

# समाचार पत्रों से चयित अंश Newspapers Clippings

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## Several projects being developed successfully for the services: DRDO Chief G Satheesh Reddy

*DRDO is undertaking a number of projects for the Indian Army – these include Development trials of Advanced Towed Artillery Gun System (ATAGS) which are completed*

*By Huma Siddiqui*

In the second part of the interview, DRDO Chief Dr G Satheesh Reddy talks about the progress made in various projects including the Main Battle Tank for the Indian Army, Light Combat Aircraft and other platforms. Following are the excerpts.

**What are the plans for the Main Battle Tank (MBT) ‘Arjun’? Have the technical issues been resolved?**

‘Arjun’ is one of the best in the class of Main Battle Tanks. Improvements suggested by the user during the exploitation of the first two regiments of Arjun and a number of upgrades like Track Width Mine Plough (TWMP), Remote Control Weapon System, Explosive Reaction Armour, Automatic Target Tracking, Commander’s Panoramic Sight with Night Vision, etc., have been incorporated in Mk1A version which has undergone user trials.



124 MBTs have already been manufactured at Ordnance Factory Board (OFB) and delivered to the Indian Army. Production capacity exists to meet the Army demand. Placement of indent for additional regiments of Arjun MBT Mk 1A is likely to happen soon.

**By when do you think the AIP will be ready to be integrated on the Indian Navy’s submarines?**

The AIP has passed the development trials demonstrating the endurance test at limited power levels. Full power trials are scheduled this year. Parallely, work is also going on in chalking out an integration plan on the submarines by 2024.

**Do you have a supply chain like some of the foreign companies have here?**

The Indian private sector is involved in the development of various subsystems for DRDO and becomes part of the supply chain during the production phase after successful evaluation of the system. The supply chain of vendors for all products developed by DRDO gets established by the time the evaluation of the system is completed.

Transfer of Technology (TOT) is provided to the concerned industries. The industries working with DRDO have developed good capability and have become established as a proven vendor base for DRDO developed systems.

For example, in Akash missile production there are more than 200 industries involved, supplying various components and subsystems. In fact, the lead production agencies mostly integrate the systems from the components and sub-assemblies sourced from the specified vendors developed by DRDO. Our strength is the industry base developed by us for specific products with quality standards.

**What are the projects for the Indian Army that DRDO is focusing on?**

DRDO is undertaking a number of projects for the Indian Army – these include Development trials of Advanced Towed Artillery Gun System (ATAGS) which are completed; Development trials of Pinaka guided rocket including salvo firing and demonstration of range with pin-point accuracy has been conducted. Development of Quick Reaction Surface-to-Air Missile (QRSAM) Air Defence on move systems having the capability to search, track and engage targets on short halts have been

proven. Indian Air Force (IAF) order for additional squadrons of surface-to-air missile system (SRSAM) Akash has been placed. The Indian Army is also in the process of procuring two more Akash regiments fitted with the indigenous seeker. Medium-Range Surface-to-Air Missile (MRSAM) is in an advanced stage of realization. NAG has completed the development and user trials and is ready for induction. Man-Portable Anti-Tank Guided Missile (MPATGM) & Helina is in advanced stages of development.

A number of variants of radars for different applications have been developed by DRDO for the Army like, ADFCR and ADTCR. Weapon Locating Radar SWATHI has already been deployed after inducted and is being exported now.

**What is the status of Advanced Multi-role combat aircraft (AMCA)?**

AMCA is a 5+ generation aircraft with twin engines and stealth capability. The design phase is underway seriously. Development plans are made.

**DRDO has been involved in the Light Combat Aircraft (LCA) Project. Are you satisfied with its journey?**

LCA 'Tejas' has come a long way and matured in terms of the first indigenous fighter aircraft. Final Operational Clearance (FOC) for LCA Tejas has been issued and the production order for Tejas Mk1 has been placed. Successful trials of LCA Navy version from INS Vikramaditya, both landing and take-off have placed India in an exclusive club of nations with this capability. A lot of technologies have been developed, eco-system has emerged and the experience gained in configuration, design and development of fighter class aircraft will help us in taking up much more technologically advanced programs. There are only a few nations in the world that have achieved this feat of making a fighter aircraft of their own and India is one of them.

**India has not succeeded in making its own engines. What are the challenges being faced?**

We have got a lot of knowledge base during the development of Kaveri engine. Insights were gained in the field of material developments, various subsystem development, manufacturing, and assembly and testing of an engine of this class. Kaveri Engine developed may not meet present LCA requirement, but variants will be used in other applications. Now, the teams are equipped to take up the development of next-generation aircraft engine.

<https://www.financialexpress.com/defence/several-projects-being-developed-successfully-for-the-services-drdo-chief-g-satheesh-reddy/1891392/>



Sat, 07 March 2020

## **China hates India's fast and sneaky BrahMos missiles**

*No way to counter it?*

*By Sebastien Roblin*

- **Key point: China has no good way to defend itself against India's missiles. However, both countries are nuclear powers and so will deter each other.**

While many of us remain mesmerized by the unfolding shambles in the Middle East, the world's two most populous countries have gotten into a tiff over missiles. And I'm *not* referring to the ballistic kind for once.

“India deploying supersonic missiles on the border has exceeded its own needs for self-defense and poses a serious threat to China’s Tibet and Yunnan provinces,” complained the People’s Liberation Army Daily. “The deployment of BrahMos missile is bound to increase the competition and antagonism in the China–India relations and will have a negative impact on the stability of the region.”

“Our threat perceptions and security concerns are our own, and how we address these by deploying assets on our territory should be no one else's concern,” an Indian military source sniffed in response.

We’ll first look at the BrahMos’s capabilities and why they are considered a big deal, then plunge into why their deployment and export by is perceived as such a threat by China.

Indeed, the BrahMos cruise missile is stealthy, fast and extremely difficult to shoot down. It also has become a point of contention in a complicated web of overlapping alliances between India, China, Russia and potentially Vietnam.

### **Supersonic Carrier Killers**

BrahMos began in the 1990s as a joint project between Russia and India to develop an Indian version of the P-800 Oniks cruise missile. The missile’s name is a portmanteau of the rivers Brahmaputra and Moskva in India and Russia, respectively.

Cruise missiles are designed to be fired at long ranges from their targets so as not to expose the launching platform to enemy retaliation. The quintessential cruise missile is the Tomahawk, developed in the United States. Fired by ships and aircraft, the 2,900-pound missile can cruise up to one thousand miles (depending on the model) at a speed of five hundred miles per hour—roughly the speed of a typical airliner—before slamming into its target.

During the Cold War, Russia developed a *different* style of cruise missile designed to take out American aircraft carriers. These flew over the speed of sound to better evade the carrier’s defenses—which include air-to-air missiles fired by fighters, surface-to-air missiles and Gatling-cannon Close-in weapon systems, or CIWS. They were also larger to increase the likelihood of achieving a kill in one hit.

Ramjets were used to maintain high speeds over long distances. A ramjet uses incoming air at high speeds to achieve compression instead of using a compressor, saving on fuel. However, a ramjet needs a boost from another source to help it achieve that airflow in the first place. In the case of the BrahMos, a rocket provides the initial acceleration before the ramjet takes over.

The BrahMos is actually slightly faster at Mach 2.8 than the P-800. It also weighs *twice* as much as a Tomahawk, at six thousand pounds.

The combination of twice the weight and four times greater speed as a Tomahawk result in vastly more kinetic energy when striking the target. Despite having a smaller warhead, the effects on impact are devastating.

Even more importantly, the BrahMos’s ability to maintain supersonic speeds while skimming at low altitude makes it very difficult to detect and intercept. To cap it off, the BrahMos performs an evasive “S-maneuver” shortly before impact, making it difficult to shoot down at close range.

A modern ship targeted by the BrahMos could respond with layered defenses to shoot down the missiles: ripple-fired medium- and short-range anti-aircraft missiles and close-range CIWS. But an effective attack would involve firing multiple missiles in order to overwhelm these defensive countermeasures.

If the attack is launched within 120 kilometers of the target, it can skim at very low altitude the entire way to the target. While missiles can be detected earlier if benefiting from AWACs aircraft, a ship would likely detect a sea-skimming missile at range of only thirty kilometers, affording the vessel only a thirty second time window to respond. One intriguing analysis argues that a U.S. Arleigh Burke-class destroyer, with its layered air defenses, could not handle more than twelve BrahMos missiles at once and that an entire carrier battle group would be saturated by more than sixty-four.

Of course, though India has some unpleasant memories of an encounter with a U.S. carrier group in the past, they probably have a different foe in mind.

In any case, the BrahMos has a major limitation...

### **The Missile Technology Control Regime**

The BrahMos has a relatively short range—only 190 miles (290 kilometers)—under half the range of the Russian Oniks missile. This means that BrahMos launch platforms need to be relatively close to their targets—potentially within ranges they may be detected and fired back at.

This was purposefully done in order to conform to the Missile Technology Control Regime (MTCR), a partnership of thirty-five countries which restricts the export of cruise missiles with ranges over three hundred kilometers. Russia is a member of the partnership—and just this June 28, India acceded into membership. And here we get into some interesting geopolitical strategy.

