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"In a country like India with limited support from the industry and market, initiating 50 years ago (in 1964) publishing magazines relating to Army, Navy and Aviation sectors without any interruption is a commendable job on the part of SP Guide Publications. By this, SP Guide Publications has established the fact that continuing quality work in any field would result in success."

Narendra Modi, Hon'ble Prime Minister of India (*message received in 2014)

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SP's @ 53 PURSUING EXCELLENCE OVER FIVE DECADES SINCE 1964

Admiral Sunil Lanba visits Andaman & Nicobar Command

Admiral Sunil Lanba, PVSM, AVSM, ADC, Chairman of the Chiefs of Staff Committee (COSC) and Chief of the Naval Staff (CNS) accompanied by Mrs. Reena Lanba, President of the Navy Wives Welfare Association (NWWA) arrived at Port Blair on their five-day visit to Andaman and Nicobar Command (ANC) on January 31, 2017. He was received by Vice Admiral Bimal Verma, AVSM, Commander-in-Chief, ANC.

After arrival at Port Blair, Admiral Lanba called on the Lt Governor of Andaman and Nicobar Prof. Jagdish Mukhi. Subsequently during briefing at HQ ANC, he was updated on the operational preparedness of the

Andaman and Nicobar Command. He reviewed the infrastructure development and future plans of ANC.

In the next four days the Chairman COSC and CNS will be visiting the various outlying units of HQ ANC and interacting with the troops located there to get a first-hand overview of their preparedness and well-being. During the course of his visits the Chairman COSC and CNS would be visiting Air Force Station Car Nicobar (Carnic) where he will be paying his tributes to the martyrs at the Tsunami Memorial. He would also be visiting INS Baaz at Campbell Bay, INS Kardip at Kamorta Island and Naval Air Station. SP

PHOTOGRAPHS: Indian Navy

Cover:
Only with a major overhaul of the bureaucratic establishment and the government machinery as a whole, will the highly mechanised lion representing the spirit of the 'Make in India' campaign, begin to roar!

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Will the lion roar as it should?

As we head to the 11th edition of Aero India in Bengaluru, the highpoint of the Narendra Modi Government — 'Make in India' initiative — resonates loud and clear. It is a highly laudable initiative considering that we have been an import-dependent nation as far as aerospace and defence systems go. And we have the dubious distinction of being the world's top importer of weapons, accounting for nearly 14 per cent of global imports, the highest for any country.

In this issue of *SP's M.A.I.*, the focus is on where we are heading as a country when it comes to Modi's pet subject — 'Make in India.' Air Marshal B.K. Pandey (Retd) opines that the highly mechanised lion, representing the spirit of the 'Make in India' campaign, will begin to roar, only when there is a major overhaul of the bureaucratic establishment and the government machinery.

Air Marshal Pandey talks about intent and capability and states that while there has been some progress in the campaign, there is a lot more ground to be covered to make it easier for the original equipment manufacturers (OEMs) and Indian entities to engage in collaborative efforts in India. Ease of doing business is one aspect which keeps cropping up now and then as hurdles remain with a bureaucracy which is steeped in 'bureaucratic ways.'

Substantiating the government's approach is the Secretary of Defence Production, Ashok Kumar Gupta who in an interview mentions that the focus is on achieving the 'Make in India' vision by according priority to 'Buy (Indian-IDDM)' and 'Buy (Indian)' categories. The government has simplified provisions for funding of 90 per cent of development cost by the government to Indian industry and earmarking projects not exceeding development cost of ₹10 crore (government funded) and ₹3 crore (industry funded) for the micro, small and medium enterprises (MSMEs). This would help create an ecosystem in defence manufacturing, key to fulfilling the vision of 'Make in India.'

A whole lot is happening around this time. The Finance Minister Arun Jaitley announced ₹2,74,114 crore for defence, from which the Ministry of Defence excludes ₹11,724 crore allocated for Defence (Civil Estimates). In an analysis Laxman Kumar Behera states that with a share of 1.56 per cent in the estimated gross domestic product (GDP) of 2017-18, the defence budget is the lowest since 1956-57. And among the three Services, Air Force is the only service whose modernisation budget has increased whereas both Army and Navy have witnessed a decline in their respective budgets. Behera is concerned about the trend of underutilisation of the defence budget, despite the numerous improvements in procurement procedures that have happened in the recent past. In 2016-17, only 12 per cent of the total modernisation budget of ₹70,000 crore is available for signing new schemes.

Echoing similar anguish is Lt General P.C. Katoch (Retd) who states that it is distressing that ₹35,000 crore was unspent in 2016-17, whether this is on account of red tape or other reasons, it is criminal considering the poor state of equipping the armed forces with cutting-edge equipments. It is hoped that there would be course correction.

Please visit SP Guide Publications at **Hall AB (AB3.46)** during Aero India at Bengaluru from February 14-18, 2017.

Happy reading!

Jayant Baranwal
Publisher & Editor-in-Chief

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Resurgent Indian defence industry

*In a rare media interaction with **SP's M.A.I.**, **Ashok Kumar Gupta**, Secretary, Defence Production, outlined his vision for defence manufacturing in India and addressed a wide range of subjects including 'Make in India', DPP 2016, defence offsets, role of DPSUs, investment in R&D, delays in procurement decisions, blacklisting and other related issues*

***SP's M.A.I.* (SP's): What is your vision for India's domestic defence industry in terms of defence production?**

Secretary, Defence Production (Secretary): As India is transforming from a regional power to a global power, the defence sector is increasingly occupying a bigger space in the country's long-term strategic planning. A confident and resurgent Indian defence industry is making forays into almost all the sectors of manufacturing. Lately, the huge opportunities for growth within the domestic and global defence and aerospace industries have attracted the attention of Indian industry.

It is pertinent to mention here that the Defence Production Policy promulgated by the government aims at achieving substantive self-reliance in the design, development and production of equipment, weapon systems, platforms required for defence in as early a time frame as possible, creating conditions conducive for private industry to play an active role in this endeavour; enhancing potential of small and medium-sized enterprises (SMEs) in indigenisation and broadening the defence R&D base of the country.

Pursuant to the above policy and 'Make in India' initiative, the government aims to make the country self-reliant in defence production, through various initiatives. Several policy initiatives have already been implemented by the government such as liberalisation of FDI (foreign direct investment) policy and industrial licensing policy, simplification of export procedures, creating level playing field for Indian private and public sector companies, streamlining of offset implementation process, providing preference to 'Buy (Indian

PHOTOGRAPH: MoD

Designed, Developed and Manufactured)' (Indian-IDDM), 'Buy (Indian)', 'Buy and Make (Indian)' categories of capital acquisition over 'Buy (Global)' category in Defence Procurement Procedure.

SP's: The new DPP 2016 is being referred to as game changer for the sector. How do you see it altering the Indian defence growth story?

Secretary: The new Defence Procurement Procedure (DPP) 2016 has come into effect from April 1, 2016. It focuses on achieving the 'Make in India' vision by according priority to 'Buy (Indian–IDDM)' and 'Buy (Indian)' categories. It also mandates increased indigenous content. The 'Make' procedure has been simplified with provisions for funding of 90 per cent of development cost by the government to Indian industry and earmarking projects not exceeding development cost of ₹10 crore (government funded) and ₹3 crore (industry funded) for the micro, small and medium enterprises (MSMEs).

This would create an ecosystem in defence manufacturing by harnessing the capabilities of Indian private sector specially MSMEs and inculcate the R&D culture in the sector.

SP's: In your opinion, what are the new key points of DPP 2016 for a foreign OEM looking at Indian market?

Secretary: India is in the midst of modernising its armed forces and it is estimated that $250 billion will be spent on capital procurement in the next 10 years. In the new Defence Procurement Procedure 2016, 'Buy (Indian-IDDM)', 'Buy (Indian)', 'Buy & Make (Indian)' are the most preferred categories which means that increasingly request for proposals (RFPs) will be issued to the domestic industry. The only way for the foreign original equipment manufacturers (OEMs) to leverage domestic demand is to tie up with domestic companies either for collaborative R&D followed by production or through transfer of technology for production through joint ventures or they can set up their own manufacturing base.

In addition, a numbers of potential 'Make' projects have been identified by the department; which are likely to follow 'Make' procedure for development-cum-procurement. The foreign OEMs can collaborate with the Indian vendor, the prime contractor, for development for defence equipment.

