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Fri, 18 Oct 2019

Rajnath pushes for indigenisation of defence equipment

Pushing for indigenisation, Union Defence Minister Rajnath Singh on Tuesday urged Scientists in the Defence Research and Development Organisation (DRDO) to establish a system in India where all defence equipment can be manufactured in the country.

He said, "DRDO has empowered the country with cutting edge technology."

Singh, addressing the 41st DRDO Directors Conference in Delhi, said that despite various restrictions and limited capabilities, DRDO has succeeded in developing a variety of systems, products and technologies needed to enhance the forces.

Urging to reduce dependency on imports of defence facilities, the Defence Minister said, "We will have to focus on research work to emerge as the global leader in defence technologies. And for this, it is important to improve continuously in order to maintain operational superiority."

Paying tribute to late President A.P.J. Abdul Kalam, Singh said, "I express my gratitude to A.P.J. Abdul Kalam on his 88th birth anniversary. He was an acknowledged scientist. His contribution to research and missile development brought India in a list of countries known for their indigenous capabilities."

The minister said, "I am happy that DRDO has achieved the targets set for 100 days. They have also identified milestones to commemorate the 75 years of independence. It is also heartening to note that they have added to their strength in order to achieve complete self-reliance in coming years."

Speaking on the occasion, National Security Advisor Ajit Doval said that armies that were better equipped always called the shots and decided the destiny of mankind. "They were always the one which had higher technologies. India's own historical experience on this has been sad, we were the runner-up. There is no trophy for the runner-up," he said.

Doval stressed that either one is better than adversaries or one is not there at all. "In the modern world, technology and money are two things which will influence geopolitics," he said. He also stressed technology has to be need-based.

"We along with our defence services and intelligence agencies have to make a hard assessment of our needs which will give us an edge over our adversaries," he said.

Army Chief General Bipin Rawat complimented DRDO for making strides in ensuring that requirements of the services are met through home-grown solutions. He said, "We will fight and win the next war through indigenised weapons systems and equipment."

Rawat stated that DRDO has made major strides to ensure that needs of the services are met by providing various systems like artillery gun systems, mines, anti-tank missile systems, etc. He was confident that future wars will be won with indigenous systems.

Chief of Naval Staff Admiral Karambir Singh in his address stated that Indian Navy is efficiently using Varunastra, Maareech, Ushus, TAL and various other DRDO developed systems.

Rajnath Singh added that warfare and technologies are synonymous and undergo rapid changes. These must be factored during design stage.

Speaking on the occasion, Air Chief Marshal R.K.S. Bhadauria said that technology leadership is what defines DRDO. He also mentioned that DRDO has been able to achieve the objectives of self-reliance to a great extent in the past seven decades. He appreciated DRDO's role in Electronic Warfare Technologies, radars, composite materials for LCA, AEW&C, Astra and various other technologies.

He also appreciated the capabilities of LCA Tejas and asked DRDO to develop next generation aircraft AMCA, harnessing the technologies and experience of LCA.

Satheesh Reddy, Secretary Department of Defence R&D and Chairman DRDO spoke about successful development of ASAT, BrahMos, ASTRA, Nag missile, SAAW, Arjun MBT Mk 1A, 46 metre Modular Bridge, MPR, LLTR Ashwini, etc. He added that the theme for 41st DRDO Directors' Conference is technology leadership for empowering India, in line with the requirement to develop indigenous systems with advanced technologies.

The Defence Minister also released two compendia namely the DRDO-Industry Partnership: Synergy and Growth and DRDO Products with Potential for Export. DRDO Policy and Procedures for Transfer of Technology to support industry was also released by him.

Singh also launched the new website of DRDO.IANS

http://www.theweekendleader.com/Headlines/40549/rajnath-pushes-for-indigenisation-of-defence-equipment-.html

BHARAT SHAKTI
Self-Reliance in Defence

Fri, 18 Oct 2019

Develop need-based cutting-edge weapons: Defence Minister, NSA exhort DRDO

By Ravi Shanker

India's top security leadership stressed the urgent need for DRDO to innovate and develop home-grown hi-tech weapon systems to make India not only self-reliant in defence manufacturing but also a global leader in the field.