China is *not* a member of the regime, but would dearly appreciate the chance to deal in the market. India, on the other hand, would like to join the Nuclear Suppliers Group which regulates which nuclear technologies are permitted for trade. But China blocked its accession in June this year.

By adhering to the MTCR, India gained access to it—and now hopes to use that access as leverage versus China. Notionally, they could arrange a quid pro quo trading Indian NSG membership for Chinese admission to the MTCR. Whether it will work out that way remains to be seen.

### **Multiple Targets for Multiple Launchers**

The BrahMos isn't just an antishipping weapon—it also can hit ground-based targets, and is ideal for precision attacks against fixed installations such as radars, command centers, airbases and enemy missile batteries. It can also potentially carry a 660-pound nuclear warhead, though that doesn't appear to be its primary intended use.

There are quite a few variants of the BrahMos missile designed to be used by the different platforms of the Indian military against either land or naval targets.

The Indian Navy's BrahMos missiles mostly use eight-cell Vertical Launch System launchers. Six of its frigates and two destroyers have a single BrahMos launcher, while three of its destroyers have twin launchers. More BrahMos equipped ships are under construction.

The Navy has also successfully tested in 2013 a submarine-launched version which is expected to enter service in future vessels. Submarine-launched BrahMos could potentially be launched fairly close to the target without being detected.

India has also developed the BrahMos-A, designed to be launched from its Su-30MKI strike fighters. Finding a way to mount such a heavy missile on a fighter plane has taken years of work—in the end, the Su-30s had to be specially modified for the task. The first test flight was carried out in June this year. India has already requisitioned two hundred BrahMos-As, and plans to convert forty Su-30MKIs to carry them. This offers yet another flexible means to deliver the missiles close enough to their intended targets.

Finally, there are ground-launched Mobile Autonomous Launcher systems mounted on twelve-wheeler trucks. These are organized in regiments of five launchers with over 100 missiles. India is deploying a fourth missile regiment to Arunachal Pradesh, reportedly at cost of over 4,300 crore (over \$640 million dollars.)

These are what have spooked the Chinese military, particularly since the new Block III missiles are designed to steep dive at seventy-degree angles to hit targets on the rear slopes of mountains. This has obvious application against the heavily militarized Himalayan border with China.

that India is pressing ahead with the development of even deadlier BrahMos variants. To begin with, some reports imply India tested in 2012 a version with a new satellite guidance system and a range of five hundred kilometers. Some argue that even the regular BrahMos may be capable of going further than its claimed 290-kilometer range.

India will also soon introduce the next-generation BrahMos-NG, which is smaller (only three thousand pounds,) faster (Mach 3.5,) and stealthier (smaller Radar-Cross Section.) It should be deployable from land, sea and air systems, including multiple missiles carried on fourth-generation fighters.

Additionally, India will soon be testing a scramjet-powered *hypersonic* BrahMos II missile capable of zipping along at Mach 7. Needless to say, these would be even harder to detect and shoot down and afford defending ships just seconds to react. The U.S. military has only just begun development a hypersonic missile of its own.

Russia, for its part, has appreciated the BrahMos's commercial success, but seems to have only limited intention of fielding it: it may potentially deploy the system to Gorshkov-class frigates. It has more capable Zircon missiles (believed to be the model for the BrahMos II) in development and longer-range Oniks missiles already in service.

### **Showdown Over the Himalayas—and the South China Sea?**

The BrahMos is a new game piece in India's tense relationship with China. Chinese troops invaded India's Himalayan border in a 1962 war that is still bitterly remembered in India. In the last decade, the Chinese border garrisons began to rapidly increase in size, leading to similar escalation on the Indian side. China's close relationship with India's historical enemy, Pakistan, and its development of military base in Gwadar, Pakistan—seen as an attempt to encircle India—are another source of tension.

In the fall of 2014, Chinese President Xi Jinping visited India in order to improve relations. However, a group of Chinese border troops appeared to have disregarded the civilian leadership and launched an embarrassing (though fortunately nonviolent) standoff that cast a shadow on any progress made.

The BrahMos cannot reach very far into Chinese. Although China is upset about the BrahMos missile's presence on its border, it probably should be more worried that India is announcing it is close to a deal for selling the weapon to Vietnam.

Suffice to say, relations between China and Vietnam have a very long and complicated history, including a war in 1979. They recently have chilled over Chinese claims to the South China Sea. A particularly low point came with a Chinese oil expedition in 2014 that began drilling in Vietnamese-claimed waters, causing violent protests and a naval confrontation.

The Vietnamese Navy isn't going to match China's rapidly expanding flotilla any time soon. But small Vietnamese ships with BrahMos missiles could pose a major threat to China's larger military vessel. Thus, if Vietnam does acquire the weapon, this would affect the balance of power in the Pacific.

Therefore, India may attempt to cultivate an alliance with Vietnam in order to counterbalance China.

Other countries interested in the BrahMos include Malaysia, Brazil, Chile, Venezuela, South Africa and Indonesia.

### **Reading the Cruise Missile Tea Leaves**

The politics of the BrahMos system also highlights the limited potential of a Chinese-Russian alliance. Russia historically has strong ties with both India and Vietnam. It's relationship with China has been more *complicated* (notice how that word keeps showing up?) After an energy agreement in 2014, there has been much speculation of a Chinese–Russian alliance based on shared authoritarian ideology and a desire to counterbalance the United States. However, the sale of the BrahMos missile to India and Vietnam illustrates that while Russia wishes to remain on good terms with all three countries, it is not yet committed to an alliance with China the expense of its economic interests or its own concerns with its powerful neighbor.

What can China do in response to the threat posed by the BrahMos missile?

Simple! It can de-escalate the conflict with India. India is a democracy with all the messy internal political deliberations that implies—it's not about to launch a massive surprise invasion of the Himalayas. A well-managed de-escalation wouldn't have to carry a huge political cost. The average Chinese citizen likely doesn't have strong feelings on the precise boundaries of the McMahon line.

Disputes over lightly populated Himalayan mountains *shouldn't* constitute a truly substantive conflict of interest between the two countries—but they have been allowed to flourish into full blown military competition. It is obvious the two Asian powers are wary of each other. But both would be better served by reciprocated détente, allowing billions spent fortifying the border to be redirected to the economic needs of the two countries.

<https://nationalinterest.org/blog/buzz/china-hates-indias-fast-and-sneaky-brahmos-missiles-130472>



Sat, 07 March 2020

## Is India's missile defense making war with Pakistan more likely?

*India should have kept it quiet*

*By Michael Peck*

- **Key point: India and Pakistan are already in an arms race for all intents and purposes.**

India says it has successfully tested an interceptor capable of shooting down ballistic missiles.

But could this trigger a nuclear war with Pakistan?

On August 2, the Defense Research Development Organization (DRDO) -- India's equivalent of the Pentagon's DARPA research agency -- launched an Advanced Area Defense (AAD) missile from Abdul Kalam island off India's eastern coast.

"The endo-atmospheric missile, capable of intercepting incoming targets at an altitude of 15 to 25 kilometers [9 to 16 miles] was launched against multiple simulated targets of 1,500 kilometer [932 mile]-class ballistic missiles," according to the DRDO announcement.

"One target among simultaneously incoming multiple targets was selected on real time, the weapon system radars tracked the target and the missile locked on to it and intercepted the target with a high degree of accuracy. The complete event including the engagement and interception was tracked by a number of electro-optical tracking systems, radars and telemetry stations. All the mission objectives were successfully met."

India's missile defense program is a two-tiered system: the Prithvi missile (derived from the Prithvi tactical ballistic missile) for exo-atmospheric intercepts in outer space, before they near the target, and the Advanced Area Defense missile for endo-atmospheric intercepts within the Earth's atmosphere, in the terminal phase when the target warhead is making its final descent.

In that sense, it is similar to the 1960s U.S. Anti-Ballistic Missile System, which used Safeguard and Sprint missiles, or any integrated air defense system. A long-range interceptor to take out the incoming missile far from the target, and a short-range point defense weapon to destroy any missile that penetrates the long-range screen.

Previous tests of Indian interceptors targeted short-range Prithvi ballistic missiles on a trajectory that mimicked medium-range missiles. The Diplomat magazine suggests that the dummy target this time could have been an Agni, an intermediate-range missile capable of carrying nuclear warheads.

Indian press trumpeted that India's missile defense is a homegrown program developed by India, rather than imported from Russia and America as are so many Indian weapons such as jet fighters and tanks. That's no small point of pride for the world's second most-populous nation, once the poster child for poverty, and now the world's sixth-largest economy.

Interestingly, while India boasts of developing its own missile defense system, it is also buying Russian S-400 air defense missiles capable of intercepting missiles as well as aircraft.

"The S-400 acquisition, which has some utility for missile defense, suggests that India is interested in the capability and not merely letting DRDO have a science project," Christopher Clary, a professor of international relations at State University of New York Albany, told *The National Interest*.

But there is another danger with Indian missile defense, as history shows. When America and the Soviet Union developed anti-missile systems in the 1960s, the opposing superpower either built more missiles, or increased the number of warheads on existing missiles, to saturate enemy defenses.

