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Small satellites bring in new revolution: DRDO Chairman Satheesh Reddy

Dr. Reddy described small satellites as a disruptive technology for space industries

By Ch Sushil Rao

Hyderabad: DRDO Chairman G Satheesh Reddy on Thursday said small satellites would bring in a new revolution in the world. "Network of space borne sensors will lead us towards the Internet of Satellites in future. Small satellite driven missions have changed our approach towards the Earth Observation and the Space Wide Web will pave the way for Internet of Space Things (IoSTs)," he said at a conference in the city.

"We need to explore the technical issues, development considerations, emerging opportunities and address quality, reliability issues and if we are not conscious, small satellites revolution will only remain as single shot opportunities and add up to space debris as well," he said.

Society for Small Satellites and Systems (SSSS) and the Sensors Research Society (SRS) are jointly organizing a 3-day International Conference on Small Satellites and Systems (ICSS), in association with Research Centre Imarat (RCI) from Feb 7-9. More than 30 International experts and 700 delegates from various R&D organizations academic institutions, industries are participating in the conference.



The inaugural event on Thursday was attended by Satish Chandra Jha, Chairman, National Technical Research Organisation (NTRO), G. Satheesh Reddy, Secretary, Department of Defence R&D and Chairman, DRDO, PS Goel, ISRO Honorary Professor, Avinash Chander, President Sensors Research Society, Koteshwara Rao, President, Society for Small Satellites and Systems, MSR Prasad, DG, Missiles and Strategic Systems, BHVS Narayana Murthy, Director, RCI among others.

Speaking on the occasion, Dr Satheesh Reddy said advancements in technologies like propulsion, electronics, MEMS, structures, and payloads are enabling a significant reduction in the size, cost, and weight of satellites. "Small Satellites is a disruptive technology for space industries. The modest facilities needed to design and build small satellites boosted innovative startups," he said.

For significant contributions to Indian defence and aerospace, Dr Satheesh Reddy has conferred the honorary fellowship of Sensors Research Society.

Satish Chandra Jha, chairman, National Technical Research Organisation (NTRO) said small satellites are playing an important role in space applications. They are faster to build, cost-effective and better packaged due to use of latest technologies, he said.

"Small satellite platforms can be adapted for optical, IR, thermal and radar imaging (micro-SAR) remote sensing with good resolution. ELINT platforms in triplets can also be built around small satellite buses and an appropriate constellation of ELINT and imaging satellites (inclined orbits) can provide 24x7 surveillance of dynamic targets," he explained.

RCI director BHVS Narayana Murthy said the scientific capabilities in universities and industries need to be integrated.

<https://timesofindia.indiatimes.com/india/small-satellites-bring-in-new-revolution-drdo-chairman-satheesh-reddy/articleshow/67887687.cms>

Small satellites will bring in revolution: DRDO Chairman

Dr. Reddy described small satellites as a disruptive technology for space industries

Hyderabad: Advancements in technologies like propulsion, electronics, structures and payloads were enabling significant reduction in the size, cost, and weight of satellites, said G Satheesh Reddy, Secretary, Department of Defence R&D, and DRDO Chairman.

Speaking at the inaugural of a three-day International Conference on Small Satellites and Systems (ICSS) organised by the Society for Small Satellites and Systems (SSSS) in association with the Sensors Research Society (SRS) and Research Centre Imarat (RCI) here on Thursday, Dr. Reddy described small satellites as a disruptive technology for space industries.

“The modest facilities needed to design and build small satellites boosted innovative startups. Small satellites will bring in a new revolution in the world and network of space-borne sensors will lead us towards Internet of Satellites in future,” he said. Small satellite driven missions have changed the approach towards Earth Observation and the Space Wide Web will pave the way for Internet of Space Things (IoSTs), he pointed out.

“We need to explore technical issues, development considerations, emerging opportunities and address quality, reliability issues and if we are not conscious, small satellites revolution will only remain as single shot opportunities and add up to space debris as well,” Dr. Reddy added.

In his address, Satish Chandra Jha, chairman, National Technical Research Organisation (NTRO), said the small satellites were playing an important role in space applications. “They are faster to build, cost effective and better packaged due to use of latest technologies,” he said.

For significant contributions to Indian Defence and Aerospace, Dr Reddy was conferred with the Honorary Fellowship of Sensors Research Society at the event which was also attended by PS Goel, ISRO Honorary Professor, Avinash Chander, president, Sensors Research Society, Koteswara Rao, president, Society for Small Satellites and Systems, MSR Prasad, director general, Missiles and Strategic Systems, BHVS Narayana Murthy, director, RCI and others, a press release said.