Provisions have also been introduced to allow foreign OEM to select Indian production agency of its choice for transfer of technology for maintenance infrastructure.

Moreover, offset implementation process has been made flexible by allowing change of Indian offset partners (IOPs) and offset components, even in signed contracts. Foreign OEMs are now not required to indicate the details of IOPs and products at the time of signing of contracts.

SP's: How exactly are the 'Make in India' initiatives for aerospace and defence sector being promoted? What has been the reaction of foreign OEMs to it till date?

Secretary: 'Make in India' initiatives for aerospace and defence sector is being promoted though various policy initiatives and amendments in procurement procedures which would result in ease of doing business, encourage and facilitate Indian private sector to participate in defence manufacturing, nurturing R&D culture in defence.

Following initiatives have been taken by the Department of Defence Production to boost the 'Make in India' in defence sector:

- **Foreign Direct Investment:** FDI policy under which foreign investment is allowed through automatic route up to 49 per cent and government route beyond 49 per cent wherever it is likely to result in access to modern technology or for other reasons to be recorded.
- **Industrial Licensing**: The Defence Products List for the purpose of issuing industrial licences (ILs) under IDR Act has been revised and most of the components, parts, subsystems, testing equipment and production equipment have been removed from the list so as to reduce the entry barriers for the industry, particularly small and medium segment. The initial validity of the industrial licence has been increased from three years to 15 years with a provision to further extend it by three years on a case-to-case basis.
- **Defence Exports:**
  - The list of military stores has been finalised and put in the public domain so as to make the process transparent and unambiguous. The process of receiving applications for no objection certificate (NOC) for export of military stores and for issuing NOC has been made online.
  - The standard operating procedure (SOP) for the issue of NOC for export of military stores has been revised and put on the website. Under the revised SOP, the requirement of end-user certificate (EUC) to be countersigned/stamped by the government authorities has been done away with for the export of parts, components, subsystems, etc.
  - Recognising the need for promotion of defence exports to make the Indian defence industry economically sustainable, defence exports strategy outlining the various steps to be taken has been formulated and put up in public domain.
- **Defence Offsets**: Offset implementation process has been made flexible by allowing change of Indian offset partners and offset components, even in signed contracts. Services as an avenue of offset have been reinstated with certain conditionalities.
- **Level Playing Field:**
  - Exchange rate variation protection has been made applicable for Indian private sector at par with public sector undertakings for all categories of capital acquisitions.
  - The preferential treatment given to defence public sector undertakings (DPSUs) in excise duty/customs duty has been discontinued. As per the revised policy, all Indian industries (public and private) are subject to the same kind of excise and customs duty levies.
- **Make Procedure:** The 'Make' procedure has been revised to promote indigenous design, development and manufacture of defence equipment/platform. It provides for enhanced government funding of 90 per cent of development cost and preference to MSMEs for certain categories of projects, which will give a tremendous boost to manufacturing of indigenously designed products through collaborative process with Indian industry.
- **Buy (Indian-IDDM) in DPP 2016:** One of the notable features of DPP 2016 is the introduction of a new procurement category 'Buy (Indian-IDDM)' by which priority has been accorded to procurement from Indian vendors of products that are indigenously designed, developed and manufactured.
- **Preference to Indigenous Procurement:** In DPP 2016, preference has been provided to procurement under 'Buy (Indian-IDDM)', 'Buy (Indian)' and 'Buy and Make (Indian)' categories of capital acquisition over 'Buy & Make' or 'Buy (Global)' categories.

The foreign OEMs have exhibited a lot of enthusiasm to participate in 'Make in India' initiative. Several OEMs have entered into or are in the process of tie-ups with Indian defence companies for supply of defence equipment categorised as 'Buy and Make (Indian)' and 'Buy and Make'. SP

For the complete interview, refer to ***SP's Military Yearbook 2016-2017***

AIR MARSHAL
B.K. PANDEY (RETD)

Make in India: Quo Vadis?

Only with a major overhaul of the bureaucratic establishment and the government machinery as a whole, will the highly mechanised lion representing the spirit of the 'Make in India' campaign, begin to roar!

GRAPHIC: SP Guide Pubns

India ranks among the top ten countries in the world in terms of military expenditure. Today, India is equipped with the third largest armed forces in the world and despite the sizeable indigenous aerospace and defence industry, both in the public and private sector, around 65 to 70 per cent of the requirement of military hardware, continues to be met with through imports. India is also the second largest importer of weapon systems, having been overtaken by Saudi Arabia only a couple of years ago. High level of dependence on foreign sources for military hardware not only results in the depletion of foreign exchange reserves in financing expensive imports, more importantly, it also imposes crippling dependence on original equipment manufacturers (OEM) abroad for maintenance as well as upgrade or replacement of obsolescent inventories.

A Stagnant Sector

In the post-independence era, on account of policy imperatives, the private sector was kept out of the domain of the Indian aerospace

and defence industry which remained under the control of the central government. However, the government controlled aerospace industry did create elaborate infrastructure and successfully undertook production of fighter and transport aircraft as also rotary-wing platforms for the Indian armed forces as also for limited civilian application. But the so-called "production" was largely "assembly" of the platform using kits received from OEMs. There was no real transfer of technology or development of skilled human resources to enable the nation to leapfrog to indigenous production of sophisticated platforms. The aerospace and defence industry therefore de facto remained stagnant over the years.

While there has undoubtedly been some forward movement in the 'Make in India' campaign of the government, there is still some more ground to be covered

Launch of 'Make in India' Scheme

It was on account of the desire to correct this long-standing imbalance or anomaly, that soon after the NDA government came to power at the Centre, Prime Minister Narendra Modi launched the 'Make in India' campaign in September 2014 with the aim to pull the indigenous defence manufacturing sector from the morass it had descended into and give it a new lease of life. His sustained thrust on this campaign since then and especially during his visits abroad, did generate considerable interest amongst the foreign governments and OEMs alike to exploit the immense opportunities that India had to offer. Not only did India offer a sizeable and a multibillion-dollar lucrative market for military hardware, it also provided a large human resource pool and the distinct advantage of production at substantially lower cost. But there have been and continue to be impediments to the realisation of Prime Minister's dream of 'Make in India' in the defence manufacturing sector.

One of the first steps that the government took was to revamp the Defence Procurement Procedure (DPP). The revised edition was released at the Defexpo in March 2016 at Goa. From the initial reactions of the stakeholders it appears that in the DPP 2016, a number of procedural bottlenecks have been removed. DPP 2016 provides a more conducive, business-friendly and flexible environment for the Indian armed forces and the defence industry, both foreign and domestic, to work together on co-production of proven platforms or on the projects for the co-development of new platforms.

The Indian Private Sector

For its part, the Indian aerospace and defence industry is willing to make every effort for the success of the 'Make in India' scheme. In fact, a number of firms have already displayed their competence levels and have made headway in this field well before the scheme was conceived and launched. There are a number of success stories such as Tata Advanced Systems Limited (TASL) has joined hands with Sikorsky Aircraft Corporation of the US, a company taken over by Lockheed Martin Corp in the recent past, to manufacture cabins as also other components for the S-92 helicopter at their facility in Hyderabad. Incidentally, the Sikorsky S-92 VVIP helicopter is used by the President of the US for short distance air travel. So far, TASL has manufactured over 150 cabins, all for the US market.

Another Indian entity to display its capability and innovative approach in aerospace manufacturing is Bengaluru-based Mahindra Aerospace that has acquired majority stake in GippsAero of Australia and has been manufacturing the Airvan 8, a seven-seat utility aircraft and Airvan 10, a ten-seat turboprop version. In June 2015, Mahindra Aerospace was awarded a large aero-components production contract by Premium Aerotec, a company from the Airbus Group based in Germany. This multi-year contract envisages the manufacture and supply by Mahindra Aerospace of a variety of metallic components for several Airbus aircraft programmes as part of assemblies produced by Premium Aerotec. Bharat Forge Limited has entered into an agreement with Rolls-Royce to supply critical and high integrity forged and machined components for a range of aero-engines including the Trent engine from Rolls-Royce. Even a small firm such as Bengaluru-based Dynamatic Technologies that began in the auto industry, is making components for Boeing's Chinook heavy-lift helicopter. Boeing has also signed an agreement with TASL in November 2016 for a joint venture to manufacture fuselage for Apache helicopters not only for the Indian order, but for the global market as well. The two companies are also expected to co-produce other aero-structures and integrated systems including unmanned aerial vehicles (UAVs). A number of other major projects in the pipeline related to co-development and co-production in India involving the Russian aerospace industry and the Indian aerospace major Hindustan Aeronautics Limited (HAL) that will provide boost to the 'Make in India' campaign, are manufacture of several hundred Kamov Ka-226T helicopters, multi-role transport aircraft (MTA) and the fifth-generation fighter aircraft (FGFA).

