

Defence minister Rajnath Singh congratulates DRDO for successful night trial of Agni-II

Rajnath Singh took to Twitter to congratulate the DRDO for successfully conducting the first-night trial of the surface to surface medium-range missile

By Yash Sanghvi

Mumbai: Defence Minister and senior BJP leader Rajnath Singh on Sunday took to the social media platform of Twitter to congratulate the Defence Research and Development Organisation (DRDO). The congratulatory tweet was in lieu of the first successful night trial of the surface to surface medium-range missile conducted by the DRDO. "The nation is proud of DRDO scientists," he said.

Rajnath Singh's tweet congratulating the DRDO

Congratulations to Team @DRDO_India for the first successful night trial of surface-to-surface medium-range missile #Agni2.

The nation is proud of DRDO scientists who have helped India in strengthening its defence capabilities.

— Rajnath Singh (@rajnathsingh) November 17, 2019

DRDO successfully conducts the first-night trial

On the night of November 16, the DRDO had successfully conducted the first night trial of Agni-II. The Agni-II is a versatile surface-to-surface medium-range nuclear-capable missile. The missile was launched from Dr. Abdul Kalam Island off Odisha, according to the defence sources. The missile has a strike range of 2000 km, the defence source stated. A defence official said this was the first time that the sophisticated missile was test-fired at night.

The 2000 plus km range surface to surface missile has already been inducted and is part of countries arsenal for strategic deterrence. It was launched as a regular exercise undertaken by the armed forces, he said. The test on November 16 was carried out by the specially formed Strategic Forces Command (SFC) of the Army with logistic support from the Defence Research and Development Organisation. Agni-II was developed by Advanced Systems Laboratory along with other DRDO laboratories and integrated by the Bharat Dynamics Limited, Hyderabad, the sources said.

Agni-II is part of the Agni series of missiles

Agni-II is part of the Agni series of missiles which includes 700-km range Agni-I, 3,000-km range Agni-III, Agni-IV and Agni-V. The first test-firing of the prototype of the Agni-II missile was carried out on April 11, 1999. On May 17, 2010, the trial of nuclear-capable Agni-II ballistic missile was conducted by the Special Strategic Command Force from the ITR before it was made operational by the Army. The last trial was conducted on February 20, 2018, from the same base.

<https://www.republicworld.com/india-news/general-news/rajnath-singh-congratulates-drdo-for-successful-night-trial-of-agni-ii.html>

DRDO Chief says India will become self reliant in defence production in next 5 years

Defence Research and Development Organisation (DRDO) Chief Satheesh Reddy affirmed recently that India will become completely self-reliant in defence manufacturing in the next five years and will not need critical technologies from outside

India is already self-reliant in a number of areas such as radars, electronic warfare system, torpedoes and communications systems, the DRDO Chief stated.

DRDO is a technology development organisation and all our technologies have been realised into products by various PSUs and industry. DRDO has set a target to achieve self-reliance in missiles, radars, sonars, torpedoes, armaments and EW (early warning) systems. The DRDO Director-General was delivering a lecture at an event organised by the Aeronautical Society of India. He stated

“We will offer our technologies to industries for early realisation of products and to support R&D facilities. Our focus will also be to support start-ups through the Technology Development Fund (TDF). Time and cost management of projects involving industry is another priority area. We have come up with a policy for identification of a Development Cum Production Partner (DcPP) in which the industry will be involved in all stages of system development. ”

When questioned about the progress of the Light Combat Aircraft and AMCA projects, he said “An advanced version, the LCA MK II, is the next aero platform. LCA MK II configuration is frozen and qualitative requirements are finalised.

It is our endeavour to develop the fifth-generation advanced multi-role combat aircraft (AMCA) as per the project schedule to meet the Air Force’s requirements. We should be in a position to roll out the first AMCA within five years of project approval.

Reddy in the lecture, briefed about his plans on outsourcing further to private industry. He said “The private sector has been playing a great role in the production of DRDO equipments. When Dr Kalam started work, there were barely 30 partner companies, but now we have more than 1,800.

A number of industries started as fabricators for us and have now become established aerospace manufacturers with our technology, handholding and quality practices. Actually, the aerospace industry developed by us is our strength.