Dr PS Goel and Dr Raja Ramanna chair professor, NIAS and former Secretary, Ministry of Earth Sciences, were conferred with the Lifetime Achievement Awards, the release added.

<https://telanganatoday.com/small-satellites-will-bring-in-revolution-drdo-chairman>



2 US missile defence systems for AI One to guard PM, Prez

The US has agreed to sell two state-of-the-art missile defence systems to Air India One at an estimated cost of USD 190 million, a move that will enhance the security of planes flying the Prime Minister and the President.

The Trump administration has approved purchase of the two systems known as Large Aircraft Infrared Countermeasures (LAIRCAM) and Self-Protection Suites (SPS) at an estimated cost of USD 190 million, the US Defence Security Cooperation Agency (DSCA) said in a notification to the Congress on Wednesday.

The US decision came after the Indian Government recently made a request for LAIRCAM SPS, given the high-level threat to the PM and the President.

The defence systems, which would bring security of Air India One at par with that of Air Force One, would be installed in two Boeing 777 Head-of-State aircraft, the Pentagon said.

The Indian Government plans to buy two Boeing 777 from national carrier Air India for this specific purpose and unlike in the past would not be used for commercial purposes.

The purpose of the LAIRCAM programme is to protect large aircraft from man-portable missiles. Once installed, the LAIRCAM system increases crew-warning time, decreases false alarm rates and automatically counters advanced intermediate range missile systems, according to the Federation of American Scientists. — PTI

<https://www.tribuneindia.com/news/nation/2-us-missile-defence-systems-for-ai-one-to-guard-pm-prez/725614.html>

- spatial coverage**
- Missile warning subsystem will use multiple sensors to provide full spatial cover
 - Advanced intermediate missile systems are automatically countered with no action required by crew
 - Pilot will simply be informed that a threat missile was detected and jammed

Aerospace industry yet to fly high

A national aerospace vision is lacking. It will be the country's greatest tribute to all brave test pilots and engineers who have perished in the cause of furthering Indian aeronautics if the policy-makers commit themselves to implementing the National Aeronautics Policy

By Air Marshal Brijesh Jayal (retd)

EVER since the procurement of Rafale jets became a hot topic in electoral politics, two vital institutions of national air power have been sucked into the ensuing debate. In the bargain, both have suffered collateral damage to their reputation, affecting the morale of their respective work force.

The Indian Air Force (IAF), the fourth largest air force internationally, and Hindustan Aeronautics Limited (HAL), a Navratna defence public sector undertaking and one of the largest aerospace companies in Asia, share a symbiotic relationship. Disturbing this arrangement will cause irreparable damage to both.

Notwithstanding this reality and fuelled by political and media hype, each is being compelled by circumstances to continue on this slippery slope. In the absence of a national aeronautical consciousness, the

tragedy is that none on either side of the political divide can see the dire need to stop this self-destructive course.

During the 10th 'Jumbo' Majumdar International Conference held recently at the Centre for Air Power Studies in New Delhi, the Chief of the Air Staff, Air Chief Marshal BS Dhanoa, was provoked by criticism about the IAF's alleged dislike for the indigenous light combat aircraft, Tejas. In frank and legitimate defence, he highlighted the IAF's efforts to support HAL even at the expense of its fighting capabilities. While mentioning the air force's cooperation in frequently granting concessions to HAL, he rued that no such concession would be forthcoming to the IAF when it would face the enemy.

To emphasise the IAF's contribution to indigenisation, he stressed that the air force had lost 17 test pilots and engineers in accidents during flight testing and evaluation of indigenous platforms. Little did he know at the time that this figure would soon rise to 19 when two test pilots of the IAF's Aircraft & Systems Testing Establishment would lose their lives while undertaking an acceptance test flight on behalf of the air force in a HAL-upgraded Mirage 2000 trainer aircraft.

Even as HAL announced that a Court of Inquiry would investigate the cause of the accident, and in the absence of any information about the likely cause, it was no surprise that HAL instantly found itself at the receiving end of immense criticism both in the social and national media. The public debate was being driven more by an emotional response to this tragedy than by the stark realities of present-day aeronautical environment and challenges.