More Needs to be Done

While there has undoubtedly been some forward movement in the 'Make in India' campaign of the government, there is still much more ground to be covered to make it easier for OEMs as well as for the Indian entrepreneurs to engage in collaborative efforts in India. There is the need to address the following urgently:

- Further improve ease of doing business through measures such as speedy single-window clearance.
- Reduction in paperwork.
- Processing of licensing of projects online.
- Speedy decision-making by the various departments of the government involved in processing of cases.
- Further simplification and streamlining of the Defence Offset Guidelines.
- Reduction in taxes and simplifications of the tax regime which in India is still very complex, difficult to implement and is subject to interpretation.
- Making it easier for companies to acquire land to set up production units and finally, the involvement of and proactive role by the states, which tend to become a frustrating impediment in a federal structure of governance.
- Enhance emphasis and funding of Research and Development especially in the private sector within the country to develop advanced technologies.
- Collaborate with countries that are in a position to assist India in the development of future technologies.

But perhaps the most formidable impediment to the success of the 'Make in India' campaign to quote Bharat Karnad, will be "relying on the existing decrepit apparatus of the state, unimaginative policy establishment and the government's usual lackadaisical way of doing business to deliver results." Only with a major overhaul of the bureaucratic establishment and the government machinery as a whole, will the highly mechanised lion representing the spirit of the 'Make in India' campaign, begin to actually roar! SP

India's Defence Budget 2017-18

The Finance Minister's overall stated figure of ₹2,74,114 crore is, however, not what the Ministry of Defence (MoD) considers as India's official defence budget. The difference amount between Finance Minister's and MoD's figures of ₹11,724 crore is allocated under what is considered Defence (Civil Estimates) which, inclusive of defence pension of ₹85,740 crore, does not form part of the official defence budget.

[By **Laxman Kumar Behera**]

While presenting the union budget 2017-18 on February 1, 2017, Finance Minister Arun Jaitley allocated ₹3,59,854 crore ($55.36 billion) to the Ministry of Defence (MoD). Like in his previous budget, the Finance Minister also made certain changes in the format of the defence Demand for Grants (under which defence money is distributed among the armed forces and other defence agencies), bringing an element of further complexity of estimating various elements of what constitutes India's official defence budget. The complexity apart, the bigger question that faces the defence community is whether the latest allocation is adequate to meet the security needs of the country. This article examines the latest defence allocation in the light of its possible impact on modernisation and operational preparedness of the defence forces.

Reconciling the Figures

While presenting the union budget to the Parliament, the Finance Minister stated that "[for Defence expenditure excluding pensions, I have provided a sum of ₹2,74,114 crore including ₹86,488 crore for Defence capital." The Finance Minister's overall stated figure of ₹2,74,114 crore is, however, not what the Ministry of Defence (MoD) considers as India's official defence budget. An attempt is made in Table 1 to reconcile the defence-related allocations provided in the union budget with the traditional format used by the MoD and compare it with the previous years' allocation and expenditure. Using the MoD format, the defence budget for 2017-18 amounts to ₹2,62,390 crore. The difference amount (between Finance Minister's and MoD's figures) of ₹11,724 crore is allocated under what is considered Defence (Civil Estimates) which, inclusive of defence pension of ₹85,740 crore, does not form part of the official defence budget.

Table 1: Official Defence Budget, 2016-17 and 2017-18

	Rev. Expenditure (₹ in Crore)	Cap. Expenditure (₹ in Crore)	Total (₹ in Crore)
2015-16	145937	79958	225895
2016-17 (BE)	162759	86340	249099
2016-17 (RE)	168635	79370	248005
2017-18 (BE)	175861	86529	262390

Note: BE: Budget Estimate; RE: Revised Estimate. Figures for 2015-16 are actual expenditure

A noticeable aspect of the Table 1 is the underutilisation of capital allocations provided in the 2016-17 budget, resulting in a surrender of ₹6,970 crore (8.1 per cent). The surrendered amount has largely been absorbed in the revenue expenditure which has increased from its original estimates by ₹5,876 crore.

It is significant to note that the manpower driven defence budget is not unique to 2017-18. In the last several years, it has been a recurring feature with a debilitating effect on two vital elements of the defence budget revenue-stores and capital modernisation which together play a vital role in the operational preparedness of the armed forces.

Table 2: Comparative Statistics of Defence Budget: 2016-17 & 2017-18

	2016-17	2017-18
Defence Budget (₹ in Crore)	249099.0	262389.8
Growth of Defence Budget (%)	0.96	5.34
Revenue Expenditure (₹ in Crore)	162759.0	175861
Growth of Revenue Expenditure (%)	6.98	8.05
Share of Revenue Expenditure in Defence Budget (%)	65.3	67.0
Capital Expenditure (₹ in Crore)	86340.0	86528.7
Growth of Capital Expenditure (%)	-8.7	0.22
Share of Capital Expenditure in Defence Budget (%)	34.7	33.0
Capital Acquisition (₹ in Crore)	70000	69783*
Growth of Capital Acquisition (%)	-9.4	-0.3
Share of Defence Budget in GDP (%)	1.65	1.56
Share of Defence Budget in Central Government Expenditure (%)	12.6	12.2
Defence Pension	82332.66	85740.00
MoD's Budget (₹ in Crore)	340921.98	359854.12
Growth in MoD's Budget (%)	9.95	5.55
Share of MoD Budget in GDP (%)	2.26	2.14
Share of MoD Budget in Central Government Expenditure (%)	17.24	16.76

*Note: *Approximate figure.*

Table 3: Modernisation Budget of the Armed Forces

	2016-17 (BE)	2016-17 (RE)	2017-18 (BE)	% Increase in 2017-18 (BE) over 2016-17 (BE)
Army*	21535	17812	20148	-6.4
Navy	21323	18993	18749	-12.1
Air Force	27556	26216	30885	12.1
Total	70414	63021	69783	-0.9

*Note: *Figures for Army are approximate. All figures are ₹ in crore.*

Table 4: Modernisation Budget of Army*

	2016-17 (BE)	2016-17 (RE)	2017-18 (BE)	% Increase in 2017-18 (BE) over 2016-17 (BE)
Aircraft & Aero-engine	1566	1195	1466	-6.4
H&MV	3412	2414	3194	-6.4
Other Equipment	16173	13852	15112	-6.6
Rolling Stock	283	252	265	-6.4
Rashtriya Rifles	101	100	112	10.0
Total	21535	17812	20148	-6.4

*Note: *Figures for Army are approximate. All figures are ₹ in crore.*

Table 5: Modernisation Budget (New Schemes and Committed Liabilities, 2016-17)

	Modernisation Budget (₹ in Crore)	New Schemes (₹ in Crore)	Committed Liabilities (₹ in Crore)	% Share of New Schemes	% Share of Committed Liabilities
Army	21535	2086	19449	10	90
Navy	20909	1819	19089	9	91
Air Force	27556	4685	22871	17	83
Total	70000	8590	61410	12	88

The Highlights and the Major Trends

The Table 2 provides comparative statistics of defence budget and related figures for 2016-17 and 2017-18. The distinct noticeable feature of the table is the further decline in the defence budget's share in both Central Government expenditure and the GDP. With a share of 1.56 per cent in the estimated GDP of 2017-18, the defence budget is the lowest since 1956-57.

Another major feature of the Table 2 is the further increase in the share of the revenue expenditure in the total defence budget. The increase is primarily due to the hike in the manpower cost of the armed forces, which accounts for over 83 per cent (₹11,071 crore) of the overall growth of ₹13,291 crore in the defence budget. It is significant to note that the manpower driven defence budget is not unique to 2017-18. In the last several years, it has been a recurring feature with a debilitating effect on two vital elements of the defence budget revenue-stores and capital modernisation which together play a vital role in the operational preparedness of the armed forces. As the Figure 1 succinctly illustrates, the combined share of these two elements has declined from 55 per cent in 2007-08 to 40 per cent in 2016-17. This does not augur well, especially when there exists a huge void in India's defence preparedness, and the armed forces have grave shortages in many areas ranging from ammunition, assault rifles, bullet-proof jackets, night-fighting devices to howitzers, missiles, helicopters, fighters and warships. Needless to say that for a credible defence preparedness, the present ratio needs to change for better for which allocation under revenue stores and capital modernisation needs to be augmented substantially.