Addressing the 41st Directors' conference of Defence Research and Development Organisation (DRDO), Defence Minister Rajnath Singh asked scientists to develop 'indigenous innovation ecosystem' with less dependence on imported systems to achieve self-reliance in critical technologies. "Development of technology should be cost-effective and time-efficient," he added. The event coincided with the 88th birth anniversary of former President Bharat Ratna Dr A P J Abdul Kalam.

Stressing the need to bridge the technology gap for India to become a global leader in research and development, Defence Minister urged the scientists to focus on technologies that provide cutting edge capability and remain relevant for the next 15-20 years. He suggested that scientists devise an action plan for excellence in defence R&D that can take India to renewed heights in defence capability and make India a 'technology exporter'.

National Security Adviser Ajit Doval also called for the development of "need- based" niche technologies that can cater to the specific requirements of Indian armed forces. Highlighting the emerging security challenges, the NSA said "India's security vulnerabilities are much greater today, and they are going to be much greater in times to come."

While elaborating about niche technology, Doval, observed that it was not about the best technology in the world but it was something which could make India more potent. So it has got to be need-based which can give India an edge over its adversaries and is affordable. "Development of technology should not overrun timeline that is not acceptable" the NSA stated.

Stressing upon the importance of enhancing Indian capabilities for technology absorption, Doval said that constant adaptation and change are the essence of progress. Therefore, we should not be shy to revisit basics and realign our structures in line with emerging realities. Exhorting DRDO scientists, the NSA said, "This is the game where the winner takes it all and there is no trophy for the runner-up."

Indian Army Chief General Bipin Rawat said the DRDO needed to look at systems for future warfare. He called upon scientists to start looking at development of cyber, space, laser, electronic and robotic technologies and artificial intelligence. Lauding indigenous technology and weapon systems General Rawat said "We will win the fight the next war with homegrown defence technologies."

Emphasising on the need of indigenous technology, Air Chief Marshal RKS Bhadauria said, "The advantage of the indigenous technology is that we are in a continuous dialogue and we can change the specifics and requirements as per our need and performance." Keeping in view the quest of the Indian Air Force's future leadership, Air Chief said that the DRDO should make the indigenous fifth-generation fighter aircraft, Advanced Medium Combat Aircraft (AMCA) happen, and must succeed. Exhorting the defence research agency he said "As not only your pride is at stake but also the Indian Air Force."

The Navy Chief, Admiral Karambir Singh urged DRDO to pursue the necessity of a technologically up-to-date force. "Our impetus, therefore, in partnership with DRDO is to focus on 'niche technologies', and strict timelines so that we can come up with a few path breaking innovation for defence," said Admiral Singh.

Dr G Satheesh Reddy, Secretary DDR&D and Chairman DRDO also addressed the gathering and put out the report card of the defence research agency during the inaugural session of the two-day conference.

https://bharatshakti.in/develop-need-based-cutting-edge-weapons-defence-minister-nsa-exhort-drdo/

THE FINANCIAL EXPRESS

Fri, 18 Oct 2019

Indigenous 155mm Dhanush towed gun system: 'Desi Bofors' to improve Indian Army's firepower along Pakistan, China borders

The Gun Carriage Factory had received the order for Dhanush in 2011, and the first prototype was made in 2014

By Huma Siddiqui

As part of the Indian Army's operational readiness, the indigenous 155mm Dhanush Towed Gun System is under induction. The gun system is going to qualitatively improve the firepower of Indian

artillery and is also expected to make way for the private sector gun manufacturing companies. Indian Army has placed an order for a total of 114 `Dhanush' with the Ordnance Factory Board (OFB).

During the ongoing Army Commanders Conference, the top commanders discussed various options for the employment of this gun, sources confirmed to Financial Express Online.

The OFB will hand over 18 155mm x 45 calibre artillery guns to the army's Central Ordnance Depot in Jabalpur and before the year ends these indigenous guns will be deployed along the Pakistan and China frontiers. These are being under production at the Jabalpur-based Gun Carriage Factory (GCF), at a cost of Rs 14.50 crore.

The indigenous gun — towed and self-propelled mode has undergone extensive trials in extreme weather conditions as well as difficult terrains across the country including Sikkim, Leh, Odisha and Jhansi.