It would, however, be naive for the nation to be sanguine and wait for emotions to ebb and get back to business as usual, as exemplified by cautionary comments by two respected well-wishers of national aeronautics. A retired Navy Chief and himself a decorated fighter pilot was reported to have opined that the military has, for decades, flown poor-quality HAL machines and often paid with young lives with no reckoning for the HAL management. He further cautioned that while HAL-bashing may be justified to a point, it was time to question our elected representatives, pointing out that many Defence Ministers had overseen HAL but none demanded the type of performance expected.

A Rajya Sabha MP, who is a member of the Standing Committee on Defence and one who recently donated a Dakota to the IAF vintage flight, was also critical of HAL and reportedly offered to ensure legal support to the families of the deceased test pilots, should they demand accountability from HAL. He later lamented, "Though I had submitted a Zero Hour mention on the issue, it could not be taken up due to the disruption of the proceedings by the Trinamool Congress members."

While appealing to the political class not to obstruct modernisation to score brownie points, he cautioned that politicking would put our brave young aviators at risk unrelated to the enemy or combat mission.

It would be somewhat simplistic to bracket these sentiments as being driven by emotions as they reflect the views of respected leaders with a depth of professional understanding of the issues involved. So, leaving emotions and electoral politics aside, where does Indian aeronautics stand today? A sound aerospace industry forms the bedrock of national air power. While India possesses all prerequisites for a sound industry, its contribution to building the nation's air power has not been in keeping with this potential. The primary reason is lack of an integrated and mission-oriented approach, a national aerospace vision and the requisite organisational framework and supporting institutions. This is in sharp contrast to two other high-technology fields of space and atomic energy, where India has these attributes and ranks among international players.

It was to address this gap that the Aeronautics Society of India (AeSI) mooted a National Aeronautics Policy when Dr APJ Abdul Kalam was its president in the 1990s. In the preamble to this proposed policy, Dr Kalam said, "Aviation is one of the most significant technological influences of modern time and it empowers the nation with strength for international partnership. It is a major tool for economic development and has a significant role in national security and international relations." This policy proposal, along with a supporting framework, was resubmitted by the AeSI to the government in 2004. Its conclusion reads, "Technology will be the greatest driver for growth in this century. In aeronautics, India has the opportunity to leverage technology to generate economic growth and development. For this to happen, we need to transform our latent capability to deliver complex, aeronautical products to the world by improving productivity and moving up to

the intellectual end of the chain — from mere know-hows to know-whys. The National Aeronautics Policy encapsulates this vision.”

Having spent a decade flight-testing both with HAL and the Aircraft and Testing Establishment of the IAF and having suffered the trauma of losing friends and colleagues in the process, I believe that the nation can pay the greatest tribute to all those brave test pilots and engineers who have perished in the cause of furthering Indian aeronautics if the policy-makers commit themselves to implementing the National Aeronautics Policy driven by a National Aeronautics Commission. Whether or not our polity can rise to this developmental and indeed moral challenge, only time will tell.

<https://www.tribuneindia.com/news/comment/aerospace-industry-yet-to-fly-high/725699.html>

THE ECONOMIC TIMES

Fri, 08 Feb 2019

Dassault-Reliance kicks off Falcon jet production

Plan to build complete executive jet here by 2022; Make in India to give \$5m cost advantage

By Manu Pubby

Nagpur: At the heart of the controversy over offsets in the Rafale deal, the Dassault Reliance facility in Nagpur has kick started production, with the delivery of major components for the Falcon 2000 LX executive jets that are currently being assembled in France.

Top executives who have been working at the plant that will meet some of the offset obligations for the €7.87-billion Rafale deal said the plan is to ramp up production over the next three years and deliver a complete Falcon 2000 LX jet by 2022.

However, they said no parts of the Rafale jets will be made at the facility for the time being but did not rule out the possibility of expanding it for the military aircraft in the future if India orders more than the 36.

“By early 2022, we want to assemble the complete Falcon 2000 aircraft here in Nagpur and we want to fly it out from here,” Sampathkumaran ST, CEO of Dassault Reliance Aeronautics Ltd (DRAL), told ET. The plant will be capable of producing two aircraft per month once fully operational.

At present, the facility, which was showcased to the media for the first time, is assembling the cockpit and fuel tank parts for the popular executive jets. Internal calculations claim that the Make in India project can give a \$5 million cost advantage due to lower labour and production costs at Nagpur as compared to the current facility in France.