What is of greater concern is that underutilisation has become a recurring feature of India's defence budget, despite numerous improvements in the procurement procedures undertaken by the MoD in the past two-and-a-half decades

Share of the Defence Services

Among the defence services, the Indian Army with a budget of ₹1,49,369 crore accounts for the biggest share in defence budget, followed by the Air Force, Navy, Defence Research and Development Organisation (DRDO) and Ordnance Factories (OFs) (Figure 2). The biggest share of the Army is primarily because of its overwhelmingly numerical superiority over the sister services. Accounting for over 85 per cent of the uniformed personnel, bulk of the Army's budget goes into meeting the pay and allowances of the personnel. In 2017-18, only 17 per cent of Army's total allocation is earmarked for capital expenditure. The comparative figures for the Air Force and Navy are 58 per cent and 51 per cent, respectively.

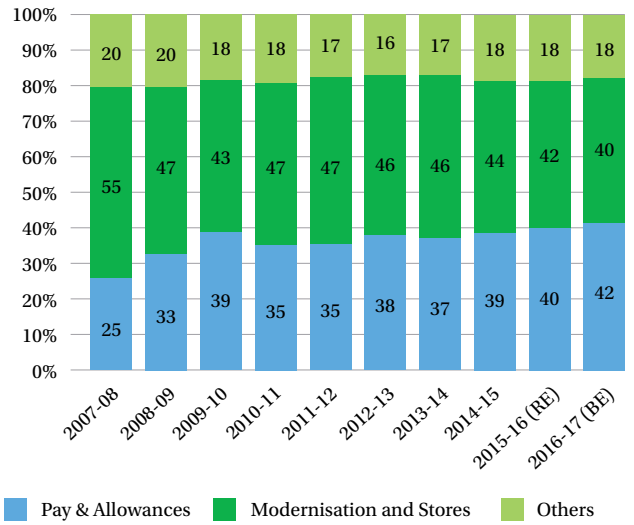
Impact on Modernisation

Table 3 provides the modernisation budget of the three forces whereas the Table 4 shows separately for the Army. As can be seen, the overall allocation made in 2017-18 budget has declined, although marginally, over the previous allocation. Among the three forces, Air Force is the only service whose modernisation budget has increased whereas both the Army and Navy have witnessed a decline in their respective budgets.

What is of greater concern is that underutilisation has become a recurring feature of India's defence budget, despite numerous improvements in the procurement procedures undertaken by the MoD in the past two-and-a-half decades.

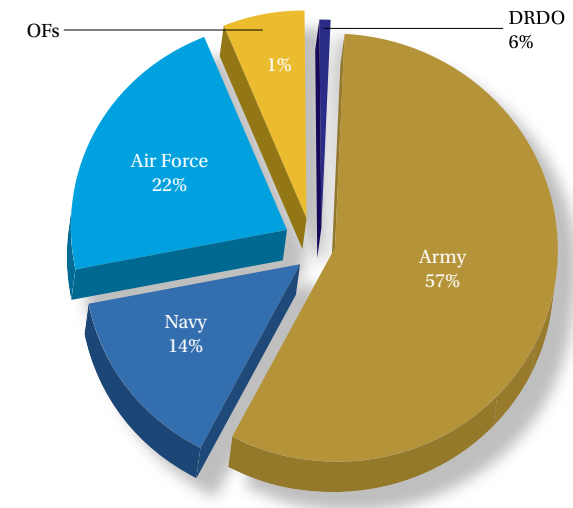
The decline in the modernisation budget is a source of great concern, especially given the limited budgetary scope available for signing new contracts. In 2016-17, only 12 per cent of the total modernisation budget of ₹70,000 crore was available for signing new schemes, with the rest being earmarked for the committed liabilities arising out of contracts already signed (Table 5). It is, however, to be noted that this limited scope has not been fully exploited as there has been an underutilisation of a whopping ₹7,393 crore (10.5 per cent). The underutilisation is across

Figure 1: Distribution of Defence Expenditure Among Major Elements



Note: Pay and Allowances are of the three armed forces only. Stores include Repair and Refits of the Indian Navy

Figure 2: Share of Defence Services in Defence Budget 2017-18



Note: Army includes National Cadet Corps (NCC), Rashtriya Rifles (RR), Ex-Servicemen Contributory Health Scheme (ECHS), Inspection Organisation and Military Farms

the services, although the Army accounts for over 50 per cent of total unspent funds. What is of greater concern is that underutilisation has become a recurring feature of India's defence budget, despite numerous improvements in the procurement procedures undertaken by the MoD in the past two-and-a-half decades. Given that steady modernisation is a prerequisite for building up a strong military capability, the MoD has a big task ahead to bring in efficiency and expeditiousness in the procurement process.

Make in India and Defence Production

Unlike in the previous budget, the union budget has not provided any specific incentives to push the 'Make in India' initiative in the defence sector, although some industry-wide proposals have been promised. Among others, the government has promised to reduce income tax from present 30 per cent to 25 per cent for Micro, Small and Medium Enterprises (MSMEs) with an annual turnover of up to ₹50 crore. This is likely to benefit some 6,000 MSMEs which are presently supplying parts, components and subsystems to players like DRDO, defence public sector undertakings, ordnance factories and the large private companies.

The lack of any specific incentive for the defence industry may be a source of disappoint, as industry has repeatedly demanded certain concession which are extended to other sectors. In the union budget itself, the Finance Minister extended the 'Infrastructure Status' to the 'Affordable Housing' sector, allowing the industry in that sector to avail certain tax-related benefits. Needless to say, Infrastructure Status is one of several demands long requested by the defence industry.

There is a need to augment substantial resources, particularly under two critical heads of the defence budget — stores and capital procurement — which have come under severe pressure in the last several years with a huge negative consequence on India's defence preparedness

Within the defence budget, however, there has been a small allocation of ₹44.63 crore made for porotype development under the 'Make' procedures which have recently been revised by the MoD and some 23 projects have been identified for execution. Of the total amount, ₹30.08 crore is earmarked for Army and the balance ₹14.55 crore for the Air Force.

Conclusion

The meagre increase of 5 per cent in the official defence budget is grossly inadequate especially in view of the vast void existing in military capability and the latest budget's negative incremental effect on modernisation and operational preparedness. There is a need to augment substantial resources, particularly under two critical heads of the defence budget — stores and capital procurement — which have come under severe pressure in the last several years with a huge negative consequence on India's defence preparedness.

From the MoD's perspective, while the demand for higher resource is a genuine one, it must also be fully geared up to utilise the available resources in a time-bound manner. There is hardly any merit in asking for more resources while the present capacity to utilise the available resources, particularly those under the capital head, is constrained. The defence establishment must, therefore, look inward and find lasting solutions to procurement impediments. At the same time, the MoD also needs to look at the current profile of defence budget and find out any scope for controlling manpower cost so as to allow other items of expenditure to grow in a healthy manner. SP

SIEMENS

Ingenuity for life

Aerospace and defense

General Atomics Aeronautical Systems

An integrated approach to efficient aeroelastic analysis

Product

NX

Business challenges

Verify aeroelastic stability ahead of flight tests

Develop analysis models while design is still maturing

Use select simulation and test tools required for accurate, efficient analysis

Keys to success

Employ mix of best available tools in an integrated manner to meet schedule and technical requirements

Seamlessly share data to allow correlation of analysis models with test data

Use validated models to carry out advanced analysis with confidence

Using integrated test and analysis tools to help qualify the Predator B UAV for flight

Expanding the capabilities of the Predator UAV

A tight schedule and a complex, all-composite design required a fresh approach to modeling and analysis to verify the stability of the Predator B UAV in time for flight tests.

The Predator B represents a significant expansion of the mission performance and capability of the highly successful Predator, a long endurance unmanned aerial vehicle (UAV) used by the U.S. Air Force for surveillance and reconnaissance missions. Predator B has 50 percent more payload capacity, an endurance of up to 30 hours and significantly increased speed and operating altitude. Higher speeds and a longer wing span both increase the potential susceptibility for the aircraft to experience flutter. ATA Engineering, Inc. (ATA) was asked by General Atomics Aeronautical Systems, Inc. (GA-ASI) to determine if Predator B would experience flutter within the prescribed flight envelope.With flight tests approaching, and the design proceeding concurrently with the analysis, ATA needed a set of tools that would allow rapid model development, continual updating of models as the design matured, and powerful dynamics analysis capabilities.

