

# As Tejas Inches Towards Final Clearance, DRDO Chairman Explains Why the Fighter Jet Programme Was Delayed

By Sudhi Ranjan Sen

In an exclusive interview to India Today, Dr S Christopher, chairman of Defence Research and Development Organisation (DRDO) clarified that it would be wrong to say that the Tejas Light Combat Aircraft (LCA) was made in a span of three decades. He explained that that it was only in 1998 that the government decided to go for full-scale production of Tejas and allocated money for it. Crossing yet another milestone last week, Tejas, for the second time, fired an Israeli Derby Air-to-Air Beyond Visual Range (BVR) missile successfully. The Tejas is now a step closer to getting its final operational clearance (FOC) from India's Aeronautical Development Agency (ADA).

## US sanctions hurt india

Accepting that the Tejas LCA could have been rolled out much earlier, Dr Christopher said that

"sanctions imposed on India" that denied India access to technology after the atomic test in 1998 "affected the development of the fighter." Soon after the 1998 explosions the United States imposed sanctions on India. Referred as the Glenn Amendment to the Nuclear Non-proliferation Act of 1994, as many as 200 Indian organisations like the DRDO and Defence Public Sector companies like Hindustan Aeronautics Limited (HAL) and Bharat Earth Movers were bludgeoned with sanctions.



## Indian air force too responsible

Dr S Christopher also held the Indian Air force responsible for the delay in making Tejas. Changing specifications mid-way through the design and development process or changing requirements "led to delays," he said. The DRDO chairman added that specifications regarding the engine of the Tejas couldn't be finalised for a long time because of the constantly changing requirements. The AMCA (Advanced Medium Combat Aircraft), however, will roll out much faster than the Tejas. "Learning from past experiences, critical aspects of the Advanced Medium Combat Aircraft (AMCA), a stealth multirole fighter jet being developed by DRDO and Hindustan Aeronautics Limited (HAL), have been frozen," Dr Christopher said. Comparing India's prowess to make world-class missiles against its poor record to design and develop other complex defence machines, Dr Christopher said, "When technology is denied, one has to accept what is available to one."

## Competition helps

Indian warship building benefitted from competition. Unlike in making fighters where the country had to rely on HAL, shipyards competed to get orders, which fostered the process of design and development. The Indian Navy has moved from being a buyers' Navy to a builders' Navy for about a decade now, almost all Indian warships are made in Indian shipyards. When we were developing the fighter "we had to put all eggs in one basket," whereas there were several contenders in the force for making warships, Dr Christopher said.

<https://www.indiatoday.in/india/story/as-tejas-inches-towards-final-clearance-drdo-chairman-explains-why-the-fighter-jet-programme-was-delayed-1222844-2018-04-29>

## VACB chief's book dumps India's intellectual acumen

DGP Nirmal Chandra Asthana, in his book 'The Dumbing down of India' published last month, has come up with arguments that there is nothing that can be cited as a creation of the country's intellectual effort. Asthana, who is currently the vigilance director of the state, has made scathing criticism of country's premier research and educational organizations like the Defence Research and Development Organization (DRDO) and the IITs, the manufacturing as well as IT sector, the military and the coveted civil service. He has said that despite getting 6% of the defence budget (that comes to Rs 14,819 crore in 2017), the DRDO that has 5,000 scientists in 52 laboratories, has failed to return anything significant, except some stuff of low technology. The book cites the indigenous and ambitious projects of the DRDO like the Tejas light combat aircraft, the Kaveri engine being developed for the aircraft and the Arjun tank, to substantiate his point that the DRDO has failed to come up with a fool-proof product despite the years these projects have been going on.

The book claims that the Army's present demand for a multi-calibre assault rifle is an outrageous one, and an Army that does not know that personal weapons of soldiers play hardly any role in the battlefield can only be pitied. Finding that the Isro, which still imports its critical components from other countries, the book compares the ambitious research on country's nuclear-powered submarine with the 'infinite monkey theorem'. The book further rips into the IITs and says that these institutions have been a 'farce' and the country's technocrats are nothing but techno-coolies who are just cheap programmers. He also does not spare his colleagues. "Intellectual contribution of this crème de la crème has been pathetically insignificant and the basic job of civil servants is to lick above and kick below," the book said. Creative intellect lies in creating laws, he said, claiming that in the 163-years history of civil service, he is the only person who drafted a law the Kerala Police Act 2011.