The Akash air defence system, for example, is built 87% by the industry. We have thrown open our test facilities to the industry. We will help with technology for the development of products. We are identifying companies in the private sector that can take on the role of lead system integrator for major systems.” When inquired about the updates on systems like the BMD, Astra, the DRDO chief stated “We have developed a number of variants of anti-tank missiles. User trials of NAG ATGM have been successfully conducted and development trials of Helina, the airborne anti-tank missile, are under progress. We are currently working on MPATGM (man-portable anti-tank guided missile) programme. Five demonstration trials have already been completed and we would be able to offer it for user trials soon. India is one of the few countries that has an active and successful BMD (Ballistic Missile Defence) programme. We have demonstrated our BMD capability through both simulation as well as live target engagements in both endo and exo regions. All essential technologies have been proven through tests. ”

<https://eurasianimes.com/drdo-chief-says-india-will-become-self-reliant-in-defence-production-in-next-5-years/>

The rapid-fire nuclear missile tests: What of India?

The missile was analyzed for night flight for first time in person trials

A slew of Indian missile checks has triggered hypothesis regarding the geostrategic message that the nation is sending its own neighbors. India's Strategic Forces Command (SFC) efficiently completed the night flight have a look at of nuclear-tipped Intermediate Vary Ballistic Missile (IRBM) Agni-II with 2,000km change on Saturday. It was touted to be individual trials in cooperation with the Defence Analysis and Development Organisation (DRDO). Media studies imply the missile used improved navigation system which may reduce concentrating on errors.

Message to China

The DRDO is about to quickly have a look at its mysterious launch functionality of Okay-5 missile that's thought to have an assortment of three, 500 km. This means India could be purchasing the potential of atomic strikes from the ocean, air and the land, changing into solely the member of the nuclear membership. Others are the US, Russia, China and Israel.

India plans to Keep squadrons of Su-30MKIs fitted with BrahMos

The triad's completion shall be a daring message mostly the northern rival that is effective, to China. Tensions with Pakistan on the west have been reigning excess since Prime Minister Narendra Modi abrogated Article 370 of the Structure eradicating Jammu and Kashmir's particular standing and the change of standing to two union territories together with Ladakh that obtained here into being on October 31. The completion of the triad is a message to China, which was needling India from Ladakh and business in Arunachal Pradesh.

India's mobile-launched ballistic missile deterrents that can attack any part of Pakistan s Agni collection rockets are all nuclear-capable and therefore are land-based and most of China. India has inducted Prithvi-1 and Agni-I to five with the SFC. Prithvi-1 can reach targets of as much as 600km away and Agni-I as much as 700km away with atomic warheads. Agni-II that has been analyzed because of its flight capabilities was tracked by its entire 2,000km flight, in accordance with research. Agni-III has and Agni-Four can take out targets Three, 500km away.

It & rsquo; s rumoured that it could possibly truly fly although is claimed to have 5,500 km change. The defence government are currently retaining details about the real change to keep away from global scrutiny. Agni-VI would be the actual gamechanger for the nation of hitting goals past eight,000 km, meaning it will probably be rated as a ICBM with the aptitude. What's more, the missile allegedly has MIRV (a number of independently targetable re-entry car) capabilities, which take India into a rare league of army powers. India is currently retaining its take a look at schedule secret.

Radars and telemetry stations

The air-leg of the triad is that the supersonic BrahMos missiles, which are efficiently tested on Sukhoi-30MKI (Su-30MKI) air-superiority fighter airplanes. India plans to keep squadrons of Su-30MKIs fitted with BrahMos, in accordance with research. These are cruise missiles that can journey at Mach-Three (about thrice the pace of noise) at reach goals 300km away. The three way partnership, brahMos Aerospace, is of growing a variant of the missile that may travel at greater than 28, inside the technique. The that has been analyzed on Saturday includes a launch weight of 17 tonnes and may take a 1,000 kg payload over 2,000km. A battery of telemetry commentary channels subtle radars devices and two naval boats positioned close to the belief level inside the area of Bay of Bengal tracked the missile by its flight, DRDO sources mentioned.

<https://nytelecast.com/2019/11/17/the-rapid-fire-nuclear-missile-tests-what-of-india/>

DRDO will continue to engage in cutting-edge technologies: G. Satheesh Reddy

In an exclusive interaction with BW Businessworld's Manish Kumar Jha, DRDO Chairman and Secretary Department of Defence R&D G. Satheesh Reddy talks about the critical issues of R&D in Defence, apart from other pertinent issues

By Manish Kumar Jha

Despite insufficient budget and structural changes, Defence Research and Development Organisation (DRDO) has performed commendable on missile technology and fighter aircraft. In an exclusive interaction with BW Businessworld's Manish Kumar Jha, DRDO Chairman and Secretary Department of Defence R&D G. Satheesh Reddy talks about the critical issues of R&D in Defence, apart from other pertinent issues.