A Falcon 2000LX sells for a little over \$35 million and the lower cost for the Made in India jets would give it an edge in the international market over competitors, officials believe. Once complete, this will be the first private sector assembly line that produces commercial jets in India and will employ over 650 high skilled personnel.

The ongoing work at the facility will count towards offsets obligations of Dassault for the Rafale deal with the French company committed to spend upwards of Rs 850 crore to set it up. Dassault officials however say that there are no plans to make components for the Rafale jet as part of the offsets obligations.

“Depending on further orders, we will decide on the question of making the Rafale jet here in India. As of today, only components for the Falcon aircraft are being planned here,” Dassault’s senior executive vice

Jet Set Go...
FIRST COCKPIT FRONT section of Falcon 2000 series produced

IT WILL BE DISPLAYED
at Aero India Air show in Bengaluru

ONCE FULLY OPERATIONAL,
co to employ over 650 high skill personnel

DASSAULT TO CLAIM offset credits from the plant in October this year by officially informing the govt

NO PLAN TO MAKE parts for Rafale fighter jets here, will be considered if more orders come

president Benoit Dussaugey said. The company is set to claim offset credits for the Rafale contract in October this year when it will inform the Indian government officially about the work being carried out.

Executives however refrained from comments on the political controversy surrounding the deal, saying it has not impacted any work at the plant. "It has no impact here, we are following our path and we don't want to talk about the politics around it," Benoit said.

<https://economictimes.indiatimes.com/news/defence/dassault-reliance-kicks-off-falcon-jet-production/articleshow/67893683.cms>

Business Today

Fri, 08 Feb 2019

Inside the Reliance-Dassault factory that's making Falcon 2000 jets in Nagpur

The work continues nearly 1,000 km from India's national capital where this facility is not seen amicably in one of India's most vitiated political atmospheres

By Shiv Aroor

In 3 years, fully locally assembled Dassault Falcon 2000 business jets will roll off an Indo-French 150,000 square foot production line near Nagpur's airport. With giant hangars currently under construction at Dassault Reliance Aerospace Ltd (DRAL) and the first Indian-built cockpit section of a Falcon 2000 - Dassault's bestselling business jet - to be delivered tomorrow to the French partner, work is apace to scale up towards assembling the full aircraft in India by 2022.

The work continues nearly 1,000 km from India's national capital where this facility is not seen amicably in one of India's most vitiated political atmospheres.

If 2019's election season in India ever had a list of the most controversial corporate sites, this one would effortlessly be top of the pack. It is here that France's Dassault and India's Reliance Anil Dhirubai Ambani Group (ADAG) have forged a corporate alliance to build aircraft parts. A facility that has, over the months, become the highlight of a continuing political war waged by India's opposition Congress Party on the Narendra Modi government.

For the first time since its inception in 2017 - and certainly since the political scandal over India's Rafale jet deal broke - India Today was among a small group of reporters given access today to the facility. For a full year now, this facility has functioned physically far from public view, but relentlessly in allegations leveled. Its very existence has been the core of one of the most ferocious political punch-up in recent memory.

Asked if the political war has impacted work here at the facility, Dassault Aviation Senior Executive VP International Benoit Dussaugey says, "Not at all. We've made our road and we follow our path. We won't change our strategy based on politics. We are not affected and cannot comment on what is said by ZYZ."

With a current strength of 22 trained personnel assembling Falcon 2000 cockpit and front fuel tank sections, the facility will finally scale up to a workforce of 650 working on the full jet. By that time, the company hopes to be able to churn out 2 jets per month.

Whether Dassault will completely shift Falcon 2000 assembly work to India remains unclear - company executives said that union and labour issues continue to be politically sensitive in France at this time, but that a decision would be taken in a year.

"This facility makes big sense for Dassault because of the low cost of manufacture. We have a strategy here in India and feel it's a better place to do what we do than China," says Dussaugey.

DRAL began with the stated vision of being a facility that would build parts for both business jets and fighter aircraft, though it will be confined to the former for the foreseeable future. Building parts for the Rafale would be a consideration with orders beyond the current 36, says Dussaugey, with this 31 acre facility to be where Rafales will be manufactured in the event that Dassault Aviation manages to win the Indian Air Force's 110 Made in India fighter contest.



Under the stewardship of CEO Sampathkumar S.T., DRAL is currently singularly focused on the Falcon 2000 - work that will allow Dassault to fulfil part of the large offsets obligations it has on the 7.8-billion euro Rafale deal. By September, when the first four of 36 Rafales are delivered to the IAF, Dassault will have to present a clear path on how it plans to fulfil its offsets obligations.