The guns will come with almost 85 per cent indigenous material has a range of 38 km and in the army, it is classified as 'medium artillery'. There has been active participation of both private and public sector companies like SAIL, BEL working with the OFB on this project. Also, besides the Indian Army, the Defence Research and Development Organisation (DRDO), as well as DGQA, have been actively involved in this project. The Gun Carriage Factory had received the order for Dhanush in 2011, and the first prototype was made in 2014.

World's best combat helicopter 'Apache AH-64E' comes to India

More about Dhanush

- The indigenous gun comes with inertial navigation-based sighting system.
- It has an advanced day and night direct firing system.
- On-board ballistic computation.
- Mechanically it has been upgraded to fire NATO standard 155 mm ammunition.
- It comes with a self-propulsion unit and this for the gun to be self-deployed in mountainous terrains.
- Bi-modular charge system (BMCS) which help in increasing the range.
- The gun has been upgraded electronically which helps in enhancing firing accuracies.
- It is also compatible with other kinds of ammunition.

The induction of this type of gun is part of the Indian Army's 'mediumisation' of the artillery and under this will replace 'field guns' of a calibre such as 105 mm and 120 mm.

https://www.financialexpress.com/defence/indigenous-155mm-dhanush-towed-gun-system-desi-bofors-to-improve-indian-armys-firepower-along-pakistan-china-borders/1738562/

Fri, 18 Oct 2019

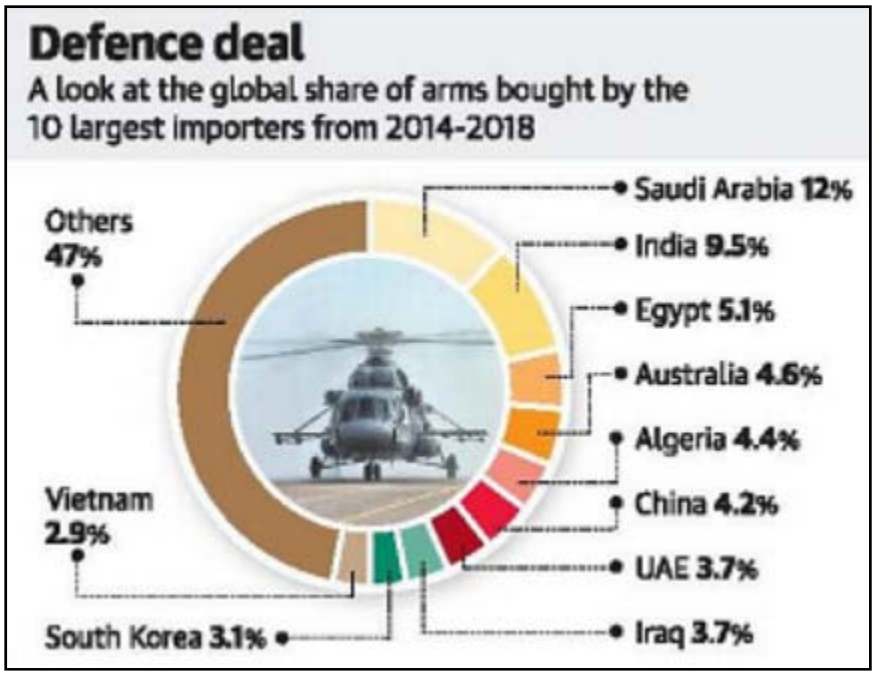
List of top 5 Indigenously developed weapons/systems of India

By Hemant Singh

India was the world's largest arms importer from 2014 to 2018 but later on Saudi Arabia became the number 1 arm importer in the world. But still India imports a lot of weapons for its military requirements. Government of India is striving to boost manufacturing of weapons in India through

Make in India initiative. India has developed many weapons Indigenously which includes Tejas aircraft, Arjun Tank and AKASH Missile etc.

In the union budget 2019; the defence budget of India touched Rs 3.18 lakh crore which is around 1.6% of the GDP. The government of India wants to reduce its arm import bill in the upcoming years. Currently India is second largest arm importer in the world.



According to the latest report published by the Stockholm International Peace Research Institute (SIPRI) in march 2019; India has share of 9.5% of total arms sold in the world. Saudi Arabia is on the top by having 12% share in the global arms import.

The government of India is trying its utmost efforts to reduce the defence import bill of the country.In this direction; India has developed many weapons indigenously. We have explained about these weapons in this article.

Let us read about these top 5 weapons/systems in detail.