"The ability to use multiple tools in a tightly integrated fashion lets the engineers focus their efforts on the design issues, resulting in faster, better solutions."

David Alexander
Vice President of Engineering
GA-ASI

Results

Complex, all-composite structure quickly modeled in entirely graphical environment

Efficiently updated analysis models correlate accurately with test data

Verified stability of UAV structure in time for flight testing

Comprehensive tools, comprehensive solutions

To meet an aggressive schedule for the completion of the aeroelastic analysis, it was not possible to be constrained by the limitations of a single solution or simulation code. Instead, a mix of the best available tools was used in a highly integrated manner to allow both the schedule and technical requirements to be met. These tools included NX™ I-deas™ software for finite element mesh generation, I-deas Test for test and correlation, and Nastran® software for dynamic analysis. The use of fully associative geometry, finite element modeling (FEM) and laminates tool sets allowed efficient modeling of the complex composite structure and greatly reduced the time required to incorporate design changes. Analysis models were rapidly updated to correlate accurately with test data through the seamless sharing of data between test and analysis codes. Validated analysis models were then used to perform the advanced aeroelastic analyses, and the stability of the final design was verified in time for flight testing.

Integrated tool set of NX and analysis strength of Nastran = best solution

The Predator B is an all-composite aircraft with a multitude of different materials and lay-ups throughout, suggesting a difficult and time-consuming modeling task. The suite of direct translators available with NX I-deas allowed trouble-free interaction with a variety of other computer-aided design (CAD) and computer-aided engineering (CAE) codes, while its design-associative, system-level FEM capabilities greatly reduced preprocessing time.

The advanced "section meshing" capabilities of NX MasterFEM (within NX I-deas) were used to remove unwanted features from the detailed solid geometry provided by the manufacturer. This allowed the rapid generation of a less complex geometry that was used in the development of a mesh suitable for modal and aeroelastic analysis.

Associativity with the solid geometry allowed automatic updating of the meshes to incorporate design modifications. The assembly-level finite element modeling functionality of NX MasterFEM allowed the modification of meshes of individual components without the need to edit other parts of the assembly, while the graphical interface of NX Laminate Composites provided easy verification of lay-up design.

The finite element model was exported to Nastran for modal analysis. Mode shape results were imported back into NX I-deas and reviewed using advanced CAE results postprocessing and visualization capabilities. Modal test data for the aircraft was measured using I-deas Test, and model updating and correlation with modal test data were performed using a combination

Solutions/Services

NX I-deas
www.siemens.com/nx

Customer's primary business

General Atomics Aeronautical Systems, Inc. is focused on the design and production of unmanned aircraft systems. These state-of-the-art reconnaissance systems are in extensive use by the U.S. government, including the U.S. Air Force, NASA, Department of Energy and the U.S. Navy as well as by several overseas customers.
www.ga-asi.com

Customer location

San Diego, California
United States

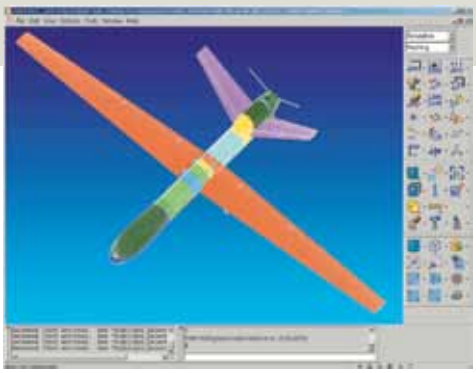
Partner

ATA Engineering, Inc. (ATA) is a high-value provider of analysis-driven and test-driven design solutions for structural, mechanical, electro-mechanical and aerospace products.
www.ata-e.com

of Nastran, I-deas Test and ATA's proprietary model updating software, all using the same data sets. Modes from the validated model and a panel model of the vehicle were then exported directly to the ZAERO software system from Zona Technology for aeroelastic analysis. Similar aeroelastic technology is also available in NX Nastran.

Eliminating the boundaries between tools

The flexibility provided by the ability to import and export models and data seamlessly to and from a variety of codes allowed ATA to focus on the engineering issues and utilize the best tools, regardless of vendor, to get the job done. By working in a highly integrated design, analysis and test environment, ATA was able to meet all of the project's schedule and technical needs and provide critical flight qualification information to General Atomics Aeronautical Systems, Inc.



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Defence budget 2017-18

LT GENERAL
P.C. KATOCH (RETD)

Defence has been allocated ₹2,74,114 crore ($42.17 billion) for fiscal year 2017-18. This does not include the pensions bill which itself is close to ₹85,000 crore per annum. At the same time, while pensions are excluded in this allocation, enhanced salaries on account of the Seventh Central Pay Commission (CPC) itself consume considerable funds. Already India's expenses on operations and maintenance are dropping, while expenses on salaries have risen.

It may be recalled that defence allocation for FY 2015-16 and FY 2016-17 were same ₹2,46,727 crore. Media, therefore, is quick in calling the allotment of ₹2,74,114 crore for FY 2017-18 as a 6.2 per cent hike. However, it would be naïve to not view this defence allocation in the backdrop of the rupee depreciation coupled with yearly inflation rates of defence procurement, which would perhaps make any hike a misnomer. It may be noted that defence budget allocation of ₹2,46,727 crore in fiscal 2015-16 also stood at $40 billion, while ₹2,46,727 crore in last fiscal (2016-17) went below $40 billion in actual terms.

The hike required in fiscal 2017-18 was much more considering the rapidly expanding military prowess of China and a perpetually belligerent Pakistan, plus the expanding China-Pakistan collusive threats to our national security. Unfortunately, policy makers in India find it difficult to acknowledge that economy and development hinges on security and defence preparedness. Besides, some nurture illusion there never would be conflict. That is the reason why development of our border infrastructure, especially in the North East, remains pathetic; 16 strategic railways are still on paper.

It is distressing that ₹35,000 crore was unspent in this year and the spending was reduced in the revised estimates (RE). Whether this is on account of red tape or other reasons, it is criminal considering the poor state of equipping of the armed forces even at the cutting-edge. Significantly, the Parliamentary Standing Committee on Defence had noted in April 2015 that "such under-spending leads to a situation where the preparation of defence forces is nowhere near the target". The Committee called for a "non-lapsable and roll-on allocation" fund for 5-10 years for defence equipment. Such a non-lapsable fund, administered by experts with strict controls on timelines, would reduce bureaucratic hurdles and be more attuned to practical realities.

Even during the previous NDA Government, Jaswant Singh as Defence Minister had recommended that the unspent funds of defence budget must be allowed go into the next financial year. Unfortunately, the government has paid no heed to these recommendations. The defence budget includes a capital outlay of ₹86,488 crore for new equipment, weapons, aircraft, naval warships, army vehicles, which is 9 per cent hike over the current fiscals capital outlay at ₹78,586 crore but it hardly is enough to bridge the existing critical deficiencies and much needed modernisation, even as the powers that be refuse to acknowledge the widening gap between the PLA and the Indian armed forces. Much of the capital outlay for the Indian Air Force will be consumed by the high cost Rafale aircraft. The allocation for new weapons, equipment and systems may have been increased, but not the quantum jump that is needed to rapidly bridge the gap. In backdrop of increased Chinese belligerence, even Japan that has no land border with China has passed a defence budget of $43.6 billion for this year.

In our case, the defence allocation is much below what was expected, partly sullied perhaps because of slowdown of the economy due to demonetisation. But the fact remains that we need a fresh approach to decide upon defence allocations, even though there appears to be no move to define a cohesive national security strategy. Allocating the defence budget or for that matter drawing up of the Long-Term Integrated Perspective Plan (LTIPP) in absence of a national security strategy and comprehensive defence Review is bad. But the true state of defence remains hidden and the true impact of defence allocations remain unknown. Our existing procedure for evolving the defence budget involves: Services forwarding their wish lists to HQ IDS; HQ IDS forwarding the compiled list to the Ministry of Defence (MoD); MoD forwarding same to the Ministry of Finance (MoF) after some tinkering, and MoF imposing arbitrary cap without considering operational implications.

