

# Youngsters can power India into a defence technology leader: Dr Satheesh Reddy

By Anantha Krishnan M

Lucknow: The Defence Research and Development Organisation (DRDO) has been under increased spotlight and scrutiny in the last few years, with the current government demanding an increased pace of self reliance. DRDO Chairman Dr Gundra Satheesh Reddy, who took charge of DRDO in August 2018, reveals DRDO's new line of thought and focus areas. Excerpts from an exclusive interview with Onmanorama on the sidelines of Defence Expo.

## DefExpo 2020

We had around 40 labs displaying more than 500 systems at DefExpo2020 making it the largest ever participation by a single organisation in any expo held in India. Our focus was to showcase our capabilities and matured systems along with the industries. We are committed to the vision of the government which has given defence export mandate of \$5 billion in the next five years. We have taken several steps to reduce the import content in defence manufacturing by looking at various means to boost the indigenous contribution.



At DefExpo, we have handed over 15 transfer of technology (ToT) licenses to 17 industries in the areas of electronics, laser technology, sensors, combat vehicles, armaments, life sciences, aeronautics, materials science and naval systems. We are focused on enhancing self-reliance and operational capabilities of our Services. As a result, there will be new collaborations in R&D for futuristic systems so that India becomes a net exporter in the next five to 10 years.

## AI, Space, Cyber

DRDO has taken great strides in the areas of space, cyber, artificial intelligence (AI) and related technologies. With space and cyber being the fourth and fifth dimensions of warfare, DRDO has taken big steps in these directions. Work on AI has been taken up specifically by two labs.

In the coming years, I believe every weapon and equipment will be driven by AI. We need to put lot of young talent to meet the challenges. A road map on AI will be in place.

There is a dearth of young talent in DRDO. It is one thing we need to work on. We are seriously looking at a mechanism how young talent can be taken in large numbers. I feel youngsters can contribute a lot on cyber technology. We have already started work on this area.

On the space front, we have already demonstrated ASAT capabilities. We are not going to weaponise space, but we also want to ensure that our space is secure.

## Road Ahead

Our road map for next five years is very clear. We are working on LCA MK-2, AMCA and Naval LCA. We are strong in the areas of missiles, radars, torpedoes, electronic warfare systems and sonars. In these areas we want to have complete self-reliance.

Meanwhile, we are looking at the areas of concern and are taking the help of academic institutions. We want to bring industries to the level of build-to-specification, so that we can offload production to them and concentrate on design and development of large systems. The synergy between DRDO, academia and industry is the key.

## **Young Scientists**

We have recently created five DRDO Young Scientist Laboratories (DYSLs) in Bengaluru, Mumbai, Chennai, Kolkata and Hyderabad. These labs are working on advanced technology areas such as AI, quantum technologies, cognitive technologies, asymmetric technologies and smart materials.

All scientists working here are below 35 years including the Director, who has the same powers as any other DRDO lab director. We are keen to have a vibrant environment in these labs.

In the next one year, they will be able to come up with substantial state-of-the-art technologies of value to defence applications.

## **Missile Matters**

In the last one year we saw multiple success on the missile front. Various trials of Astra, quick reaction surface to air missile (QRSAM), Nag and Pinaka were successfully completed.

This year the user trials of HELINA missile and man portable anti tank guided missile (MPATGM) will be completed. Development trials of new generation anti radiation missile (NGARM) will be taken up this year. We are also working on Astra Mk-2 long range air-to-air missile. There are several other missiles that are in the pipeline.

On the weapons front, we have developed the Advanced Towed Artillery Gun System (ATAGS) in collaboration with Tatas and Bharat Forge. This year the system will undergo user trials. We are also developing the Joint Venture Protective Carbine (JVPC) and smart anti-airfield weapon (SAAW) bomb.

I am confident that SAAW will complete its trials this year and enter into production. There are many other weapons also being developed simultaneously.

## **Delays & Deadlocks**

We are addressing this issue where ever we are encountering delays. We are getting into the depth of the matter to trace the cause of delays.

But, I must tell you that multiple changes are happening in DRDO and speed is the new mantra. We have become very aggressive with our time frames. Development trials of QRSAM, guided Pinaka missile and SAAW also have been completed. These are all completed as per exacting global standards and tight schedules.

We have laid down an aggressive schedule for LCA Mk-II (MWF: Medium Weight Fighter) and Advanced Medium Combat Aircraft (AMCA). I am sure of developing these systems in a record time.

Everyone is motivated in DRDO today, especially the youngsters. Youngsters are coming with many new ideas in the area of defence technologies. Many youngsters are doing wonders in these areas, even outside DRDO. My advice to youngsters is that whether you work with DRDO or any private industry in India, work to develop globally best in class systems. Let's prove that India is not only good at Internet and communications technology (ICT) areas alone, but in the field of defence technology as well.

