plan to get the indigenous warplanes airborne in 1994 missed several deadlines due to various factors. The failure to build an engine indigenously was one of them, leading to a domino effect of delays.

Over a third of the components used in Tejas, including the current American-built engines, are imported. Sanctions imposed by the US after India conducted nuclear tests in 1998 nearly brought the project to a halt for it cut off access to certain imported technologies.

In an interview in 2013, VK Saraswat, then director general of Defence Research and Development

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Organisation (DRDO), said the sanctions pushed the development back by over two decades. "All suppliers cancelled their agreements and European firms also stopped cooperation. When such a situation occurred, we had to do everything ourselves. This was a major setback," Saraswat said.

"This situation continued from 1980 till 2000 when the first aircraft was rolled out. Time was taken to also overcome the blocks created by Missile Technology Control Regime (MTCR)." India became a member of the MTCR only this week.

The sanctions led to key design changes and a further delay in setting up production facilities which, according to the DRDO, had to cre-

ate components "from scratch".

The deadline stretched further with the Air headquarters involving itself in the project only in 2006, five years after the LCA's first test flight. The longer it took, the more expensive the project became. Initially greenlit at a cost of ₹560 crore, the development cost of the fighter stood at ₹13,390 crore last year.

A 2015 report by the Comptroller and Auditor General revealed the delay set the IAF back by more than ₹20,000 crore as it had to spend on temporary measures such as upgrading its existing warplanes. It also revealed Tejas was riddled with 53 "significant shortfalls" that could compromise its survival in combat. Fixing deficiencies in the limited series meant more time. "The delay upset our calculations but raising of the LCA squadron is significant for IAF. We do not have adequate number of fighter squadrons and Tejas will help address that to some degree," said an IAF officer. With this week's induction, IAF's 45 Squadron, also known as Flying Daggers, has been resurrected.