Our existing procedure for evolving the defence budget involves: Services forwarding their wish lists to HQ IDS; HQ IDS forwarding the compiled list to MoD; MoD forwarding same to the MoF after some tinkering, and MoF imposing arbitrary cap without considering operational implications

It would be prudent for us to go in for pre-budget presentations by the Army, Navy and Air Force to the Parliamentary Standing Committee on Defence (akin to procedure in the United States) giving their existing operational capability, budget demand, and what would be the capability if that demand was met. The Committee then should project to the government what the defence allocations for next financial year should be, giving their reasoning. The Committee report would also be on record which would also take into consideration the geopolitical realities and the operational perspective. SP

CNS Admiral Sunil Lanba reviews Tropex 2017

Chief of the Naval Staff Admiral Sunil Lanba embarked ships of the Indian Fleet (both Western and Eastern) to review the ongoing Annual Theatre level Readiness and Operational Exercise (Tropex) 2017 which is presently underway since January 24, 2017. The CNS was accompanied by General Bipin Rawat, Chief of the Army Staff, and Vice Admiral Girish Luthra, Flag Officer Commanding-in-Chief, Western Naval Command.

The CNS witnessed a host of exercises, viz. gunnery shoots, surface-to-air missile engagements, BrahMos firing and operations of the combined fleet in a complex multi-threat environment including subsurface and air threats. The high-point of the exercise was Large Force Engagement (LFE) by the fleet units against threat simulated by air element from the Indian Air Force (IAF) comprising AWACS, Su-30s, Jaguars and Il-78 (AAR). These threats emanated from different directions and were neutralised by using Beyond Visual Range (BVR) missile capabilities of MiG-29Ks, the integral air arm of the Indian Navy, operating from INS Vikramaditya in coordination with other fleet units. All these exercises validated the combat effectiveness of the Indian Navy platforms.

The CNS during his address to the fleet congratulated the men for keeping the fleet combat ready at all times and executing all assigned tasks in a most professional manner. CNS also mentioned that training during peacetime has to be at par with how we would fight during war and emphasised on taking bold decisions with due cognisance to risks involved and ensuring safety of men and material.

Tropex 2017 is a month-long exercise/war drill, encompassing all dimensions of maritime warfare and is witnessing participation of over 60 ships, 5 submarines and more than 70 naval aircraft. It also includes participation of a large number of assets from the IAF, such as Su-30 and Jaguar fighters, AWACS, C-130J Hercules and in-flight refuelling aircraft, infantry amphibious elements from the Indian Army and ships/aircraft from the Indian Coast Guard.

The area of operations for Tropex 2017 exercise spans across the vast expanse of the Arabian Sea and North Central Indian Ocean and serves as an opportunity to validate the Indian Navy's concepts of operation.

As a part of the exercise, niche capabilities of the Marine Commandoes (MARCOs) and Army Special Forces, including airborne assault and combat free fall were undertaken from IAF's C-130 aircraft. Naval forces, while enforcing sea and airspace control all around the affected islands, undertook beaching and heli-borne operations for landing of follow-on forces. The exercise culminated with restoration of sovereign control over the affected islands by the armed forces. During debrief of the exercise, CNS and COAS discussed various options to further enhance the effectiveness of the joint exercise.

Tropex 2017 assumes special significance in the backdrop of the current security scenario, being aimed at testing combat readiness of the combined fleets of the Indian Navy, and the assets of the Indian Air Force, Indian Army and the Indian Coast Guard. It will also strengthen interoperability and joint operations in a complex environment. SP

Visit of Commander of the Sri Lankan Navy

Vice Admiral R.C. Wijegunaratne, Commander of the Sri Lanka Navy, was on official visit to India from January 29 to February 2, 2017. The visit was aimed at consolidating bilateral naval relations between India and Sri Lanka and to explore new avenues for naval cooperation.

He held bilateral discussions with Admiral Sunil Lanba, Chief of the Naval Staff, and other senior officials of the Indian Navy. The Admiral also met the Chief of the Air Staff, Chief of the Army Staff as well as the Director General of Indian Coast Guard. He also called on of the Minister of State for Defence and Defence Secretary.

Naval cooperation between India and Sri Lanka has been traditionally strong, encompassing a wide span, which includes operational interactions through bilateral exercises, training, port calls, hydrographic cooperation, Special Forces interactions, capability building and capacity augmentation initiatives. Two advanced offshore patrol vessels (AOPVs) are also being constructed for the Sri Lankan Navy at the Goa Shipyard Limited (GSL).

The Admiral also visited the Naval War College in Goa and GSL besides interacting with Flag Officer Commanding in Goa Area. The Admiral further visited the Training Command of the Indian Navy based at Kochi, where he was briefed on training aspects. During his visit to Kochi, the Admiral interacted with Sri Lankan Naval personnel undergoing training in India. Earlier the Chief of the Naval Staff, Admiral Sunil Lanba had visited Sri Lanka wherein he participated in the 7th International Maritime Conference, Galle Dialogue 2016. SP

PHOTOGRAPHS: Indian Navy

Visit of Chief of the Air Staff to Jammu and Kashmir

The Chief of the Air Staff, Air Chief Marshal B.S. Dhanoa, was on a two-day visit to airbases in Jammu and Kashmir. On his arrival at Air Force Station Awantipur, he addressed all personnel and inspected the operational readiness of the base. During the interaction with the personnel, the CAS complemented all air warriors for maintaining the highest level of professionalism.

Accompanying the CAS, Kamalpreet Dhanoa, President of Air Force Wives Welfare Association, interacted with the families of service personnel and applauded them for the untiring support they have provided to their husbands. The Chief of the Air Staff also visited the Air Force Station Srinagar and interacted with senior army officials at Badami Bagh contonment in Srinagar. Having led a fighter squadron from Srinagar Air Field during the Kargil operations, he is familiar with the lay of the land and the operating environment. SP

BAE Systems signs contract with Turkey for TF-X programme

In the presence of the Prime Ministers of Turkey and the United Kingdom, BAE Systems and Turkish Aerospace Industries (TAI) signed a Heads of Agreement to collaborate on the first development phase of an indigenous fifth-generation fighter jet for the Turkish Air Force — TF-X. This announcement builds upon a pre-contract study phase between BAE Systems and TAI.

Signing this agreement in Ankara ahead of a planned contract with a value in excess of £100 million, BAE Systems Chief Executive Ian King said: "BAE Systems is a leader in designing, manufacturing and supporting fighter aircraft and is in an excellent position to contribute technical and engineering expertise and experience of managing complex projects to this key Turkish programme.

"The announcement signals an exciting next step in relations between both Turkey and the UK with the cooperation between BAE Systems and TAI paving the way for a deeper defence partnership. The agreement confirms ongoing collaborative work on the design and development of the aircraft."

At its peak, hundreds of Turkish and UK engineers will collaborate on the TF-X programme helping to support collaboration on the skills, technology and technical expertise required to deliver the programme. SP

PHOTOGRAPHS: IAF, BAE Systems

World premiere of the state-of-the-art MiG-35 aviation complex

The world premiere of the MiG-35 state-of-the-art multi-role aviation complex was held in Lukhovitsy, Moscow region, January 27, 2017, in the production venue of the Russian Aircraft Corporation MiG (a UAC subsidiary).

The event was attended by over 30 delegations from foreign countries, such as India, Peru, China, Vietnam, and other countries of Latin America, Middle East, Middle Asia, Europe and the CIS. The Deputy Prime Minister of the Russian Federation Dmitry Rogozin, Commander-in-Chief of the Air and Space Forces of the Russian Federation, Colonel General Victor N. Bondarev and representatives of Rosoboronexport and Federal Service for Military and technical cooperation also took part in the ceremony.

The state-of-the-art MiG-35 fighter was presented to the audience by Yury Slyusar, UAC President; Sergey Korotkov, UAC General Designer, Vice President for Innovations; and, Ilya Tarasenko, RAC MiG Director General.

The Deputy Prime Minister Rogozin said: "That's the first presentation of a combat aircraft in 2017, up ahead on the agenda is a presentation and the maiden flight of the narrow-body passenger MC-21 airliner, in summer we plan the maiden flight of the IL-112 light military transport aircraft. That proves that the potential of combat aviation and the designers of Russian aircraft companies are capable of making high quality competitive aircraft. Russia is a great aviation state and today we have got a serious proof of this fact."

