

## **Private industries contribute 87 per cent to Akash Missile: DRDO Chief**

*Giving impetus to collaborations industry, research organisations and academic institutions, Reddy said the DRDO has more than 1,500 patents that is made available to students*

Bengaluru: Highlighting the contribution by private industries to Akash Missile, chairman of Defence Research and Development Organisation Satheesh Reddy said, the industries contribute 87 per cent value to each Akash missile. The total orders received by the missiles amounts to Rs 29,000 crore. He was addressing a batch of students at a convocation ceremony in the city recently. Reddy said that at present, the DRDO has 1,800 industry partners, a long way from the 1980's when the defence research organisation had just 20-30 industries working with it.

“We are taking people from the private industries as our partners today in the development of even critical systems like missiles,” he said, adding that the defence organisation has started transferring technology to industries at zero fee.

Giving impetus to collaborations industry, research organisations and academic institutions, Reddy said the DRDO has more than 1,500 patents that is made available to students. One can select what is suitable for them, and the organisation will render its support and handhold the student.

For India to be a technology supplier, he believed it was imperative to develop a first-of-its-kind system, like the BRAMHOS missile developed under the guidance of APJ Abdul Kalam. “We need to supply to the world and then the country will become prosperous,” he said.

### **DRDO's Mission**

“When you are weak, people mock you, and when you are strong, the same people admire you,” Reddy said, explaining the DRDO's mission that destroyed a satellite in the Low Earth Orbit on March 27. Explaining the feat, he said, “With a satellite orbiting at a velocity of 7.8 km per second, a missile travelling at 3.2 km per second, and the total relative velocity of 11 km/s, a 1.2 mtr by 1.3 mtr object was tracked, and was hit at an altitude of 300 km. The hit was just 6 cm away from the geometric centre of the object, post which, India was seen in a different light by other countries.”

<http://www.newindianexpress.com/nation/2019/nov/06/private-industries-contribute-87-pc-to-akash-missile-drdo-chief-2057644.html>



## Strong academic institutions vital for India's progress: DRDO Chief

*Research in fundamental science should be taken up, says Sateesh Reddy*

Hyderabad: The country can prosper only through science and technology and for it to happen, we need qualitative academic institutions to take up research in fundamental science, which in turn would propel technological innovations, said Defence Research and Development Organisation (DRDO) Chairman G. Sateesh Reddy here on Monday.

“Other than western countries, countries like Japan and Israel became economically prosperous owing to technological growth and innovations. Research in basic science ushers in applied research and it has to begin at schools and universities. Countries with a good science and technology base have strong academic institutions,” he said.

Dr. Reddy was addressing a gathering of scientists and students at B.M. Birla Science Centre after receiving the Birla Archaeological and Cultural Research Institute (BACRI) Golden Jubilee Award for lifetime achievement in science from Nirmala Birla, chairperson of the Centre.

The DRDO chief regretted that not a single academic institution from India figured in the global top 100 and hoped that the recent initiatives by the Government of India such as Atal Innovation Mission and other schemes would equip schools and colleges to focus on scientific research to inspire young minds.

The New Education Policy (NEP), which is at the drafting stage, is expected to give a big push to science and technology so that extensive research in various disciplines could be taken up. There has been a spurt in start-ups and several innovations in scientific fields and he expects these to increase further in the next few years.

“We need to have a vision for the next five-15 years to start preparing for advanced scientific research as Dr. A.P.J. Abdul Kalam had done in the strategic arena when he simultaneously took up manufacture of several missiles, new lab like Research Centre Imarat, missile launch facility at Balasore, ballistic missile, missile shield and so on,” said Dr. Reddy, also the Secretary of Defence (R&D).

India has done well in space research, atomic energy and defence production by attaining self-reliance in satellite launch vehicles, sonars, torpedoes, radars, artillery guns and anti-sat missile. “However, it is a second largest importer of arms in the world, so a lot has to be done,” he added.

“You have to be a technology leader and not a follower by coming out with state-of-the-art technological innovations to become strong. Research and development need not be in the government sector alone and we need at least 10 academic institutions to be among the top 100 globally,” he said.

Birla Science Centre Director B.G. Sidharth also spoke on the occasion.

<https://www.thehindu.com/news/cities/Hyderabad/strong-academic-institutions-vital-for-indias-progress-drdo-chief/article29882381.ece>

## Automated facility at HEMRL to save lives

*By Sandeep Dighe*

Pune: The High Energy Materials Research Laboratory (HEMRL) got a sophisticated, remote-controlled facility to eliminate human involvement in the hazardous process of igniter composition on its premises. The state-of-the-art 'Igniter Complex' for the design, processing and evaluation of ignition systems was inaugurated by Shripad Naik, minister of state for defence, on Tuesday.