### **So what will Pakistan do?**

India and Pakistan "are already in an arms race for all intents and purposes and have been so for some time," Georgetown University professor C. Christine Fair, who has written on the Pakistani military, told *The National Interest*.

"There is, of course more nuance: Pakistan has the world's fast growing nuclear weapons program. India has chosen not to reciprocate in growing its stockpiles. Pakistan has and is trying to acquire tactical nuclear weapons while India has demurred."

"Pakistan will field more warheads on more delivery vehicles than it would in the absence of BMD [ballistic missile defense], Clary says.

"Pakistan could develop multiple warheads for its current ballistic missiles, or develop short-range tactical nuclear weapons and cruise missiles that are harder to intercept."

In turn, a Pakistani buildup might prompt an India buildup, sparking a vicious cycle reminiscent of the Cold War.

Ironically, India is notorious for developing home-grown weapons, such as aircraft and tanks, that take much longer to develop than expected, and are plagued with problems when they are fielded. But as always with nuclear weapons and missile defense, perception is everything.

"The biggest problem from India's side is that it all too frequently announced that it has a capability which mobilizes Pakistan to innovate when in fact India is a long way from achieving the stated capability but Pakistan has already developed a counter measure," Fair warns.

<https://nationalinterest.org/blog/buzz/indias-missile-defense-making-war-pakistan-more-likely-129967>



## Boom time for India's nuke subs in 2020

**C**OULD 2020 be the year that India's long-delayed nuclear submarine building programme finally picks up speed? Two Arihant-class nuclear-powered ballistic missile submarines (SSBNs) are slated to pass key milestones this year.

The INS Arighat, currently on sea trials is likely to be commissioned by the middle of the year. The submarine was launched in 2018. A third, yet unnamed submarine, known only by its project number — 'S4' — is scheduled to be launched towards the year end, on or around Navy Day on December 4. The S-4, or the 'stretched' Arihant-class, the

### Silence on women in command

IN its February 17 verdict, the Supreme Court directed the Army to grant its women officers permanent commissions. The defence ministry told the Lok Sabha that the Army was committed to comply with the SC verdict. The MoD was silent about women officers being granted command positions. The Army has the largest number of women officers at 6,892 compared to 685 in the Navy and 1,872 in the IAF. The pendency of the SC case seems to have affected the intake of women into the Army. Figures presented in Parliament show that only 364 officers were commissioned into the Indian Army in 2019 compared to 949 in 2017 and 819 in 2018.

third unit to be launched for trials later this year, will be a true gamechanger. It carries eight missiles instead of the four carried by the Arihant class.

The three-decade long project to build five nuclear-powered ballistic missile submarines has crept along at snail's pace as it wrestled with technological challenges and long build-times of the first unit, the INS Arihant. INS Arihant's construction began in 1998. It was launched in 2009 and commissioned in 2016. It completed its first deterrent patrol in November 2018 and was operationally deployed during the February 2019 standoff with Pakistan. The follow-on SSBNs will not take as long. The last unit of the class the S-4\* (S-four star) is slated to be launched by around 2023 and induction by 2024. The Arighat's induction this year will be a shot in the arm for India's program to field a robust sea-based nuclear deterrent. Recent successful test firings of the DRDO's K-4 submarine launched ballistic missile (SLBM) in the Bay of Bengal — have enhanced the reach of the sea-based deterrent. The 3,500 km K-4 missile triples the range of the existing K-15 missiles carried by the Arihant class, allowing the targeting of potential adversaries at longer distances without coming in range of their shore-based anti-submarine warfare assets.

The sea leg of the nuclear deterrent is said to be the most secure

and survivable. When a nuclear submarine sails out, it is virtually undetected in millions of cubic miles of ocean. A second-strike weapon in nuclear weapons theory is meant to dissuade an adversary from launching a crippling first strike using nuclear weapons.

*The writer is Executive Editor, India Today.*

## **Indigenous defence production key to make India USD 5 trillion economy by 2024: Defence Minister Rajnath Singh**

*Government has set a target of USD 26 billion turnover in aerospace and military manufacturing in next 5 years, said Defence Minister Rajnath Singh*

New Delhi: The government has set a target of USD 26 billion turnover in aerospace and military manufacturing in next five years, Defence Minister Rajnath Singh said on Saturday, noting that indigenous defence production was key to achieving the country's aim to be a USD 5 trillion economy by 2024.

He said adequate thrust is being given on enhancing defence exports though the primary aim of indigenous defence production is to cater to the needs of the armed forces. In an address at the ET Global Business Summit, urged the private sector to increase its participation in defence manufacturing to realise the government's vision of making India a USD 5 trillion economy by 2024.

Last year, Prime Minister Narendra Modi set an ambitious target of making India's economy a USD 5 trillion one by 2024. The current size of the Indian economy is around USD 2.8 trillion. In his address, Singh said the manufacturing sector has the potential to reach USD 1 trillion by 2025 and that the government is striving to achieve the goal by implementing key flagship programmes like 'Make in India'.

"In our envisaged Defence Production Policy, we have clearly spelt out our goal to achieve a turnover of USD 26 billion in aerospace and defence goods and services by 2025. This will have huge implications for India's endeavours to promote R&D, innovation and its efforts to secure a place in global supply chains," he said. Asking the defence industry to make best use of the opportunities, he said a slew of structural reforms has been initiated by the government to ensure synergy among key stakeholders.

Singh said the government accorded approval to more than 200 proposals worth Rs 4 lakh crore in defence manufacturing in the last five years. He also said the government's aim is to double the size of aeronautics industry from Rs 30,000 crore to Rs 60,000 crore by 2024.

He said a number of major platforms are envisaged in defence aerospace sector including India's 90-seater civil aircraft, developing civil helicopter industry of USD 5 billion in public-private-partnership model. He listed out several reform measures including simplification of the industrial licensing process, hike in FDI cap, making defence export less stringent, streamlining the defence offset policy and opening the government-owned trial and testing facilities for the private sector.

Singh said defence public sector undertakings have been encouraged to increase their export portfolio to 25 per cent of their turnover and the government is willing to extend Lines of Credit and grants to friendly foreign countries over the next five years.

"The government aims to achieve exports of defence goods and services to the tune of USD 5 billion in next five years. All possible support would be extended to the private sector so that they can contribute significantly to enable us to achieve the said target," he added.

Highlighting the decision to enhance foreign equity cap from earlier 26 per cent to 49 per cent under the automatic route and up to 100 per cent under the government approval route, he said the measures have begun to show results.

"Till December 2019, the defence and aerospace sector has received inflows of over Rs 3,155 crore. Of this, Rs 1,834 crore has received since 2014. I am sure that the volume of investment will increase manifold when some of the major programmes, which are in the pipeline, move into the execution phase," he added.

Singh assured the industry that the government is open to new ideas and committed to fully harness the energies, entrepreneurship spirit and enterprise of private sector in the defence sector. He expressed confidence that the industry will contribute even more to the government's efforts towards indigenisation of defence production.

Singh stressed that the intention of the government is not just limited to bringing reforms but to act as an incubator, catalyst and facilitator for promoting investment and achieving self-reliance in defence manufacturing.

"We understand that Defence R and D in private sector will take time to establish itself. To give a boost to this process, we have opened opportunities through DRDO (Defence Research and Development Organisation) with a zero fee for Transfer of Technology (ToT), free access to over 450 patents, access to test facilities and an upfront funding of up to Rs 10 crore," he said.

Singh said more than 900 licensing agreements for ToT have been signed with private industries. He also mentioned about the opportunities being provided by the government for the manufacture of mega defence platforms including fighter aircraft, helicopters, tanks and submarines under the strategic partnership model.

The defence minister told the gathering that the government has prepared a roadmap for application of artificial intelligence in national security set up, adding there is a plan to develop at least 25 defence specific artificial intelligence products by 2024.

<https://www.indiatoday.in/india/story/indigenous-defence-production-key-to-make-india-usd-5-trillion-economy-by-2024-defence-minister-rajnath-singh-1653528-2020-03-07>



*Mon, 09 March 2020*

## **Arms export target set at \$5 billion in next 5 years: Rajnath Singh**

New Delhi: Making a strong pitch for increased private sector participation in the defence production sector, defence minister Rajnath Singh on Saturday said the government had set an arms export target of \$5 billion in the next five years and aims to double the turnover of the domestic aerospace industry by 2024.

"In our envisaged defence production policy, we have clearly spelt out our goal to achieve a turnover of \$26 billion in aerospace, defence goods and services by 2025, involving an additional investment of nearly \$10 billion and creating employment for nearly 2-3 million people," said Singh, speaking at the ET-GBS here.

"This will have huge implications for India's endeavours to promote R&D, innovation and its efforts to secure a place in global supply chains," he said, adding the government had taken a slew of structural reforms to create increased synergy between the public sector and private industry to overcome the challenges of private investment in defence.

Assuring the private sector of "all possible support", Singh said the defence production has been identified as a key sector to realise the government's vision of making India a \$5 trillion economy by 2024.