Dassault and Reliance announced their joint venture and the creation of DRAL on 3 October 2016, barely two weeks after India signed a 7.87-billion euro deal for 36 Rafale jets. A joint statement by the two companies declared that new joint venture would be a 'key player in the execution of offset obligations, as a part of the 36 Rafale fighter jets purchase'.

Just over a year later, in October 2017, the DRAL facility at Nagpur was inaugurated, with both Dassault CEO Eric Trappier and Reliance ADAG's Anil Ambani along with his family in attendance. No one at the site could have known that just a few weeks later, the facility would become the symbolic centrepiece of an aggressive political campaign launched by the opposition Congress Party under the stewardship of its then de-facto (and later designated) leader Rahul Gandhi.

With both partners, Dassault and Reliance drawn into a very public and no-holds-barred political slugfest, leadership at both companies sought to dispel allegations of government cronyism, with Dassault's CEO indicating in an interview two months ago that the first Falcon business jet parts (as part of offsets in the Rafale deal) were under delivery.

<https://www.businesstoday.in/current/corporate/dassault-to-roll-out-falcon-2000-business-jets-from-nagpur-in-three-years/story/318140.html>

Business Standard

Fri, 08 Feb 2019

UK to invite India to co-develop sixth-generation fighter aircraft Tempest

The only thing that seems clear is that the sixth-generation Tempest will be technologically far more advanced than current fifth-generation fighters like the F-22, F-35, J-20 and J-31

By Ajai Shukla

After having spurned Moscow's proposal to jointly develop a fifth-generation fighter aircraft, the Indian Air Force (IAF) will be invited this month by the UK to co-develop a sixth-generation fighter called the Tempest.

Business Standard learns that a UK delegation, including Ministry of Defence (MoD) officials and executives from British defence giant BAE Systems, who will arrive on February 18 for the Aero India 2019 exhibition in Bengaluru, will brief Indian MoD and IAF officials and gauge the potential for collaboration.

“We are looking for international partners to access the best assured capability (for developing the Tempest),” said Nik Khanna, who heads BAE Systems India.

The Tempest fighter will be targeted to enter service around 2035-2040, when the earliest Eurofighter Typhoons – in service in the UK, German, Italian, Spanish, Saudi Arabian, and Omani air forces – start to retire. Tempest was first unveiled as a concept fighter at the Farnborough Airshow in the UK last summer.

The Tempest’s configuration and capabilities are still being worked out. Under discussion are questions like whether it will be manned or remotely piloted, whether it will have a variable cycle engine and be capable of “directed energy” attacks, using weapons like laser beams; whether it will control drones for “swarm attacks”, and incorporate artificial intelligence and deep learning.

The only thing that seems clear is that the sixth-generation Tempest will be technologically far more advanced than current fifth-generation fighters like the F-22, F-35, J-20, and J-31.

The so-called Team Tempest, which will develop this futuristic fighter, includes, besides BAE Systems as the lead integrator, Rolls-Royce for the engines, Leonardo UK for sensors, and MBDA UK for missile systems.

In addition to these, the UK believes other international partners, such as India, will be essential. Officials in Team Tempest say international partners will be chosen based on four parameters: a large military that will buy more aircraft; a large defence budget to pay development costs; industrial capability to play a useful development role; and powerful international influence to support the alliance.



Asked what role India could play in developing such an advanced fighter, Khanna said: “A big cost driver for a futuristic aerospace system is going to be the requirement for more and more software engineers. India has a huge capability in that area.”

This search for foreign partners for Team Tempest comes at a time of decline for British defence industry. On Thursday, Financial Times cited a new report by research firm IHS Markit that finds “Britain is set to become a net importer of defence equipment for the first time since the Civil War in the mid-17th century.”

To reverse this trend, the UK has unveiled a Combat Air Strategy that undergirds the Tempest announcement. BAE Systems sources say this is a British statement of intent to retain its century-old leading role in the field of aerial combat, including nurturing aerospace industry as a key component of that.

In Farnborough, the UK government had announced a 2-billion pound investment into British aerospace industry, to create capabilities that would support the Tempest programme. It was hoped that this high profile announcement of an iconic programme would inspire young engineers to work in this sector. It was also hoped that this would encourage investments into the British aerospace sector.