1. Tejas Aircraft

The Tejas is an indigenous light weight, multi role supersonic aircraft. It is developed for both training and fight purposes. The Tejas is designed to carry a air-to-air, air-to-surface strikes. It has the capability of successful air-to-air Refuelling.

Currently this aircraft is in service. The Indian airforce has already contracted 40 aircraft and it will soon order 83 more Tejas aircrafts with the Hindustan Aeronautics Limited (HAL). We hope that very soon Tejas will replace India's ageing MiG-21 fighter jets.

2. Arjun Tank

It is a 3rd generation main battle tank developed by DRDO. It was first produced in 2004 and its one unit cost is around Rs.56 cr. It was built indigenously and India has around 366 units of this tank. It is named after "Arjun" the hero of Epic Mahabharata.

3. NETRA

The full form of NETRA is “NEtwork TRaffic Analysis”. NETRA is a software network developed by India's Centre for Artificial Intelligence and Robotics (CAIR). It is used by the Research and Analysis Wing (RAW) and Intelligence Bureau.

Indian Airforce inducted its first indigeously developed airborne control system in 2017. NETRA AEW&C system has range of 200KM.

You can imagine the capabilities of the NETRA that it can analyse voice traffic passing through software such as Google Talk and Skype.

4. ASTRA

This is an all weather beyond-visual-range air-to-air missile. Astra is an first air-to-air missile designed by the Defence Research and Development Organisation indigenously and manufactured by the Bharat Dynamics Limited. Its first unit was produced in 2017 and cost of one unit is Rs. 7-8 crore.

It can be launched from the Su-30MKI aircraft and its speed is 4.5 mach or 5556.6 km/hr. It will be inducted into the Airforce soon.

5. AKASH:

AKASH is a "Surface to Air" medium range Missile. It can hit multi-target engagement at a time.

The capability of this supersonic Akash missile is that it can hit an aircraft up to a distance of 25 km and up to the altitude of 18,000 mtr or 59,000 ft.

Even it has the capability to neutralise aerial targets like ballistic missiles, fighter jets, cruise missiles and air-to-surface missiles.

The supersonic Akash missile system was formally inducted into the Indian Army on May 5, 2015 and into the Indian Air Force on July 10, 2015.

It is in service since 2009 and 3000 missiles have been built so far. It is designed by the DRDO and Manufactured by Ordnance Factories Board, Bharat Dynamics Limited and Bharat Electronics Limited.

So these were some weapons and systems indigenously developed in India. We hope that very soon India would produce more capable weapons in the future.

https://www.jagranjosh.com/general-knowledge/indigenously-developed-weapons-of-india-1571311542-1

Fri, 18 Oct 2019

While we must welcome Rafale, ADA, DRDO, IIT's & HAL must also be appreciated

Rebuttal to an article that I read in Times of India webpage on Indian Aeronautical program

By Phani Praveen

Doing good research and producing cutting edge technology is really a nightmare in India. DRDO, ISRO and DAE have defied the ground conditions, again and again.

I had come across an article with a interesting heading in **Times of India** Web-page[1]. After going through the first few lines I was pretty sure that the author did not have an idea of basic ground realities.

Producing **technology** involves people with a very strong foundation in sciences. The realization of sciences is through **technology**. It is very unfortunate that most of the people here in India, even those in respectable positions **do not understand** the difference between the two and the impact each has on the other.

The western world has been successful because they have understood the "**Scientific Creed**" and are always trying to evolve them, even when the evolution is pointing in the wrong direction. On the other hand, we have always fallen behind by trying to **mimic** their **methodologies** and **research strategies** without understanding them. A casual look at the academic rankings of world universities shows where we as a country stand in producing scientific knowledge[2].

> *As of today, all you find are students with a flashy mark-sheet, very eager to get a five-figure salary and wanting to go on a foreign trip at the company's expense.*

If we happen to look at an engineering student who has finished his/her M.Tech in Computer-Science, they are **not in a position** to write a 200 line code in C language. Similarly, an M.Tech student in signal processing is unable to understand the fundamental "**Discrete Fourier Transform**", so is the case with an M.Tech student in VLSI design. He is not able to produce a simple hardware module in Hardware Description Language, that works in sync with other modules. Let's assume that, for some reason or other the students are not in a position to do the above-mentioned tasks, even their teachers are **unable** to do them.