The government's intention is not just limited to ushering in reforms but also to act as an incubator, catalyst and facilitator for promoting investments and achieving self-reliance in defence manufacturing. "We understand defence R&D in the private sector will take time to establish itself. To give a boost to this process, we have opened opportunities through DRDO with a zero fee for transfer of technology (ToT), free access to over 450 patents, access to test facilities and an upfront funding of up to Rs 10 crore. More than 900 licensing agreements for ToT have been signed with industries," he said.

The government is providing opportunities to the private sector to manufacture fighter aircraft, helicopters, tanks and submarines through the "Strategic Partnership" model, which will allow private companies to grow in stature and become global giants in the coming years, he said,

<https://timesofindia.indiatimes.com/india/arms-export-target-set-at-5-billion-in-next-5-years-rajnath-singh/articleshow/74533111.cms>

**hindustantimes** hindustantimes.com

Mon, 09 March 2020

## All armed forces' branches to be open for women: Rajnath Singh

*Defence minister Rajnath Singh on Sunday said that all branches of the armed forces would soon be opened for women officers as resistance to the idea was on the wane*

New Delhi: Defence minister Rajnath Singh on Sunday said that all branches of the armed forces would soon be opened for women officers as resistance to the idea was on the wane.

"We believe that no branch of the armed forces should remain closed for women officers. I know that there is some degree of resistance against the commission of women in all branches of the services but this resistance is lessening," the minister said. Singh was addressing the 'Women Transforming India Awards' organised by the Niti Aayog here. "Women today are working in all branches of the Indian Air Force [IAF], eight branches of the Army and all non-seagoing branches of the Indian Navy. I want to assure you that rest of the branches would be opened soon," the minister said.

Singh said enhancing women's participation in the armed forces their role is a priority for the government.

It was, however, not immediately clear if by opening up all branches for women the minister meant allowing women officers to take up combat roles in the army. Women officers are currently barred from combat roles.

Women's role in the military has come under spotlight after the SC last month ruled that women officers entering the Indian Army through the short service commission are entitled to permanent commission and they have to be considered irrespective of their service length.

There are more than 3,500 women in the military but front-line combat roles were off limits to them until the government approved an IAF in 2015 to induct them into the fighter stream. Warships, tanks and combat positions in the infantry are still no-go zones for women. The Navy has women as pilots and observers on board its maritime reconnaissance aircraft.

<https://www.hindustantimes.com/india-news/all-armed-forces-branches-to-be-open-for-women-rajnath-singh/story-5jTbqtSRqoz6NLZEHF2SPK.html>

## More power to her: ‘Stree shakti’ is an integral part of our ‘rashtra shakti’

*We need to keep reminding ourselves about the contributions of women, about their strengths. India has come a long way in empowering women but many milestones are yet to be crossed*

*By Rajnath Singh*

International Women’s Day is celebrated across the globe on March 8 every year to recognise the achievements of women, across divides, national, ethnic, linguistic, cultural, economic or political. It provides an opportunity to reflect on the progress made, to call for change and celebrate acts of courage and determination by those women who have played an extraordinary role in the history of their countries and with regard to communities. The theme of International Women’s Day 2020 is, “I am Generation Equality: Realising Women’s Rights”.

We are a nation in which women’s empowerment has been imbibed in our culture for centuries. In the modern day context, it demands strengthening women’s positions in the social, economic, political and security architectures. The targeted outcome of such empowerment is the creation of an atmosphere where women feel safe and secure to pursue a profession or vocation of their choice. Women should play decisive roles in the family and society equally, so that any question of discrimination or deprivation does not arise.

When it comes to women, security is typically conceived of in terms of physical safety and security — and not beyond. However, our government led by Prime Minister Narendra Modi has added many new dimensions. For our government, women’s empowerment is a comprehensive programme that deals with five components of security: Health security of mother and child, social security, financial security, security of the future through educational and financial programmes in growing-up years, and last but not least, the physical safety of women.

Security and defence have been considered as male bastions but our government is committed to changing this perception.

During my tenure as Union home minister, I made special efforts to increase the number of women in our police and paramilitary forces. The MHA had issued an advisory to all state governments to reserve 33 per cent posts in their respective police forces. The ministry of defence has taken initiatives to increase women’s participation in various departments and field operations.

Many people may wonder what role the “weaker” section can play in the armed forces. A resounding response was given by thousands of women officers by their unique contribution in various services and arms of our forces. Empowerment of women in the armed forces has been a major focus area of our government over the past five years and many interventions are first-time initiatives. In 2019, 3.89 per cent of the Army personnel comprised women, while 6.7 per cent of the Navy and 13.28 per cent of the Air Force personnel respectively were women. Before 2016, women made up just 2.5 per cent of India’s armed forces.

The proposal for induction of women in the corps of military police in the Indian Army as soldiers was approved last year to recruit a total of 1,700 women military personnel. Steps like increasing the tenure of women officers in SSC from 10 to 14 years and improving their promotional prospects in the Army have been taken.

International Women’s Day gives us an opportunity to celebrate the shining examples of individual officers who have proved that women officers are second to none.

Squadron Leader Minty Agarwal was the eyes behind the Balakot airstrikes as fighter controller. She was conferred with the Yudh Seva Medal for her stellar performance during the operation that taught an unforgettable lesson to the enemy. In May 2019, Flight Lieutenant Bhawana Kanth became the first woman pilot of the Indian Air Force to qualify to undertake combat missions on a fighter jet. She completed her operational syllabus for carrying out combat missions on Mig-21 Bison aircraft during day time. She is from the first batch of women fighter pilots of the IAF. This year, Army Officer Tania Shergill led an all-male contingent of the Corps of Signals in the 71st Republic Day Parade. She also led all-men contingents during the Army Day function for the first time, creating history.

Our government has thrown open the doors of Sainik Schools for girls. Admission of girl students started in Sainik School, Chhingchhip (Mizoram) in academic year 2018-19 as a pilot project. The admission process for another five Sainik Schools — Kalikiri (Andhra Pradesh), Kodagu and Bijapur (Karnataka), Ghorakhal (Uttarakhand), Chandrapur (Maharashtra) — has already started. All the Sainik schools will extend admission to girl students from the academic session 2021-22 onwards.

There has been a substantial increase in enrolment and representation of girl cadets in NCC to 33.72 per cent in 2019 from 25.4 per cent in 2014. The total enrolment of girl cadets in the NCC is around 4.54 lakh (2019). An additional 33,000 girl cadets are to be enrolled in the senior wing under self-financing schemes from 2020. Nearly 650 additional posts for Girl Cadet Instructors (GCI) have been sanctioned for recruitment over the next five years against the present strength of 255 GCIs. For the first time ever, around 10,000 girl cadets will be sent for attachment with the three services from 2020 onwards.

A large number of women officers were commissioned in the AFMS over the last four years. The percentage of women medical and dental officers is around 23 per cent. And there is 100 per cent representation of women in the military nursing services (MNS). Never before in the history of independent India have women officers been given the opportunity to serve as defence attaches. Now two women officers, Wg Cdr Anjali Singh, (IAF) and Lt Cdr Karabi Gogoi (Indian Navy) have been posted as Asst Attache in the Defence Wing of Embassy of India in Moscow, Russia.

The DRDO has been according equal opportunities for enhancement of women's skills and fulfilment of their potential. Some of the leading missile scientists today are women. The year 2018 saw the first-ever Indian circumnavigation of the globe, Navika Sagar Parikrama, by an all-women crew. The INSV Tarini success was the completion of the first Indian all-women circumnavigation of the globe, depicting "nari shakti" on the world platform.

Women in our armed forces are marching ahead to conquer new frontiers and my best wishes to them. The economic and social empowerment of women is another significant step which our government has taken in the past 70 months.

The Mudra Yojana is one of schemes which has laid the foundation of economic empowerment of Indian women. Women entrepreneurs have cornered about 75 per cent of the total disbursements under the Yojana.

The government is moving in the right direction, but I do believe what's really required is far more awareness and creation of new opportunities. Programmes like "Beti Bachao, Beti Padhao" have not only helped improve the sex ratio but also created awareness among the people. We need to keep reminding ourselves about the contributions of women, about their strengths. India has come a long way in empowering women but many milestones are yet to be crossed.

"Stree Shakti" is an integral part of our "Rashtra Shakti" and without strengthening our "Shakti" we cannot aspire to be "Shaktishali Bharat".

*(The writer is the Union Defence Minister)*

<https://indianexpress.com/article/opinion/columns/international-womens-day-gender-equality-rajnath-singh-girl-education-women-indian-army-6305736/>

## **‘Making us proud’: Indian Army salutes achievements of women on Women’s Day**

***SC in a judgment hailed for creating a new equality paradigm in the armed forces, upheld a 2010 Delhi HC verdict and ruled that women officers who joined the Indian Army through SSC are entitled to permanent commission***

New Delhi: Indian Army on Sunday issued a tweet on International Women’s Day to acknowledge women’s role in the force. India began recruiting women to non-medical positions in the armed forces in 1992 and there are more than 3500 women in the military.

According to a tweet by defence minister Rajnath Singh women made up just 2.5% of India’s armed forces, working in mainly non-combat roles, before 2016.

“As of Jan 2019, 3.89 percent of the army personnel comprised women, while 6.7 percent of the navy and 13.28 percent of the air force personnel were women as of June 2019,” he had added.