Excerpts:

The plan to develop Kaveri fighter engine as a part of the Rafale deal has hit a roadblock after the Indian side found pricing prohibitive. Only a part of the offsets, over €250 million, could be utilised for the project and the remaining €500 million, the DRDO would have to shell out. Please share insight about the Kaveri engine and challenges to achieve the required thrust? Do you still see Kaveri as a potential fit?

While developing Kaveri engine, we have learnt our lessons. It was a useful, technology development vehicle to traverse the path of fighter aircraft engine development cycle and understanding. The project gave enormous insight and experience in development of materials; various sub systems, assembly and testing an aircraft engine. It might have fallen short of expectations, but teams have gone through the process and now the requisite know how to develop a fighter aircraft engine and the intricacies involved. They are better equipped to handle and point of take off is definitely higher for next gen aircraft engine.

We have moved beyond Kaveri engine in terms of power, technology and utility. We intend to develop our own engines for fighter aircrafts; it could be with or without collaboration. Development of such critical technology is not about economics or offsets but about building technological capability in the country.

Then, how about the AMCA and Tejas MK 2, as they require higher capacity engine?

Higher capacity engine is a must for both aircrafts and there are no two opinions about that. Two parallel approaches are being planned, first is use of imported engine for development, and second is to develop indigenous engine, while progressing aircraft integration and flight testing to prove other aspects.

Do we see the AMCA project being realised by 2023 as it addresses the huge capability gap in IAF for the depleting squadron? With the current scope of design, will the AMCA be at par with the F-22 Raptor and the F-35?

It is our endeavor to develop the AMCA as per the project schedule to meet the Air force requirements. Preliminary designs of the aircraft have already been carried out. We should be in a position to roll out the first AMCA within 5 years of projection. We are not comparing AMCA with other aircrafts, but trying to meet our specifications.

Kindly tell about India's two-tier Ballistic Missile Defence (BMD) system?

India is one of the few countries to pursue the BMD programme with vigor and enthusiasm. We have demonstrated our BMD capability through both simulation studies as well as live target engagements in both endo and exo regions. All essential technologies required for BMD include propulsion, sensors, precision control systems and terminal intercept with kill vehicle technologies, which have matured and proven through trials.

This alleged that the DRDO is just tinkering with the World War II equipment instead of working on cutting-edge technology...

A-SAT, Ballistic Missiles, Ballistic Missiles defence Systems, Radars, Sonars, EW systems, Torpedoes are state-of-the-art systems and not World War II systems. Ignorance is not a bliss. DRDO has always and will continue to engage in cutting edge technologies. All the stakeholders have always appreciated the efforts of DRDO. Incidentally, in all of the above systems, we are one of the six or seven countries in the world to develop such capability.

Such points are raised to undermine the gains achieved from indigenous technology. We aimed to achieve self reliance in defence equipment and systems.

Do we see the DRDO taking a giant leap in futuristic technologies such as Drones/Anti drones, AI applied applications, robotics in defence? Could you please give us the details of advance research in such areas, in the context of defence?

Drones and Anti Drone technology area is on our prime agenda, as we are grappling with the current threat scenario. We are involving academia, startups and industry in a big way. We are working in the areas of cyber security, Artificial Intelligence, quantum computing, asymmetric technologies.

Laser-based CIWS by the DRDO's Laser Science and Technology Centre takes on the future battlefield? Where are we now? Will the laser-Direct Energy as the weapon be the dominant weapon of the future?

We have been working in the field of lasers and directed energy weapons for quite some time. We have developed a system, which is being field tested with medium power laser. Directed energy systems are primarily used for defence against drones and low altitude slow speed threats in the sky. We have acquired expertise in configuring; designing, integrating and testing ground based complex electro optical – laser systems for defence applications. We have to cover some ground in the area of high power lasers.

DRDO's capital allocation is mere 6 per cent of the total defence budget and that also includes the cost of maintenance and other administrative expenditure, which is grossly inadequate. The Centre should treat DRDO as No. 1 priority. How do you look at the budgetary constraint? What would be grand allocation to sufficiently get the DRDO going high on multiple fronts?

We have been adequately supported by the Centre in our research and development activities. As you have rightly said, cutting-edge technologies are not available at any cost. They are acquired hard way through the persistent efforts of the scientific community of the country. The Centre is well awarded. Whenever we approach for financial support, the response from the government is encouraging. We will put our best foot forward with the means provided.

It has been often debated the role of private companies in the defence & aerospace, but lack in investment? What would the DRDO do to make a big difference in handholding and providing labs and infrastructure to private players for let say testing?