<https://english.manoramaonline.com/news/nation/2020/02/14/youngsters-india-defence-technology-satheessh-reddy.html>

# HAL to provide IAF with 83 Tejas fighters in Rs 39k cr deal

By Rajat Pandit

New Delhi: The biggest deal in the indigenous military aviation sector has been finalised, with the overall cost of IAF acquiring 83 single-engine Tejas fighters and their support package from defence PSU Hindustan Aeronautics Limited (HAL) being slashed from the earlier around Rs 56,500 crore to Rs 39,000 crore.

## THE DELAYED DESI FIGHTER

**TIMELINE:**

**Aug 1983:** Govt approves LCA project, with initial Rs 560 crore, to replace ageing MiG-21s

**Jan 2001:** First prototype flies

**Dec 2013:** Single-engine Tejas gets Initial Operational Clearance (IOC)

**Jan 2015:** IAF gets 1st jet (in IOC configuration)

**July 2016:** IAF raises first squadron (Flying Daggers) with only 2 jets

**Feb 2019:** Tejas gets final operational clearance (FOC)

**Feb 2020:** Only 16 jets (IOC) inducted by IAF till now (trainers yet to get FOC)



**TOTAL COST: OVER ₹65,000 CRORE TILL NOW**

Development of IAF/Naval variants, trainers & failed Kaveri engine: <b>₹17,269cr</b>	March 2006 contract for 20 Tejas for IAF in IOC configuration: <b>₹2,813cr</b>
Dec 2010 contract for 20 Tejas for IAF in FOC configuration: <b>₹5,989cr</b>	Impending contract for 83 Mark-1A Tejas for IAF: <b>₹39,000cr</b>

**FUTURE PLANS**

- Delivery of 83 Tejas Mark-1A jets to begin 3 years after contract inked. Total of 123 Mark-1 & Mark-1A jets
- Development of Tejas Mark-II or Medium Weight Fighter (MWF), with more powerful engines & advanced avionics. First test-flight planned for 2023. IAF wants 170 of them
- Get sanction this year to develop stealth fifth-generation fighter aircraft, the advanced medium combat aircraft (AMCA). First test-flight by 2025-2026. IAF wants at least 126 (seven squadrons) of them

The over Rs 17,000 crore reduction in overall cost has come after hardnosed negotiations spread over a year. The defence ministry and IAF were initially shocked at the “exorbitant price” being

demanding by HAL to produce the 83 Tejas Mark-1A jets along with the maintenance and infrastructure package.

“With the contract price now settled at Rs 39,000 crore, the procurement file is being sent to the Cabinet Committee on Security for final nod. It should be cleared before this fiscal ends on March 31. Once the contract is inked, HAL promises to begin deliveries of the Mark-1A jets in three years,” said a source.

It was in November 2016 that the Defence Acquisitions Council had first approved the procurement of 83 Tejas jets at a cost of Rs 49,797 crore. But HAL had responded with a quote of around Rs 56,500 crore, which led to protracted cost negotiations. “HAL, for instance, was even charging profit on imported components. Item by item, the cost was brought down. IAF also cut down some of its support requirements,” said the source.

Down to just 30 fighter squadrons (each has 18 jets) when at least 42 are required for the requisite deterrence against Pakistan and China, the IAF is banking upon the long-delayed light combat aircraft Tejas to make up the free fall in numbers.

The first four Rafale fighters will touch down at Ambala airbase in May, with the remaining 32 following in batches by April 2022 under the Rs 59,000 crore deal inked with France in September 2016. But the slow production rate of the home-grown Tejas fighters by HAL, much like its protracted development saga, remains a major concern for IAF.

The IAF’s ‘Flying Daggers’ squadron at Sullur has till now inducted only 16 of the original 40 Tejas Mark-1 fighters, which were all slated for delivery by December 2016 under two contracts worth Rs 8,802 crore inked earlier.

The 83 Tejas Mark-1A fighters are slated to have 43 “improvements” over the Mark-1 jets to improve maintainability, AESA (active electronically scanned array) radar to replace existing mechanically-steered radar, air-to-air refuelling, long-range BVR (beyond visual range) missiles and advanced electronic warfare to jam enemy radars and missiles.

“The flight testing for Tejas Mark-1A will hopefully be completed by 2022. After these 123 fighters, the IAF is also looking to induct 170 Tejas Mark-2 or the MWF (medium weight fighter) jets with more powerful engines and advanced avionics,” another source said.

But the Tejas Mark-2 and the indigenous stealth fifth-generation fighter aircraft called the advanced medium combat aircraft (AMCA) will take several years to fructify. For now, IAF is keeping its fingers crossed the Tejas Mark-1A does not get delayed any further.

<https://timesofindia.indiatimes.com/india/hal-to-provide-iaf-with-83-tejas-fighters-in-rs-39k-cr-deal/articleshow/74166367.cms>