Singh’ tweet had come after the Supreme Court ordered the government in February this year to consider women for command roles in the army, rejecting the Centre’s push for limiting the roles that women officers should be allowed to perform in the armed forces.

The top court, in a judgment hailed for creating a new equality paradigm in the armed forces, upheld a 2010 Delhi high court verdict and ruled that women officers who joined the Indian Army through Short Service Commission (SSC) are entitled to permanent commission, which has only been applicable to men so far, even if they have more than 14 years of service.

This would allow women to get the same opportunities and benefits as their male colleagues, including ranks, promotions and pensions, and be allowed to serve longer tenures.

Women could earlier serve for five years and their service could be extended by another five years. A policy revision in 2006 allowed them to serve for a maximum of 14 years as SSC officers. Women can join only through SSC and are not given ab initio permanent commission in any of the armed forces.

In September 2008, the defence ministry decided to grant permanent commission (PC) to eligible SSC women officers in branches such as the Judge Advocate General and Army Education Corps. Until then, women in the armed forces were offered PC only in the medical wing.

Apart from legal and education wings, the army from this year will grant PC to women in branches such as Signals, Engineers, Army Aviation, Army Air Defence, Electronics and Mechanical Engineers, Army Service Corps, Army Ordnance Corps and Intelligence.

After the Supreme Court order, women officers could command units in these branches, if found eligible. The IAF and Indian Navy also provide PC to women in select branches.

Front-line combat roles were off-limits to them until the Modi government approved an Indian Air Force (IAF) plan in 2015 to induct them into the fighter stream.

Warships, tanks and combat positions in the infantry are still no-go zones for women. Navy has women as pilots and observers onboard its maritime reconnaissance aircraft, which is a combat role.

The United States, Israel, North Korea, France, Germany, Netherlands, Australia and Canada are among the global militaries that employ women in front-line combat positions.

<https://www.hindustantimes.com/india-news/making-us-proud-indian-army-salutes-achievements-of-women-on-women-s-day/story-JjBYbaBZRmjnccv9DoNw4I.html>

## Now it's up to Army to create gender-neutral standards

*By Lt Gen DS Hooda*

This Women's Day, women in the Indian Army must feel special. They have fought a long battle in the courts for gender equality and won. The government counsel, while opposing permanent commission to women and grant of command assignments, made some very regressive arguments. The Supreme Court rightly rejected these in a ruling on February 17. Justice D Y Chandrachud, while reading out the verdict, said, "To cast aspersion on their abilities on the ground of gender is an affront not only to their dignity as women but to the dignity of the members of the Indian Army".

The military is perhaps the last male bastion that needs to be breached if we are to move towards achieving genuine gender equality. But the military also has a unique role — dealing with violence and brutality in its most extreme form, which has historically resulted in an organisation that celebrates masculinity and limits the role of females. The real test lies in balancing these two competing requirements.

With the Supreme Court having delivered its verdict, the Army will have to move on to creating organisational conditions that will give flesh to the ruling. Command assignments are an extremely vital cog in the Army's structure, and the selection process for these appointments is highly competitive. If women officers are to take on this role, they will have to be appropriately trained and groomed. At present, women officers are excluded from attending some important courses like the Defence Services Staff College and the Senior Command courses. These courses impart professional knowledge that is essential for holding higher command assignments. Attendance on some of these courses also ensures additional merit during the promotion boards, and if women are to compete equally for promotion, they must be provided similar opportunities.

Some key staff assignments in higher headquarters must also be opened up for women officers. Experience in serving on these appointments will provide the necessary expertise to deal with the challenges associated with the command of units. Without this knowledge, women officers could find themselves ill-prepared for senior ranks.

The Army will have to create gender-neutral standards and practices in pre-commission training, physical performance, and matters of training, postings and promotions. Any dilution in standards to favour women will affect unit cohesion and ultimately do long-term harm to the acceptance of gender equality in the Army. Women will have to rise to this challenge.

We must understand that providing equal opportunities to women in the Army is not merely a matter of changing mindsets about gender bias. It will also do good to the organisation. Encouraging diversity leads to increased creativity and fosters innovation by bringing in different perspectives. By including women in command roles, there will be a larger pool of officers from which the best candidates can be chosen for promotion.

There are also some areas where women can play an extremely vital role, for example, in peacekeeping and conflict resolution. The United Nations Security Council Resolution 1325, adopted in October 2000, reaffirmed "the important role of women in the prevention and resolution of conflicts and in peace-building, and stressing the importance of their equal participation and full involvement in all efforts for the maintenance and promotion of peace and security, and the need to increase their role in decision-making with regard to conflict prevention and resolution."



I want to end with a note of caution. The Supreme Court judgment should not become a trigger for demands to now include women in combat roles. There are too many unaddressed and complex issues concerning exposing women to direct combat. Even the most gender-sensitive societies have not been able to find all the answers and the debate rages on. Although the United States military opened up all combat roles for women in December 2015, defence secretary Jim Mattis commented in September 2018 that the jury is out on whether women can succeed in combat.

Women in the Indian Army have won a significant victory, but many challenges lie ahead. In his book 'The Allure of Battle', Cathal J Nolan writes, "Winning the day of battle is not enough. You have to win the campaign, then the year, then the decade. Victory must usher in political permanence." I am aware that similarities with wars and battles could be seen as wrong, but the message is not entirely inappropriate. Much groundwork is yet to be done, and it is the adoption of gender-neutral policies and practices by the Army that will herald a permanent and equal place for women in uniform. <https://timesofindia.indiatimes.com/blogs/generals-jottings/now-its-up-to-army-to-create-gender-neutral-standards/>



Sun, 08 March 2020

## No less than men: Women in armed forces

*A conservative Indian establishment overlooked the fact that women officers have been performing at par with their male counterparts. In fact, on occasions even better*

*By Dinesh Kumar*

Reasons against women being given Command appointments are quite obvious. Women undoubtedly have several physical and physiological limitations. One, they have to manage domestic responsibilities that include pregnancy and motherhood. Second, they have limitations of physical fitness and capability. Third, they are likely to face resistance from egoistic and chauvinistic minded male soldiers. Then there are practical problems about living on the frontline such as the Line of Control and in both terrain and weather-challenging locations such as the Siachen Glacier and other high altitude areas of Jammu and Kashmir, Ladakh, Sikkim and Arunachal Pradesh, the hilly jungles of the Northeast and in the hot sandy desert. And finally, there is always the rhetorical question of "how can women have the audacity to operationally command what has always been a male bastion that continues to be engaged in a 'no war no peace' environment?" starting virtually from the moment the British vacated its Jewel in the Crown. After all, India is located in one of the world's most politically, militarily and diplomatically challenging regions.

The three Services and the Ministry of Defence (MoD) put across several of these points and more before the Supreme Court, which, on 17 February, overruled the government's arguments and, in a landmark judgement, directed them to accord both Permanent Commission and Command assignments to women officers in the armed forces.

The three Services and the MoD ought to have known better. In addition to the reality that women officers play a more active role in the armed forces of several western democracies, a conservative Indian establishment overlooked the fact that women officers have been performing at par with their male counterparts. In fact, on occasions even better. Most, if not all, women officers are qualitatively better than many of their male counterparts. Several self-motivated widows of officers killed in counter-insurgency operations have insisted on joining the Army despite being in the late 20s' to mid-30s' age group and are serving with resolve and dedication.

Women Army officers have been engaged in command duties at operational levels. For example, some women officers belonging to the Electronics and Mechanical Engineers have been commanding EME workshops. Others have performed as convoy commanders, commanded Engineers detachments

and, on one occasion due to circumstantial reasons, even briefly officiated as a Brigade Major (BM) of an Infantry brigade deployed in counter-insurgency operations in the Kashmir Valley. The woman officer concerned performed with aplomb equal to any male officer who had qualified from the prestigious Defence Services Staff College that is considered necessary for a Major rank officer to be posted on the pivotal role of a BM. This was despite her not being from a combat arm with any prior training mandated to execute this critical role.

Furthermore, the Indian armed forces are agog with many more stories of high and rare achievements by women officers. Indian women officers have been awarded gallantry medals. For example, Lt Col Mitali Madhumita was awarded a Sena Medal in the face of an attack by suicide bombers belonging to the Taliban in Kabul (Afghanistan). Flying Officer Gunjan Saxena, an IAF helicopter pilot, was awarded the Shaurya Chakra, the third highest peacetime gallantry award, during the Kargil War. (She was awarded a peacetime gallantry medal since she had not faced any direct enemy fire).

Women Army officers have similarly had occasion to serve in either key positions or accomplish rare feats. Sqn Ldr Minty Agarwal, a fighter controller, guided fighter pilots during the post-Balakot dog fight in February 2019. Lt Col Sophia Qureshi led an Army training contingent at Force-18, an 18-country ASEAN Plus multinational army field training exercise. Sqn Ldr Deepika Misra, a Dhruv helicopter pilot, has been part of Sarang, the Indian Air Force helicopter aerobatic team. Flt Lt Nivedita Choudhary, Sqn Ldr Nirupama Pandey and Flt Lt Rajika Sharma were the first women IAF officers to scale Mount Everest. Air Marshal Padmavathy Bandopadhyay conducted scientific research on the North Pole while Cadet (currently Captain) Divya Ajith was awarded the Sword of Honour after being declared best all-round cadet at the co-educational Officer Training Academy. And very interestingly, late Sepoy Shanti Tigga, a mother of two, outran her male counterparts in a 1.5 km race while in her mid-30s and went on to become an expert marksman. She served as the Army's first ever female jawan.