Industry has played a great role in the production of the DRDO developed products. We have developed a number of erstwhile normal fabricators into established aerospace manufactures now, with our technology inputs, hand holding and quality practices. Actually, the aerospace industry developed by us, is our strength. I have been saying in different forums that the DRDO will not enter and work where industry can develop products for defence forces. We would like to concentrate on

futuristic and cutting-edge technologies, while meeting current demands of the tri services. We have thrown open our test facilities for the industry with reasonable charges. Let industry come out with reasonable proposals with investment, we will help with technology for the development of products.

<http://www.businessworld.in/article/DRDO-Will-Continue-To-Engage-In-Cutting-edge-Technologies-G-Satheesh-Reddy/14-11-2019-178712/>



Tue, 19 Nov 2019

Advanced Medium Combat Aircraft: India's own fifth-generation aircraft to boost defence industry

Indian Air Force (IAF) is very keen that such indigenous development of aircraft should take place and the newly appointed IAF Chief Air Chief Marshal RKS Bhadauria has stated that 'the IAF gives full support to this idea and the programme is definitely taking off'

By Dr Ajey Lele

It is expected that one of the most ambitious venture by India's defence establishment ever undertaken involving design and prototype development of Advanced Medium Combat Aircraft (AMCA) would get the approval by the Cabinet Committee on Security early next year. This project involves the development of a fifth-generation fighter aircraft and is expected to be undertaken jointly by various agencies of India's defence establishment and also private industry. The lead agencies of this project would be the Aeronautical Development Agency (ADA, an agency of DRDO) as the design firm and Hindustan Aeronautics Limited (HAL) as a manufacturing firm.



Indian Air Force (IAF) is very keen that such indigenous development of aircraft should take place and the newly appointed IAF Chief Air Chief Marshal RKS Bhadauria has stated that 'the IAF gives full support to

this idea and the programme is definitely taking off'. It is expected that this process of involving the end-user since the 'word go' would definitely help to develop this project in the desired direction.

This project is now, no longer only at a conceptual stage and some work has already begun. It is expected that the aircraft could undertake its first flight only by around 2032. Almost for four decades now DRDO has been working on the project involving the indigenous development of Light Combat Aircraft (LCA) called Tejas. This aircraft got inducted in the IAF on July 1, 2016. This is a lightweight, multi-role supersonic fighter aircraft and its trainer version is also available. This project did witness significant delays in execution, however, it has also helped both DRDO and HAL immensely to gather experience in the design and development of such aircraft. It has also assessed in developing an ecosystem within the country for such modern flying platforms.

DRDO is expected to use a similar engine which is presently under design and development for the LCA project, called GE-414 engine. The aircraft belongs to the 'medium' group and is a 19-20 ton category fifth-generation fighter aircraft featuring stealth and including an internal weapon bay. This aircraft could be a better version of say upgraded Mirage 2000, the aircraft which currently the IAF flies. This aircraft is expected to complement the aircraft inventory which the IAF is expected to fly

say for a period of next 10 to 15 years. This would be a multirole combat aircraft and would be used in various conventional roles like strike, ground attack, interception and bombing. It is expected to have advanced avionics on-board to match the best in the world in this category of aircraft.

India's interest in the development of the fifth-generation fighter aircraft has been visible since 2007. There was much of talk towards the development of the fifth-generation fighter aircraft as a joint project by Indian and Russia. This project was alive for many years, however, India is known to have withdrawn from the project for unknown reasons around 2018. Subsequently, there was some talk that this project is still 'on track' for a very short duration to time, but now it appears that India would have a full focus on AMCA only.

There is much concern about the timelines of AMCA. This aircraft is expected to be flightworthy only by 2032 and this is a projected timeline. Globally and particularly with the Indian system, the experience which such major projects has always been that the timelines are very difficult to adhere too. There is also an opinion that 'around 2035, there would an increasing dependence on the UAVs, so would IAF require a flying platform like this then'? However, it is important to realise that almost for the last two decades there have been talks like UAVs (and long range missiles) would make fighter flying redundant, but all this has not happened. Obviously, there are many valid reasons for the survival of fighter aircraft as a major warfighting platform.

It is also important to note that the development of such platforms is time-consuming. The F-22, a prominent fifth-generation fighter jet is a cold war era design and was in making since the 1970s. It finally entered into the service during December 2005. Even then there was a talk that 'what use is the cold war era design aircraft, in the post-cold war period'. However, the aircraft has withstood the test of time.

AMCA is an important project both for IAF and DRDO/HAL. It would also be a major boost for India's defence industry. AMCA project should evolve as a major laboratory for India's aerospace industry.

(The author is Senior Fellow, IDSA, New Delhi. Views expressed are personal.)

<https://www.financialexpress.com/defence/advanced-medium-combat-aircraft-indias-own-fifth-generation-aircraft-to-boost-defence-industry/1765101/lite/>