The Commander-in-Chief of the Russian Air and Space Forces gave a high appraisal to the new fighter and confirmed the aircraft prospects in the Army: "Many thanks for such an excellent creation that proved once again that nowhere in the world there are better aircraft than in Russia. This multi-role fighter is capable to attack ground, sea surface and air targets and perform aerial manoeuvring combat. I feel proud to say that we shall be pleased to take the aircraft — we need them".

He expressed his gratitude to the staff of the UAC and MiG Corporation for such an excellent aircraft. "Within some time, we shall replace all light fighter aircraft with this type."

"The aircraft is capable of resolving so many tasks — is the most modern perfect aircraft, crowning the MiG aircraft family. Designed on the proven and tested platform it will be in demand in both national and foreign air forces. It seems to me that this project has a bright future, so I would like to wish success to it and all of us," said Yury Slyusar, UAC President, in his remarks opening the presentation of the new fighter.

After the test flight Dmitry Rogozin informed media that in the beginning of spring a military-industrial conference will be held in India, where supplies, repair and maintenance of the Russian weapons, as well as establishing of joint ventures within

the framework of 'Make in India' concept would be discussed. The Russian party should be ready to offer the new fighter MiG-35 to India, Rogozin said. SP

Russia and India to develop BrahMos light cruise missile for PAK FA 5th-generation jet

The BrahMos light cruise missile will be mounted both in submarines' torpedo launchers and on Russia's fifth-generation T-50 PAK FA (Prospective Airborne Complex of Frontline Aviation) fighter jet, CEO and General Designer of the Machine-Building Research and Development Consortium Alexander Leonov said.

"We are working on the missile's light version. It should fit the size of a torpedo tube and be almost 1.5 times smaller by its weight. It will be possible to mount our airborne missile on a wide range [of aircraft]. Of course, we'll be developing it, first of all, for the fifth-generation plane but, possibly, it will be mounted on the MiG-35 fighter, although we have not carried out such developments," he said.

The BrahMos supersonic cruise missile is the product of Russia's Machine-Building Research and Development Consortium and India's Defence Research and Development Organisation, which set up BrahMos Aerospace joint venture in 1998.

The missile's name comes from the names of two rivers: the Indian Brahmaputra river and the Russian Moskva river. The missile has a range of 290 km and carries a warhead weighing 200 to 300 kg. SP

Boeing awarded $2.1 billion for third KC-46A tanker production lot

The US Air Force has awarded Boeing $2.1 billion for 15 KC-46A tanker aircraft, spare engines and wing air refuelling pod kits. This order is the third low-rate initial production lot for Boeing. The first two came in August 2016 and included seven and 12 planes, respectively, as well as spare parts.

Boeing plans to build 179 of the 767-based refuelling aircraft for the Air Force to replace its legacy tanker fleet. Tanker deliveries will begin later this year.

"This award is great news for the joint Boeing-Air Force team and reinforces the need for this highly efficient and capable tanker aircraft," said Mike Gibbons, Boeing KC-46A tanker Vice President and Program Manager. "Our Boeing industry team is hard at work building and testing KC-46 aircraft, and we look forward to first delivery."

"Placing an order for another 15 aircraft is another important milestone for the KC-46 programme," said Colonel John Newberry, Air Force KC-46 System Program Manager. "I know the war-fighter is excited about bringing this next-generation capability into the inventory."

Boeing received an initial contract in 2011 to design and develop the Air Force's next-generation tanker aircraft. As part of that contract, Boeing built four test aircraft — two configured as 767-2Cs and two as KC-46A tankers. Those test aircraft, along with the first production plane, have completed nearly 1,500 flight hours to date.

The KC-46A is a multi-role tanker that can refuel all allied and coalition military aircraft compatible with international aerial refuelling procedures and can carry passengers and cargo. Boeing is assembling KC-46 aircraft at its Everett, Washington, facility. SP

HAL's first indigenously upgraded Hawk-i at Aero India 2017

The Hindustan Aeronautics Limited (HAL) has rolled out the first indigenously upgraded Hawk Mk132, named as Hawk-i, on the eve of Republic Day celebrations. "This is the 100th Hawk aircraft produced at HAL and we are proud that it has 'Make in India' mark. HAL had conceived a programme for indigenous upgradation of the Hawk Mk132 for achieving self-reliance and has successfully accomplished it", said T. Suvarna Raju, CMD of HAL. This aircraft would be on the flying display in the forthcoming Aero India 2017 at Bengaluru.

The upgrade of Hawk Aircraft was taken up at HAL to so as to be independent in matters such as integration of new subsystems or modifications, obsolescence management of avionics systems and to enhance the aircraft operational and training capabilities. HAL has rolled out its own aircraft with the upgrade features in a record time.

In the Hawk upgradation programme, imported Mission Computer and Data Transfer Units have been substituted with HAL designed and developed systems. This indigenous Mission Computer in the dual redundant configuration has additional capabilities such as Digital Map Generation (DMG) which provides improved situational awareness. The Embedded Virtual Training System (EVTS) offers improved training capability over the existing system. The HAWK-i also provides secured voice communication and data link capability by integration of Softnet Radio and pilots can configure and select cockpit Human Machine Interface (HMI) for different aircraft platforms. SP

PHOTOGRAPHS: Sukhoi, HAL

GA-ASI names newest Predator B variant

General Atomics Aeronautical Systems Inc (GA-ASI), a leading manufacturer of remotely piloted aircraft (RPA) systems, tactical radars, and electro-optic and related mission system solutions, launched a "Type-Certifiable" (STANAG 4571) version of its Predator B product line, called SkyGuardian recently where dignitaries from nine nations including the United Kingdom, Italy, France, Australia, Belgium, the Netherlands, Denmark, Norway, and the United States were present.

SkyGuardian is the result of a five-year-long company funded effort to deliver a RPA system that can operate under the stringent airworthiness requirements of non-military airspace. The aircraft leverages the legacy of the multi-mission Predator B fleet, which has amassed nearly two million flights hours. SkyGuardian can fly in excess of 35 hours with airspeeds up to 210 knots, and reach altitudes of more than 14,000 metres.

"The SkyGuardian name reflects the system's role in protecting ground forces, as well as its performance of non-military missions like border surveillance, maritime patrol and relief over-watch in cases of natural disaster," said Linden Blue, CEO of GA-ASI.

SkyGuardian will be fully compliant with NATO's UAV System Airworthiness Requirements (defined in STANAG 4671) and the UK DEFSTAN 00-970. GA-ASI also collaborated with the LufABw (German Military Aviation Authority) to define airworthiness requirements for German Airspace. To facilitate qualification testing, GA-ASI is building three company-owned aircraft, along with two airframes designed specifically for full-scale fatigue and static testing to satisfy type-certification requirements. It plans to deliver the first production aircraft in 2018. The aircraft can host a variety of sensor and communications payloads and is capable of transmitting high-resolution video to manned aircraft and ground forces. The maritime patrol variant of this system, designated SeaGuardian, is designed to support open ocean and littoral surface surveillance for border patrol, coast guard and disaster relief missions. SP

Germany to extend Heron contract

Israel Aerospace Industries (IAI) Heron surveillance unmanned aerial systems (UAS) have recently reached 30,000 operational flight hours in the Mazar-e-Sharif area, according to reports by the German Air Force, the Heron operator in Afghanistan.

Heron systems have been active in Afghanistan since 2010, under the IAI Heron leasing contract signed by the German Defence Procurement Agency (BAAInBw) and Airbus DS Airborne Solutions GmbH, a subsidiary of Airbus Defence and Space.

This important milestone demonstrates Heron's diverse capabilities in carrying out operational missions in challenging terrains. Heron is designated for long-term strategic and tactical tasks and can fly under severe weather conditions, carry a large number of payloads and transfer live information to forces in the field and decision-makers. During a number of years of activity in Afghanistan, Heron has served a variety of other NATO allies, among them France, Canada and Australia.

Due to its considerable operational success over the years in Afghanistan, and the German Government's decision to extend its stay in Afghanistan, an additional leasing contract has been given to the German military for operating the Heron UAS in Afghanistan for one more year, until February 2018.

IAI's Executive Vice President and General Manager of the Military Aircraft Group, Shaul Shahar, said: "Our connection with the German Air Force is of course highly important, and we are proud to continue to provide an operational solution together with the excellent cooperation we have with Airbus." Due to its successful operations in Afghanistan, the German Air Force is presently operating the Heron in Mali as part of a UN policing mission.