Instead, however, the armed forces unimaginatively ended up displaying a regressive mindset despite having taken progressive steps in the past. A case in point pertains to Lt Col Mitali Madhumita, who was awarded a Sena Medal for her heroic feat of extricating several injured civilians and Army officers of a training team buried under rubble during a suicide attack on two locations in Kabul in February 2010. A total 18 persons, including eight Indians, were killed. The eight Indians killed included two Indian Army Majors, an Indian embassy official and a constable of the Indo-Tibetan Border Police posted in Kabul. Despite her heroic feat that earned her a gallantry medal, the Ministry of Defence, on the advice of the Army, refused to accept her request for Permanent Commission. Rather than displaying grace, an adamant and adversarial MoD went on to appeal against an Armed Forces Tribunal judgement according the officer Permanent Commission. The MoD, which displayed disregard for the officer's capability and certainly no imagination, finally relented after the Supreme Court, before which the MoD has appealed, ordered that Lt Col Madhumita be given Permanent Commission.

The Indian Air Force (IAF) has been the most progressive of the three Services. After first recruiting women pilots to fly fixed wing transport aircraft and helicopters, the IAF broke the glass ceiling by training and recruiting fighter pilots. Since 2016, when women pilots were first inducted, the IAF has since recruited eight women fighter pilots. The Navy, which also has women pilots flying fixed wing aircraft and helicopters, does not as yet permit women officers to fly its combat aircraft (the MiG 29K) or serve on board surface warships and submarines.

Currently, the Army only permits women officers to be recruited to Supporting Arms and Services. Like in the IAF and the Navy, the Army too has been according women officers a Short Service Commission of up to 14 years. Rather than recommending it on its own, it was only under pressure from Delhi High Court in September 2019 that the Army opened Permanent Commission for women to five Support Arms and three Services—the Corps of Engineers, the Corps of Signals, the Army

Aviation Corps, Army Air Defence, the Corps of Electronics and Mechanical Engineers (all Support Arms), and the Army Ordnance Corps, the Army Service Corps and Military Intelligence (all Services). In the past, Permanent Commission had been confined to the Army Education Corps and the Judge Advocate General, apart from the Army Medical Corps, the Army Dental Corps and Military Nursing Service. Women are not recruited in the Army's four key combat arms—Infantry, Mechanised Infantry, Artillery and the Armoured Corps, the officers of which traditionally command the fighting formations of Divisions, Corps and Regional Operational Commands. So it is not as if women Army officers are going to strategise wars and command troops in battle. That, if it ever happens, is still a long way away.

The Services, particularly the Army, which is facing a major shortfall in its officer cadre, should have on its own taken the role of women officers to the next level rather than first contesting it in the Supreme Court and now acceding out of compulsion. Change is the only constant and the Services, who are forever preparing for a constantly changing warfare environment, must never lose sight of that. Service officers and soldiers down the line will only shed their biases and be more accepting of women officers if Service officers show the way by shedding their chauvinistic attitude.

Indians love to cite examples from Indian mythology and history to paint India and Indianness in the highest glory. The historical reference here is that India's political and military history is replete with examples of queen warriors. The Rani of Jhansi is an oft quoted case and doesn't need elaboration. But she was not the only one.

Does anyone remember Abbaka Chowta (1525-1570), the intrepid queen who defeated the Portuguese and prevented them from expanding south of Goa? Or, Rani Durgavati (1524-1564) and Chand Bibi (1550-1599), both of whom independently fought Akbar's forces? Or, Keladi Chennamma, who fought Aurangzeb's forces during her rule from 1671 to 1696? Or still, Onake Obarra, a simple woman who single handedly bludgeoned to death several soldiers of Hyder Ali's marauding army? Then there was the sari-clad 17th century queen, Belwadi Mallamma, who led her forces against Shivaji. Also, not many remember Kittur Chennamma, the ruler of Kittur, who fought the East India Company against their draconian "Doctrine of Lapse" in 1824 which was more than three decades before Rani Lakshmbai took on the oppressive British Company during the 1857 rebellion.

Surely, Indian women deserve more credit than the armed forces and the Ministry of Defence are voluntarily willing to accord. And it would be better if decisions are taken with grace and imagination in keeping with the times rather than being enforced by courts. Isn't that what visionary leadership is all about?

<https://www.sundayguardianlive.com/news/no-less-men-women-armed-forces>



*Sun, 08 March 2020*

## **Andipatti girl's long march to Indian Army**

*Fighting all odds Annapurani from Theni dist graduates from OTA along with 178 cadets*

*By Omjasvin M D*

Chennai: Her father is a clerk. Her disabled brother runs a mobile repair shop, and her family belongs to the low-income group. But, none of these challenges stopped Annapurani V, a 23-year-old girl from Andipatti village in Theni district, from realising her dream of wearing the famed olive green uniform of the Indian Army. She was among 167 cadets (136 men and 31 women) who graduated from the Officers Training Academy (OTA) here on Saturday. Additionally, 11 cadets from foreign countries (eight from Bhutan, two from Fiji and one from Papua New Guinea) graduated too.

From finishing engineering, a subject she did not particularly like, to graduating from the OTA as an officer after three attempts, the road to success was not easy for Annapurani. “When I was in my final year of college in Coimbatore, my mother kept telling me to return home and work in a job that paid `10,000 per month,” said Annapurani. She was also told that marriage would soon follow. But Annapurani had better, bigger plans. “I decided I shouldn’t get married at 22 like other women in my hometown,” she says. It was then that she came across CCUS (Centre for Career in Uniformed Services) in Coimbatore through college lectures.

Guided by professionals, five days after finishing college in 2018, Annapurani joined the OTA to train to be an Army officer. However, her dreams hit a stumbling block when she was relegated due to fitness issues. “I did not have a sports or NCC background. So when I failed, I decided to work harder and prove a point,” added Annapurani, who cleared the course in her third attempt. Director General of Police (Railways), C Sylendra Babu was at the OTA to congratulate Annapurani. As he was associated with CCUS, he knew the girl, who was striving hard to join the Army. “When a young girl from a small village can reach these heights, it proves that any woman can succeed,” Sylendra Babu told Express.

### **Diverse backgrounds**

Among those who passed out from OTA were sons of farmers, wives of martyrs and former employees of top MNCs. Naveen Udamesh, a 26-year-old engineer with Mercedes, quit his six-digit salaried job and joined the OTA. “The satisfaction you get in wearing the uniform and serving the country is beyond monetary value,” said Udamesh, who hails from Dharwad in Karnataka.

Amit Kumar Shukla (26), who passed the OTA course in his second attempt, is a son of a farmer. “Many in my village are not aware of the opportunities the army provides. I look forward to spreading awareness among other youngsters there,” said Shukla, who hails from Rewa in Madhya Pradesh. Gauri Prasad Mahadik (33) from Mumbai is wife of a martyr who was part of Bihar regiment. He died in 2017. ‘I dedicate this to my husband and I only wanted to join the Army for him,’ said Mahadik.

<https://www.newindianexpress.com/cities/chennai/2020/mar/08/andipatti-girls-long-march-to-indian-army-2113839.html>



*Sun, 08 March 2020*

## **For Navy’s first woman pilot, sky is the limit**

*Flying has been this young woman’s dream right from her childhood and she realised it when she earned her wings after a lot of struggle*

*By Anu Kuruvilla*

Kochi: Flying has been this young woman’s dream right from her childhood and she realised it when she earned her wings after a lot of struggle. Sub-lieutenant Shivangi made history when she completed her training and flew a Dornier aircraft, becoming the first woman pilot in the Indian Navy. In the process, Sub-lieutenant Shivangi also managed to break into what was until then a male preserve. “Becoming a pilot was a childhood dream but I never knew how to fulfil it. And the Navy helped me realise it,” she said. According to Shivangi, it was while in college that she first came across a Navy personnel.

“I hail from a landlocked area,” said the young pilot from Bihar currently posted at the Southern Naval Command at Willingdon Island in Kochi. “Navy personnel had come to the campus to recruit prospective candidates under the University Entry Scheme. The ‘whites’ attracted me and on the spur of the moment, I decided to join the Navy,” she said.

According to her, if anyone chooses to do something different then obviously they will encounter lot of things which will come in the way. “But you have to overcome those difficulties. Coming from a civilian background, people always want to be in a safety net. Hence, it was a big decision for me to join the defence,” said the sub-lieutenant. Shivangi, who was a novice in swimming, shooting, sailing and equestrian, had to master all these to achieve her one single goal in life -- becoming a pilot.