Let's not talk about the basic science stream in India, Students taking these courses are left-overs from engineering admissions.

If this is the current level of standard in Indian Education system, how can we expect to develop cutting edge technology in India? **IIT's** are not silver bullets for everything, also these are not exceptionally brilliant from others.

Unless or until you have bright enthusiastic students out of college with a firm grounding in knowledge you cannot do anything in the area of technology. As of today, all you find are students with a flashy mark-sheet, very eager to get a **five-figure salary** and wanting to go on a foreign trip at the company's expense.

If you happen to look at **Research**, I believe we are a laughing stock. By the way, people in India take up research, just to become Head of Department or Principal of a college. The current guides who are supervising research don't understand the fundamental difference between "**Qualitative & Quantitative research**". The only guiding principle in conducting research is 'Novelty'. Nothing can be more naive than this understanding of the research.

> *The last director of ADA Sri Cmde CD Balaji after hanging his boots at ADA has become Chairman for Center of excellence in aerospace and defence, that trains young engineers through a design life cycle of aircraft, such facility is not available within the country*

Those who want to negate my argument should look at the publishing done by **research scholars** and the number of citations that these publications get. Citations can be a tricky issue as institutions, colleges have issued a strict advisory to, **refer** to their colleague's and their own papers to increase the citation count.

Doing good research and producing cutting edge technology is really a nightmare in India. Some institutions that have defied the ground conditions, again and again, are **DRDO, ISRO and DAE.**

There are many technologies that India has mastered in the area of **Defense**, the most notable among it is the technology to build '**Combat Aircraft**'. I have also heard verbally from **Sri PS Subramanyam**, former director of ADA that LCA-Tejas program is the most expensive program taken by India.

I still have vivid memories of a seminar that I attended in the year 2003 at the **Administrative Staff College of India**, given by **Dr Kota Harinarayana**, the father of LCA-Tejas. Throughout the seminar Dr.Harinarayana was emphasizing on how an LCA could help in bringing high technology to Indian industry and how it could necessitate the need for producing good research in the country. The senior babus at the seminar missed this message and had chided him for doing a futile exercise and **wasting** the country's money when something better is available from Russians.

His successors at ADA were equally charismatic, I was very much impressed when I read an article about Sri PS Subramanyam which mentioned that, he was working **throughout the year** including on Sundays and holidays during his tenure as director of ADA, which was for about **10 years**.

> *Nothing can be more inspirational for the nation on scientific and engineering side.*

Sometimes these people had to work outside the country to get **requisite technology** to the country, whereas the universities should have done this job. I have seen many scientists at DRDO, who, even after retirement are working on full throttle. I have seen them taking teaching positions, encouraging Startups and motivating young people. All the former directors of ADA are in this group. The last director of ADA **Sri Cmde CD Balaji** after hanging his boots at ADA has become Chairman for **Center of excellence in aerospace and defence**, that trains young engineers through a design life cycle of aircraft, such facility is not available within the country[3].

Finally, I had gone through the blog of the author who was very critical of Indian aeronautical program, I couldn't believe myself when I read " As an effort to **kill time** one fine day I decided to write a science column, more for my **personal amusement** than to attract readers"[4]. This is nothing but a debauch activity for science, for science is not for amusement nor does it intend to attract people.

It is an 'undetermined system', which has fewer equations and more unknowns. In the development of **Tejas**, everything is unknown. If you happen to speak to developers of Tejas, all they have is uncertainty and only uncertainty. Yet they have crafted an aircraft that is best suited to **Indian Conditions** (Interest shown by some countries in the aircraft is a testimony of its technical prowess). In the words of security analyst **Bharat Karnad**, "Tejas has been flying without a single incident – a record unsurpassed by any combat aircraft under development, anywhere any time"[5]. Nothing can be more inspirational for the nation on scientific and engineering side. Tejas proves a point to the world that Indians can take up **complex engineering** feat, and this message must be shown in everything that we take up viz. in terms of software, aerospace, engineering etc.

Finally, developers of Tejas can be seen as best icons for scientists, engineers & technologists, and yet want to remain out of the limelight.

Note:

1. The views expressed here are those of the author and do not necessarily represent or reflect the views of PGurus.

https://www.pgurus.com/while-we-must-welcome-rafale-ada-drdo-iits-hal-must-be-appreciated/