The facility has come up after a recommendation made by a high-level committee that had investigated a December 2015 fire incident at the erstwhile igniter complex, in which two contractual staffers were killed.

"The committee had found that it was a big risk to engage humans in the making and designing of ignition systems and recommended an advanced, remote-controlled facility in its report to avoid such accidents in the future," a senior DRDO official, who did not wish to be named, told TOI on Tuesday.

The committee submitted its report to the DRDO headquarters in New Delhi, after which the project was sanctioned.

"It is equipped with sophisticated remote-controlled equipment such as sieve shaker, planetary mixer, granulating machine, pelleting machine, etc," a DRDO official said.

A design, modelling and simulation laboratory, and an assembly and testing centre are also part of the complex," the official added.

The High Energy Materials Research Laboratory (HEMRL) mainly develops rocket and gun propellants, pyrotechnic devices, high-explosive systems and synthesis of high-energy molecules.

"The laboratory can now design and develop any kind of ignition systems for key DRDO projects across the country," an official said.

<https://timesofindia.indiatimes.com/city/pune/automated-facility-at-hemrl-to-save-lives/articleshow/71929415.cms>

## **Harsh Vardhan lauds DRDO's contribution towards self reliance in defence technologies**

Kolkata (West Bengal) [India], Nov 5 (ANI): At the inauguration of the Fifth India International Science Festival (IISF) on Tuesday, Minister of Science and Technology, Harsh Vardhan lauded Defence Research and Development Organisation's (DRDO) contribution towards self-reliance in defence technologies.

Following the inauguration, Harsh Vardhan visited DRDO pavillion and applauded the efforts of the research organisation in bringing these technologies to Kolkata for inspring the young generation.

"Minister appreciated the DRDO's contribution towards self reliance in defence technologies. He also praised the efforts made by DRDO in bringing these technologies to Kolkata from all over the country which will inspire the young generation", DRDO said in a tweet.

A series of indigenously developed defence products were shown to the Union Minister, including the likes of Arjun Tank, BrahMos missile, LR SAM, ASTRA, Phased Array Telemetry, AEW&C System, SONARS, Night Vision Sights, Samyukta, Indigenous Radar Systems and Female Full Body Protector.

India International Science Festival (IISF) 2019, an annual event organised jointly by science and technology related Ministries and Departments of the Government of India and Vijnana Bharati (Vibha), is being held in Kolkata this year.

The four-day science festival is being organized in Kolkata from November 5 to November 8, 2019. The prime objective of the festival is to instill scientific temper among the masses, showcase India's contribution in the field of Science and Technology over the years and encourage translation of its benefits to people. It aims to build a strategy for inclusive advancement of Science and Technology. (ANI)

<https://aninews.in/news/national/general-news/harsh-varadhan-lauds-drdo-contribution-towards-self-reliance-in-defence-technologies20191105130707/>

## Abdul Kalam, atomic panel differed on Pokhran-II tests: Kakodkar

*By Srinivas Laxman*

Mumbai: A hitherto unknown aspect of the 1998 nuclear tests at Pokhran was that Abdul Kalam, then chief of DRDO, differed with scientists at Atomic Energy Commission (AEC) about conducting a thermonuclear test (hydrogen bomb) over safety concerns.

The experiments, code-named ‘Operation Shakti’ consisted of testing an atomic bomb, hydrogen bomb and small devices. The tests were held on on May 11 and May 13, 1998. The differences have been revealed for the first time by former AEC chief Anil Kakodkar in his autobiography, which has been co-authored with Suresh Gangotra of department of atomic energy (DAE).

Speaking to TOI on Tuesday, Kakodkar recalled that Kalam had expressed reservations about detonating a hydrogen bomb because he feared it could cause damage to the village of Khetolai, not far from the Pokhran weapon test site.

Due to Kalam’s fears, Kakodkar said differences cropped up between DRDO and DAE regarding the testing of a hydrogen bomb. In his autobiography, Kakodkar says Kalam asked him for a written undertaking that the hydrogen bomb test with a yield close to 45 kiloton would not cause any damage to the village, Khetolai. “I agreed to put my neck on the block and gave a duly signed written note....,” he writes. The test was carried out successfully and there was no damage to Khetolai.

<https://timesofindia.indiatimes.com/india/kalam-atomic-panel-differed-on-pokhran-ii-tests-kakodkar/articleshow/71931321.cms>