<https://www.newindianexpress.com/cities/kochi/2020/mar/08/for-navys-first-woman-pilot-sky-is-the-limit-2113887.html>

## THE TIMES OF INDIA

Sun, 08 March 2020

### 178 commissioned as officers of Army at OTA

Chennai: A girl from Andipatti who fought to avoid an early marriage, an engineer who left his high-paying job at MercedesBenz, a farmer’s son who is a first-generation graduate and a cadet who will be the second woman Army officer from Arunachal Pradesh were among the 178 cadets who braved the odds and passed out of Officers Training Academy (OTA) after completing a six-month gruelling training on Saturday. All the four have one thing in common they are engineering graduates. Its not the first time that BTech graduates have passed out of short service commission from OTA but these four have struggled in their own ways to make it as officers in the army.

Annapurani V, of Andipatti, is the one who seems to have struggled the hardest to get into the Army as an officer. And she looked the happiest among the cadets celebrating after piping function during which parents pin stars of on shoulders of new officers.

“Training was not easy. I had to repeat a term because I was not upto the mark in the physical training. But, I endured and succeeded. It was possible because I was desperate to prove to my parents and all that I can achieve something in life than getting married off at a young age like all girls in my village.”

Annapurani’s father, a clerk, managed to make her study engineering at a private college in Coimbatore. But they wanted to marry her off soon after she passed out. “They said you are not going to get a job. So marry. But I was not happy. I attended the interview for short service commission (those with BTech degree need not write the exam).

Having no experience in NCC, she had to attempt the interview thrice. Once, without her parents knowing.

While Annapurani wanted to fight social mores, Naveen Udameshi B from Dharwad had always liked the uniform though he studied electrical and electronics engineering and got into a high-paying job at research centre of Mercedes Benz in Bengaluru. “The satisfaction I get here is much better,” he added. Amit Kumar Shukla, son of a farmer in Rewa, who studied computer science engineering and Ipupu Mena, a civil engineering graduate, who has become the second woman Army officer from Arunachal Pradesh, chose a career in the Army because of their love for uniform and the challenging life it offers. Five gentlemen cadets and three lady cadets from Bhuta, two gentlemen cadets from Fiji and one from Papua New Guinea also passed out. The passing out parade was reviewed by Admiral Karambir Singh, chief of Naval staff.

<https://timesofindia.indiatimes.com/city/chennai/178-commissioned-as-officers-of-army-at-ota/articleshow/74532123.cms>



## HAL planning to set up logistics bases in Malaysia, Vietnam, Indonesia and Sri Lanka

New Delhi: State-run aerospace behemoth Hindustan Aeronautics Ltd (HAL) is looking at setting up logistics bases in Malaysia, Vietnam, Indonesia and Sri Lanka as part of initiatives to woo the countries to buy India's light combat aircraft Tejas and military helicopters.

Chairman and Managing Director of HAL R Madhavan said the HAL is considering to build logistics bases in the four countries as they use a number of Russian-origin military aircraft and choppers whose serviceability is "very poor".

He said the HAL is now seriously focusing on boosting exports in sync with the government's priority and identified South East Asia, West Asia and North Africa to sell key platforms like Tejas, attack helicopter Rudra and advanced light helicopter Dhruv.

Last month, Prime Minister Narendra Modi has set an ambitious defence export target of USD 5 billion dollars in the next five years and asked all the key military manufacturers to work hard to achieve the target.

"We are looking at setting up maintenance facilities in Malaysia, Vietnam, Indonesia, Sri Lanka. We can give them a lot of support to as these countries use lot of platforms which are common to India, and their serviceability is very poor," he told PTI.

The HAL top executive said the company is looking at setting up maintenance facilities in these four countries as having logistics bases is key to sell the products and ensure after-sales services.

Without divulging details, Madhavan said a number of countries in West Asia are also in touch with the HAL for possible procurement of its key products.

"We now are looking at exports very seriously. A sizeable number of countries are showing lots of interests in the platforms we are producing as they are world class. We are in talks with so many countries," said the HAL chief.

Specifically, he said that Tejas has a "very good" export potential as it is a four-and-half generation fighter jet which can compete with some of the famous military jets in its class.

The Tejas has been Developed by Aeronautical Development Agency and the HAL. The lifespan of the jet would be a minimum of 30 years just like any other frontline combat aircraft. The combat jets are classified under various generations depending on their avionics, capability and weapons systems. The current fleet of fighter jets with the IAF range from three-and-half generation to the fourth generation.

The Indian Air Force has already placed an order for 40 Tejas and is likely to seal a contract "very soon" with HAL for another 83 aircraft at a cost of around Rs 38,000 crore.

India is one of the largest importers of arms and military platforms globally. The government has been focusing significantly on promoting defence indigenisation by taking a slew of reform initiatives including liberalising FDI in defence sector.

<https://timesofindia.indiatimes.com/india/hal-planning-to-set-up-logistics-bases-in-malaysia-vietnam-indonesia-and-sri-lanka/articleshow/74539170.cms>

## How the IAF plans to get the edge back from Pakistan on air-to-air strike capability

*During the aerial duel between India and Pakistan on 27 February last year, the IAF had felt the chinks in its air-to-air armour with the Pakistanis having had the edge in this sphere*

*By Snehesh Alex Philip*

New Delhi: The Indian Air Force (IAF) has initiated the process to acquire and induct the first batch of the indigenous all-weather Beyond Visual Range (BVR) missile – Astra – as it aims to recapture its edge over its Pakistani counterpart in air-to-air capability.

To add to its options, the IAF is also in the process of integrating the Israeli I-Derby Extended Range missile on its frontline fighter aircraft, the Su 30 MKI.

These missiles along with the already inducted MICA medium range BVR, and the long-range Meteor missiles will form the backbone of India's air-to-air strike capability.

“We have initiated the process to acquire the first batch of the Astra missiles. Since it is indigenous, we will be procuring them in batches,” an IAF officer told ThePrint.

During the aerial duel between India and Pakistan on 27 February last year, the IAF had felt the chinks in its air-to-air armour with the Pakistanis having had the edge in this sphere.

Pakistan's F16s were armed with the AIM-120 C-5 AMRAAM (Advanced Medium-Range Air-to-Air Missile), which has a higher capability than that of the medium range R-77 used by the Su 30 MKI and the MICA used by the Mirages.

### **A lost edge**

The IAF had the edge over its Pakistani counterpart during the Kargil battle in 1999 but lost it in 2010 when the American AMRAAM was deployed by the latter.

IAF chief, Air Chief Marshal RKS Bhaduria, had on 28 February this year said that the force is looking at regaining the upper hand in air-to-air missile capabilities that was “allowed to slip” amid a “struggle” to acquire missiles in a process that has lasted 15 years.

The IAF chief was referring to the European-manufactured Meteor missiles that have a range of about 150 km. With the missile, an IAF pilot will be able to take out enemy aircraft at a distance of 150 km without even crossing the Indian airspace.

The Meteors have been ordered along with the Rafale fighters. While the first four Rafale fighters will land in India by May, it will take another year or so for them to be fully operationalised.

### **Only Rafales to have Meteor missiles**

While the initial plan was to try and integrate the Meteor missiles on the Mirage 2000, the Su 30 MKI and the Tejas Mark II, the European manufacturer of the missile – MBDA – told the IAF that the French-made Mirage 2000 and the Russian Su 30 MKI are not suitable for the long range missile.

For the Tejas, MBDA said that the missile can be integrated only when the aircraft is equipped with indigenous AESA radar rather than the Israeli one that will be initially used.

Following this, the IAF has decided to restrict the Meteor missile to the Rafale and rely on better versions of Astra and I-Derby for its main firepower.

While the Astra currently has a range of about 100 km, the Israeli I-Derby has about a 60 km range.

“It is also a matter of cost,” a defence source said. “The Meteor is a very expensive missile. Astra, a fine missile, is cheaper by over half the price since it is indigenous. It is expected that future versions of Astra will beat the range of the Meteor itself.”

Another missile which will be part of the IAF firepower is the British Advanced Short Range Air-to-Air Missile (ASRAAM). While it is already being integrated with the Anglo-French Jaguar aircraft, the plan is to integrate them on the Su 30 MKI. If successful, this missile will replace the short range R-73 air-to-air missile that is on board the Russian aircraft currently.

<https://theprint.in/india/how-the-iaf-plans-to-get-the-edge-back-from-pakistan-on-air-to-air-strike-capability/377071/>

THE ECONOMIC TIMES

Sun, 08 March 2020

## First four Rafale jets to arrive by May end: Rajnath Singh

*Speaking at the annual summit, the minister shared the government's plans for the defence sector and said that the plan is for the sector to grow to \$ 26 billion by 2025, with the private sector being a key player to achieve the goal. Singh also said that India's ties with China are on the upswing and that there is no threat perception on the border*

The first four Rafale fighter jets are arriving in India by the last week of May, following which an aircraft will arrive every 45 days, Defence Minister Rajnath Singh disclosed at the Economic Times Global Business Summit, saying that the 36 on order are enough to take care of adversaries as of now.

Speaking at the annual summit, the minister shared the government's plans for the defence sector and said that the plan is for the sector to grow to \$ 26 billion by 2025, with the private sector being a key player to achieve the goal. The minister also said that India's relations with China are on the upswing and that there is no threat perception on the border.