The book goes on to criticise the media in the end, accusing it for being intellectually bankrupt and adding that it thrives because the people deserve only stuff of low standard. However, he claims that whatever discussed in the book are his personal opinions, and there is no criticism of policies of the Centre or state government or anything that is intended to harm the relations between the country and other foreign states. His predecessor in vigilance, DGP Jacob Thomas, is currently under suspension for his book that has criticised government decisions and had remarks about some of the cases that are sub-judice.

<https://timesofindia.indiatimes.com/city/thiruvananthapuram/vacb-chiefs-book-dumps-indias-intellectual-acumen/articleshow/63979049.cms>



## Meet V Balamurugan, Arjun battle tank veteran, who will head combat vehicles unit

*Balamurugan, who joined CVRDE under the Defence Research and Development Organisation on December 11 1987, has handled a number of successful projects.*

V Balamurugan, a senior scientist with Combat Vehicles Research and Development Establishment unit here, with hands on experience in key projects like the Arujn Main Battle Tank, today took over as its director. Balamurugan, who joined CVRDE under the Defence Research and Development Organisation on December 11 1987, has handled a number of successful projects. These include the Arjun Main Battle Tank Mark-I and Arjun Main Battle Mark-II, a defence release said here. "He has successfully conducted many DRDO and user trails at Rajasthan deserts and played a vital role in transferring the technology of Arjun MBT to stakeholders, including the Heavy Vehicles Factory."

Before his elevation, Balamurugan was the Arjun MBT Mk II project leader and additional director in CVRDE. He had also headed various teams, including the project management group, quality assurance, and

transfer of technology, the release said. Consequent to the superannuation of the outgoing director P Sivakumar, Balamurugan, a Scientist 'G' grade official, took charge. He completed his graduation in mechanical engineering from College of Engineering, Anna University, in 1984 with distinction. He did his post-graduation in Industrial Metallurgy in IIT-Madras in 1987. He holds an MBA degree in Technology Management from Bharathidasan Institute of Management, Trichy as well, the release said.

<https://www.financialexpress.com/defence/meet-v-balamurugan-arjun-battle-tank-veteran-who-will-head-combat-vehicles-Runit/1151152/>

## Sputnik International

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# India Successfully Tests Indigenous Engine Meant to Power UAVs in the Himalayas

*The 450 kg thrust class engine is a generic twin spool engine without an afterburner. The Indian armed forces have been in dire need of unmanned aerial vehicles (UAVs) capable of operating over mountainous areas*

Scientists in India have successfully tested a prototype of the small turbofan engine at Leh situated at an altitude of above 11,600 ft. This is part of high altitude cold climate trials that were started in February this year. The engine has been named "manik." "The successful demonstration validated the design, selection



of materials and the control logics used for lighting and acceleration of the engine to a minimum sustained speed. The performance of pyro systems was as per expectations," a DRDO official said. The Gas Turbine Research Establishment (GTRE) had designed and realized a mobile test bed and fuel supply system simulating an unmanned vehicle configuration exclusively for the high altitude trials. "The Suitable Operator Console in a climate-controlled cabin for the safe operation of the control desk, data acquisition systems and

vibration monitoring panels were also positioned to ensure that tests are carried out without compromising safety and other design criteria," the official added. The 450 kg thrust class engine has been developed in response to the Indian Air Force's (IAF) requirement. The IAF has been in dire need of unmanned aerial vehicles (UAVs) that can operate in high altitude terrain. The Indian Navy too has evinced deep interest in these kinds of UAVs.

Last month, the Defence Research and Development Organisation (DRDO) had invited expressions of interest from Indian industries for the purpose of technology transfers for manufacturing and the assembly integration of the engine. "Technology Perspective and Capability Roadmap 2018" -a document released by the Indian Defense Ministry asked for more than 400 UAVs including combat and submarine-launched remotely piloted aircraft in the next decade. "The medium-altitude, long-endurance (MALE) combat RPA (remotely piloted aircraft) should have the capability to fly up to [an altitude of] 30,000 feet with extended satellite communication ranges and endurance of more than 24 hours," the document read.

<https://sputniknews.com/asia/201805011064049909-india-develops-engine-uav/>