“The UK combat air sector is a national asset. Not just the Royal Air Force, but also the industry that underpins that, creating 18,000 skilled jobs as well,” said a source in the UK defence ministry.

Asked whether India would be able to shape the configuration of the Tempest fighter, Khanna stated: “We are committed to engaging with potential international partners at the very start of the programme so we can ensure that any system is designed with all partners’ interests in mind, as opposed to developing a system that is purely for the UK.”

https://www.business-standard.com/article/defence/uk-to-invite-india-to-co-develop-sixth-generation-fighter-aircraft-tempest-119020701627_1.html

Weaponise with Reason

By Somnath Mukherje

As usual, defence found mention in interim finance minister Piyush Goyal's budget speech earlier this month. Behind the rhetoric, though, the rot in defence finances is all too visible. While the anaemic 6% rise in the headline allocation to defence in 2019 is understandable — given the interim nature of the budget and electoral considerations — the allocations bring to sharp relief the composition of defence spends.

For starters, India's defence budget is much higher than what goes under the rubric of 'defence budget'. Goyal announced that it crossed Rs 3 lakh crore for the first time this year. Actually, that landmark took place in 2016. The missing jigsaw lies in pensions, an expenditure head that was taken out of the defence budget several years ago.

It is now reported under a different head, defence pensions. With pensions added, India's total outlay on defence is Rs 4.2 lakh crore. To put the expenditure into perspective, this is more than 11% of GoI revenues, and the single-largest allocation in the Union Budget after debt servicing.

More tellingly, it is four times the allocation to education and seven times the allocation to health. So, is defence underfunded as the popular narrative goes? Not by a long shot. The devil lies in the composition of expenditure. 56% of the budget comprises salaries and pensions, especially pensions, which constitute 27% of the entire budget, up from 18% in 2014.

India's nominal GDP in rupee terms has grown around 87% in the last five years. The overall defence budget has grown by around 68%. However, salaries within this component have grown 75%, while pensions have by a whopping 146% in the same period.

Unsurprisingly, capital expenditure budget has grown only 30%. Effectively, India's defence budget is being wrecked from within by its pension liabilities.

Unfortunately, the issue is structural. Military pensions (and any other publicly funded ones) are sovereign liabilities — they cannot be rescinded once committed. Unlike Europe, India dodged a massive public financing bullet on public sector pensions in 2004, when all civilian public servants moved to a defined contribution (DC) pension from the old defined benefit (DB) one.

The military, however, remained under the older DB plan, and with the implementation of 'One Rank, One Pension' (Orop), the liabilities have ballooned exponentially. Add to it, the very wide coverage of pensions in India (70% of all defence personnel get covered by pensions, compared to about 25% in the US military).

The mathematics of the programme lends itself to a continuing growth that would, more often than not, outstrip reasonable growth in fiscal revenues. In that context, the pension budget for this year (estimated at a 5% growth) seems quite understated.

At the core of the structural issue is the manpower-intensity of the Indian Army. India is the only major military in the world that has seen a growth in its standing strength in the last decade.

This is the period when most modern armies such as the US, Russia and, most recently, China embarked upon radical restructuring of their militaries, premised upon material reduction in numbers. India, in the same period, raised two new mountain divisions and embarked on raising a mountain strike corps.

Despite much discussion and debate, there has been little movement even on the chief of defence services (CDS) reforms. Large sections of the military are ambivalent — or even hostile — to it. The political leadership, however, does not seem to have the courage to push through the changes required, despite Opposition from the services. Consequently, expenditure patterns remain inefficient.

Recently, the Indian Army placed an order for six Apache attack choppers, costing nearly \$1 billion, just as the Indian Air Force (IAF) is preparing to take the first deliveries of the same chopper (under a \$3 billion order placed a couple of years ago). Here's a case of a turf war eating away scarce budgets in absence of modern joint decisionmaking structures if there were one.

While there is no dearth of committee reports on what to do, there seems to be little political (or military) will to implement radical change.

The biggest security threat to any country is a bankrupt sovereign. With multiple competing demands from an aspirational, impatient India, budget constraints are a reality of our times.

The clamour for 'more money for defence' is not only unrealistic, but also self-defeating. We have a crisis on our hands. But it would seem that those who should be most heavily engaged with the same have run out of imagination and ideas.

(The writer is managing partner, ASK Wealth Advisors)

<https://economictimes.indiatimes.com/blogs/et-commentary/weaponise-with-reason/>