"The Defence sector has been identified as one of the key sectors that will help us in achieving the stated objectives. In our envisaged Defence Production Policy, we have clearly spelt out our goal to achieve a turnover of US\$ 26 billion in aerospace and defence goods and services by 2025, involving an additional investment of nearly US\$ 10 billion and creating employment for nearly 2-3 million people," the minister said.

Taking a realistic view on the sector, the minister said that a lot more needs to be done to drive defence manufacturing to its true potential and that there is certain sense of underperformance at the moment where the private sector needs to step in.

"One of the main reasons for this was to retain the field of defence production within the confines of governmental control and ownership. Though, it was the necessity of the times and it did help provide a much-needed foundation to an industry that was not commercially competitive to begin with. However, the necessity of becoming internationally competitive, globally innovative and structurally efficient, demands that the private sector plays its long-awaited role in the defence industrial production," he said.

Elaborating on steps taken to promote industry, the minister said that the government is going all out to meet demands. "We have opened opportunities through DRDO with a zero fee for Transfer of Technology (TOT), free access to over 450 patents, access to test facilities and an upfront funding of up to 10 crores. More than 900 licensing agreements for ToT have been signed with industries. This is a major step towards self-reliance in defence manufacturing sector," the minister said.

Terming Micro, Small and Medium Enterprises as 'silent performers' who carry the ambition of achieving five trillion economy on their shoulders, the minister said that their role is being expanded. "More than 8000 MSMEs are currently engaged in Defence Production. Efforts are being made for doubling the active MSME base in Defence and Aerospace from 8000 to 16,000," the minister said.



Singh said that export of defence products is a priority area and the private sector is being encouraged to reach out to global clients. “We would also be willing to extend Lines of Credit and grants for Friendly Foreign Countries over the next five years. The government aims to achieve exports of defence goods & services to the tune of USD 5 Bn in next 5 years,” he said.

The minister announced that the government’s aim is to double the size of Aeronautics Industry from Rs. 30,000 Cr to 60,000 Cr by 2024. “A number of major platforms are envisaged in defence Aerospace sector including India’s 90-seater civil aircraft, developing civil helicopter industry of USD 5 Bn in PPP model, and New Aero Engine Complex in Defence Corridor with industry participation,” he said.

The defence minister assured the industry that the government is open to new ideas and is “committed to fully harness the energies, entrepreneurship spirit and enterprise of private sector in the area of defence.”

<https://economictimes.indiatimes.com/news/defence/first-four-rafale-jets-to-arrive-by-may-end-rajnath-singh/articleshow/74528589.cms>

## Global Village Space

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# Chinese attack helicopters in Pakistan air force: War against Indian Cobras

*Islamabad had in 2015 ordered 12 Bell AH-1Zs under the USA’s Foreign Military Sales process and then followed that in 2018 with a deal for 30 Turkish Aerospace T129s worth \$1.5 billion*

Pakistan looks set to turn to China for its attack helicopter replacement needs after US embargoes halted sales of rival Bell and Turkish Aerospace products.

Islamabad had in 2015 ordered 12 Bell AH-1Zs under the USA’s Foreign Military Sales process and then followed that in 2018 with a deal for 30 Turkish Aerospace T129s worth \$1.5 billion.

But the AH-1Z sale has been on hold since US President Donald Trump cut security funding to Pakistan, and export sanctions related to the US-built LHTEC T800 engines which power the T129 has led to the suspension of that contract.

This impasse, and a pressing need to retire its fleet of 48 Bell AH-1Fs, is now pushing Islamabad to consider alternatives, Major General Syed Najeeb Ahmed, commander, army aviation, told Defence IQ’s International Military Helicopter conference in London on 26 February.

“We are looking at other options. One of them is in China in the shape of the new attack helicopter they have created called the Z-10ME,” he says. “In case the first two options do not materialise this third option will be considered.”

Pakistan had previously evaluated an earlier version of the CAIC Z-10, but Ahmed says the latest iteration has improved weapons and systems.

Ahmed is extremely doubtful that the AH-1Z deal can be resurrected, and although Turkish Aerospace is developing an indigenous replacement engine for the T129, he is not confident that this will be ready in time.

In fact, Pakistan has set a deadline of July this year for a final decision, Ahmed says.

The relative urgency is driven by India’s capability increases, as New Delhi grows its fleet of Boeing AH-64E Apaches.

“The Cobras are no match for the Apaches that the Indians are getting,” he says. “We definitely want to match that [capability].”

In April 2016, Bell announced that it would sell 12 AH-1Z Vipers to Pakistan. The U.S. State Department had approved the sale of 15 AH-1Z Vipers and associated equipment at an estimated cost of \$952 million to Pakistan in April 2015. While the first rotorcraft were expected to be handed over to the PAAC by mid-2017, no delivery has taken place to date due to deteriorating U.S-Pakistan relations.

<https://www.globalvillagespace.com/chinese-attack-helicopters-in-pakistan-air-force-war-against-indian-cobras/>



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## China's growing dominance in space: Can india risk staying behind

*China tested an anti-satellite (ASAT) weapon in 2007 and in January 2019, Chinese lunar rover was successfully placed on the dark side of the Moon, a technically difficult mission*

*By Huma Siddiqui*

For India, China is considered as a dormant adversary, but it has come a long way since the last shots were fired in hostility during the Indo-China 1962 border conflict.

China has strategically increased its overseas investment to emerging as an influencer in the world dynamics, while maintaining an aggressive stand closer to its borders, like in the South China Sea and the Taiwan Strait. Closer home, China's realization of 99 years lease of Hambantota Port in Sri Lanka against the debt money owed to it, is disconcerting for India. In the Space sector, China's missions have been remarkably successful and have reached a potential to grow as a primary adversary against US Space Command.

### **Militarization of Space**

In a recent article, US-based Theresa Hitchens of Breaking Defense News says "Space warfare shall be extending to the Moon, Mars and beyond in the near future." In her article she has said that "the space between Earth and Moon is going to be the new 'high ground' of warfare on Earth."

"Space plays a critical role in today's daily life and is an essential dimension for every nation's growth. While the Space-based advanced solutions like PNT (Position, Navigation and Timing) services are key for the economic prosperity of a country, militaries round the world have started exploiting Space for achieving success on Earth," says Milind Kulshreshtha, C4I expert.

In today's warfare the land-based assets are highly trackable from space, leaving very less chance of achieving surprise or deception. The latest generation hypersonic missiles are known to achieve their lethality during the re-entry phase and such high kinetic energy weapons falling from the sky are difficult to intercept.

### **India's Security Concern**

"Any military utilization of Space to safeguard India's interest shall be an inevitable part of its Space programme. A formal Space Command within the ambit of Chief of Defence Staff shall surely give an impetus to counter regional threat emanating from China's advancements in Space" opines Kulshreshtha.

According to him, "India requires a proactive security approach; so as to safeguard its Space-based services and assets. Any plans for military usage of Space have to be made much in advance. Each rocket launch is part of a long-drawn engineering design and development challenge as Space missions have a close to zero error margins."

“The science of achieving a perfect rocket launch, a precise space transit and an accurate operation in Space usually borders the limits of human technology existing in any era. Hence, for Indian Space dreams to catch up with China’s effort, the ever-widening gap between the two in Space technology is required to be narrowed. The government has to create a well-funded research and Space expansion plan for Indian Space Research Organisation (ISRO)” the C4I expert observes.

### **China’s Space Silk Road**

China plans to establish the Space Silk Road and has achieved definite advantage over Indian effort in the same field. As early as 2003, it had success with the first manned Space mission, which was followed with a second mission in 2005. In 2008, a three-person crewed space flight also included the maiden spacewalk by a Chinese Taikonaut. A successful Space Station programme in 2011 resulted in the first crewed Space Station docking in 2016 and established the long term Space presence for China.

The US and Russian manned flights earlier have established that the military usefulness of humans operating on Spacecrafts is very low, especially when mostly all the military purposes are effectively achievable by an uncrewed satellite, or, when required, by humanoids.

China tested an anti-satellite (ASAT) weapon in 2007 and in January 2019, Chinese lunar rover was successfully placed on the dark side of the Moon, a technically difficult mission. And has managed to carry out its space activities under the dual-use technology ploy so as to avoid any undue military attention. China is in the process to set up a new space station, a Moon base and undertake multiple missions to Mars.

### **India’s Space Missions**

Defence satellites, like GSAT-7 for the Indian Navy or GSAT-6, have been operational in the Low Earth Orbit and have few dual-purpose satellites like RISAT-2BR1 in an Intelligence, Surveillance and Reconnaissance (ISR) roles. An Integrated Space Cell has been created in 2010, which is operated jointly by the three services, the Defence Research and Development Organisation (DRDO) and ISRO (India’s Space Research Organisation).

In 2019, India test-fired a missile from Earth to shoot down one of its own satellites, demonstrating a strategic capability in space and this technology now allows it to essentially to ‘blind’ an enemy by destroying its space-based Communication and Surveillance satellites.

Two Lunar missions — Chandrayaan-1 and Chandrayaan-2, have been launched. Mars Mission was successfully launched in 2014.

<https://www.financialexpress.com/defence/chinas-growing-dominance-in-space-can-india-risk-staying-behind/1891616/>