IAI is Israel's largest aerospace and defence company and a globally recognised technology and innovation leader, specialising in developing and manufacturing advanced, state-of-the-art systems for air, space, sea, land, cyber and homeland security. IAI also designs and manufactures business jets and aerostructures, performs overhaul and maintenance on commercial aircraft and converts passenger aircraft to refuelling and cargo configurations. SP

PHOTOGRAPHS: GA-ASI, IAI

CCI clears JV between Reliance ADAG and Dassault

The Competition Commission of India has approved the proposed joint venture between Anil Ambani-led group firm Reliance Aerostructure and Rafale-maker Dassault Aviation.

CCI said in a tweet that it has approved setting up of this JV. Deals beyond a certain threshold require approval from CCI, which keeps a tab on unfair business practices across sectors. The JV, which was announced by the two companies in October 2016, aims to be a 'key player' in execution of offset contract worth about ₹22,000 crore as part of the multibillion-euro Rafale fighter jet deal between India and France.

The strategic partnership between Dassault and Reliance will also focus on promoting research and development projects under the IDDM programme (Indigenously Designed, Developed and Manufactured), a key initiative of the Defence Minister Manohar Parrikar. SP

PHOTOGRAPH: MBDA

Northrop Grumman partners with Lufthansa Technik on Australian KC-30A

Northrop Grumman Integrated Defence Services (IDS), a fully-owned Australian subsidiary of Northrop Grumman Corporation, has signed an agreement with Lufthansa Technik AG for the provision of services in support of the Royal Australian Air Force's fleet of KC-30A multi-role tanker transport (MRTT) aircraft. Northrop Grumman IDS is the prime contractor for MRTT Through-Life Support (TLS).

"This agreement between Northrop Grumman and Lufthansa Technik provides the potential for significant savings for the Australian Government," said Ian Irving, Chief Executive, Northrop Grumman Australia. "This access to parts and expertise through this agreement is an important part of our vision to build Northrop Grumman as a regional support hub for a range of aircraft types for Australian and regional air forces."

The agreement will provide the Australian MRTT programme with improved access to a global inventory network, landing gear services and a reduction in component repair times through Lufthansa Technik's commercial expertise. It also allows for future extension for support of parts and general maintenance to other aircraft types.

"The Lufthansa Technik partnership is an exciting opportunity for our organisation," said John Parker, Vice President and General Manager, Global Logistics and Modernization Division, Northrop Grumman Technology Services. "With their support, our Northrop Grumman team is uniquely positioned to provide the Royal Australian Air Force's KC-30A MRTT fleet with high-quality TLS and exceptional overall programme performance."

"We are excited at the opportunity to work with Northrop Grumman on the Australian MRTT programme," said Wieland Timm, Vice President (Sales), VIP & Special Mission Aircraft, Lufthansa Technik AG. "The work which Lufthansa Technik undertakes on massed fleets of aircraft globally provides Northrop Grumman and the Australian Government with the access to a depth of maintenance expertise and parts which has the potential to significantly reduce costs. We look forward to exploring how we can provide similar assistance to other air forces and aircraft types around the Asian region."

The agreement will see Lufthansa Technik provide services to Northrop Grumman including spares (consumables and expendables) procurement; aircraft component test, repair and overhaul services; landing gear overhaul services and aircraft component support. The support of Lufthansa Technik will also provide the Australian Government with opportunities in the future to reduce its holding of spares and materials without diminishing the level of available support for the MRTT programme. SP

MEADS updated offer for Polish Wisła programme

MEADS International (MI) presented an updated offer for Poland's medium-range air defence (Wisła) programme recently to the Ministry of National Defense. The presentation follows a year of active discussion with the Polish Government regarding the security and industrial benefits of the Medium Extended Air Defense System (MEADS). Advanced capabilities, partnership and a proven technology transfer methodology remain key characteristics of the MEADS industrial offer.

"We're extremely pleased to have been given the opportunity to present a detailed offer to the Ministry of National Defense," said Tom Oles, Vice President for MEADS at Lockheed Martin Missiles and Fire Control. "MEADS represents the most affordable and the quickest path to the capabilities Poland requires, and if MEADS is selected for Wisła, Polish industry will benefit from technology implementation and future sales of MEADS in partnership with global leaders in defence."

Through its Technology Transfer Plan, MI will help Polish industry become a world-class air and missile defence system integrator. MI has demonstrated a robust model for technology sharing and commitment to transatlantic cooperation. MEADS technology includes active electronically scanned array (AESA) radar, digital systems, 360-degree defence and an open-architecture non-proprietary network.

In June 2015, the German Ministry of Defense selected MEADS as the basis for its new air and missile defence system Taktisches Luftverteidigungssystem (TLVS). Developed by Germany, Italy and the United States to replace Patriot, the 360-degree MEADS system addresses deficiencies in currently fielded systems. It defeats challenging new air and missile threats from any direction, arrives and moves with deployed troops, and is interoperable with other NATO forces. SP

Nicki Minaj beefs up security after $2,00,000 worth of property stolen

According to TMZ, Nicki Minaj, Super Bass singer, is spending a bundle on a new security system for her mansion in Los Angeles following a significant burglary recently. The new system includes numerous cameras and a cadre of guards who will protect the property 24 x 7.

Sources said while she was upset that the theft occurred, she now made changes to security to ensure protection. Not only was $2,00,000 worth of jewellery and other property stolen from the posh home, which she has been renting for $30,000 a month, but the place was also 'trashed'. No suspects were arrested yet, but police believe the crime may have been committed by someone who knows the 34-year-old Anaconda singer.

Police are now looking for surveillance video. The siren was out of town when the home invasion happened. The burglary was reported by her team earlier this week. This crime comes just after Minaj split from Meek Mill and has called a truce with old friend Drake. SP

Man creates ruckus on Jet Airways Delhi-Mumbai flight

A mentally unstable man was detained after he created a ruckus inside a Delhi-Mumbai Jet Airways flight recently. The flight, 9W332, left Delhi in the morning but an hour later, the man, visibly in his 30s, started shouting and creating a scene. A witness said the man was shouting in English: "There is a surprise waiting for you, it will pop on to your iPads from Washington. They don't have control over the plane anymore, I have taken over."

He soon pulled down the curtains, threw trays of food on people and furiously walked around. Finally, he was overpowered by fellow passengers. He was then confined to the tail of the aircraft. Passengers said the man was the first to be taken off the plane when it landed at Mumbai.

The cabin crew and pilots assembled to control this act and after seeking some medical help, he was taken to the tail of the plane and reboarded first on reaching Mumbai. Later it was learnt that he appeared to be mentally disturbed. His father intimated that perhaps he had not taken medicine and so on getting apology, he was released, according to a CISF spokesperson. SP

InterContinental confirms breach at 12 hotels

The InterContinental Hotels Group (IHG), the parent company for thousands of hotels worldwide including Holiday Inn, acknowledged recently that a credit card breach impacted at least a dozen properties.

In a statement, IHG said it found malicious software installed on point of sale servers at restaurants and bars of 12 IHG-managed properties between August and December 2016. The stolen data included information stored on the magnetic stripe on the backs of customer credit and debit cards — the cardholder name, card number, expiry date, and internal verification code.

The company advised that its investigation into other properties in the Americas region is ongoing. Card-stealing cyber thieves have broken into some of the largest hotel chains over the past few years. Hotel brands that have acknowledged card breaches over the last year after prompting by KrebsOnSecurity include Kimpton Hotels, Trump Hotels (twice), Hilton, Mandarin Oriental, and White Lodging (twice). Card breaches also have hit hospitality chains Starwood Hotels and Hyatt.

In many of those incidents, thieves planted malicious software on the point-of-sale devices at restaurants and bars inside of the hotel chains. Point-of-sale based malware has driven most of the credit card breaches over the past two years, including intrusions at Target and Home Depot, as well as breaches at a slew of point-of-sale vendors. The malware usually is installed via hacked remote administration tools. Once the attackers have their malware loaded onto the point-of-sale devices, they can remotely capture data from each card swiped at that cash register.

Thieves can then sell that data to crooks who specialise in encoding the stolen data onto any card with a magnetic stripe, and using the cards to purchase high-priced electronics and gift cards from big-box stores like Target and Best Buy. SP

PHOTOGRAPHS: Wikipedia