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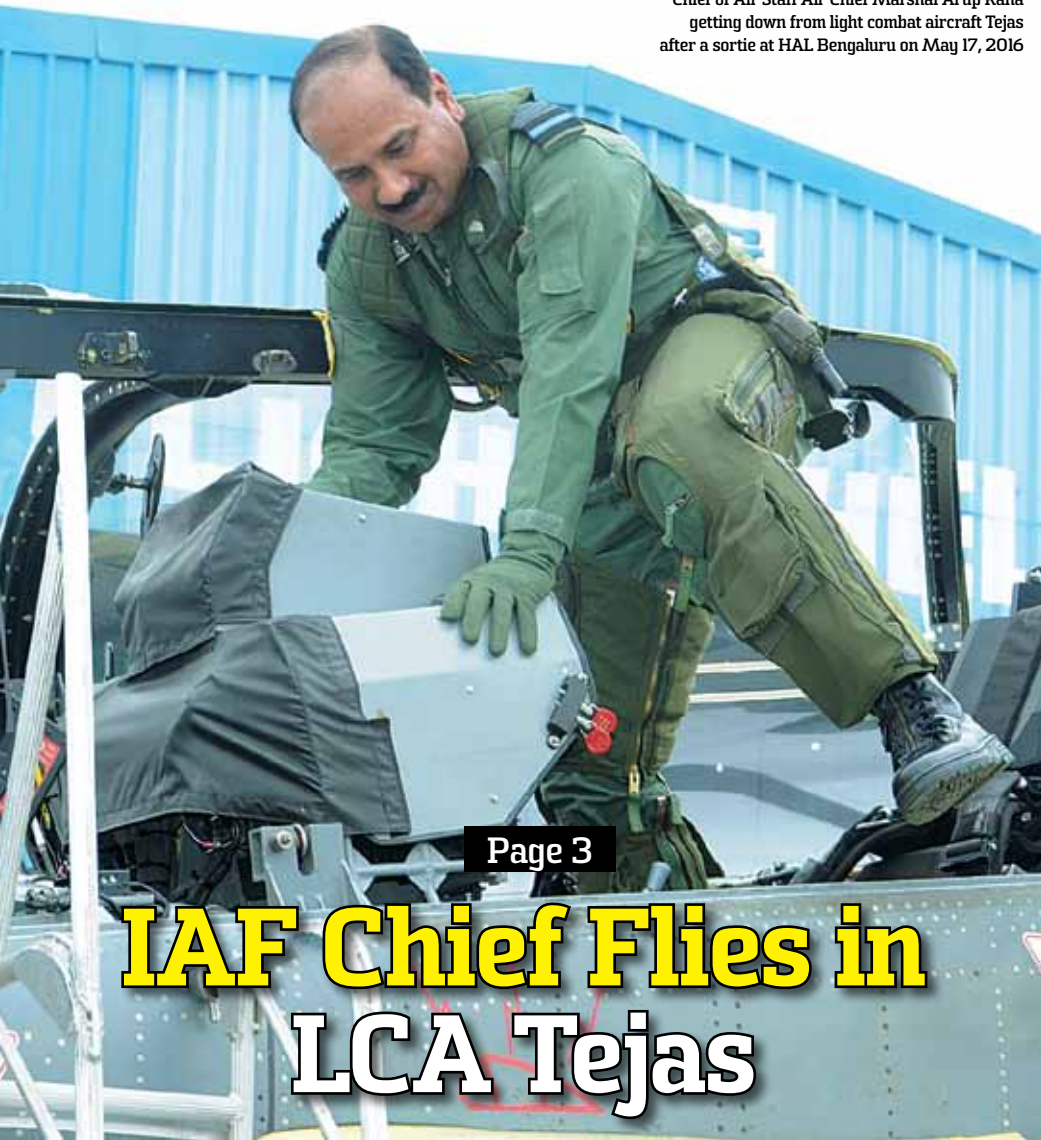


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ONLY FORTNIGHTLY ON **MILITARY AEROSPACE INTERNAL SECURITY**

Chief of Air Staff Air Chief Marshal Arup Raha getting down from light combat aircraft Tejas after a sortie at HAL Bengaluru on May 17, 2016



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IAF Chief Flies in LCA Tejas



Are our politicians losing interest in India's defence? PAGE 6

By **General V.P. Malik (Retd)**



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



SP GUIDE PUBLICATIONS

| OVER **5** DECADES SINCE 1964 |

Chief of the Air Staff flies in light combat aircraft Tejas

The Chief of Air Staff Air Chief Marshal Arup Raha flew the indigenously designed and produced light combat aircraft (LCA) Tejas at the Hindustan Aeronautics Limited (HAL) in Bengaluru on May 17, 2016.

The Tejas has been designed by the Aeronautical Development Agency (ADA) and produced by HAL at Bengaluru. The aircraft is an advanced fly-by-wire fighter aircraft with state-of-the-art avionics. The aircraft structure comprises of a large amount (more than 50 per cent) of composites and features a quadruplex digital fly-by-wire control system.



The Air Chief Marshal carried out manoeuvres in the entire flying envelope of the aircraft. He carried out simulated air-to-air and air-to-ground attacks. He also assessed the advanced modes of the radar and helmet mounted display (HMD) sight. An ace fighter pilot himself, Air Chief Marshal Raha appreciated the flying qualities of the aircraft. He congratulated the entire team of ADA and HAL for their hard work in getting the LCA programme to this stage.

The series production of the Tejas aircraft has already commenced at HAL Bengaluru and the Indian Air Force intends to form the first squadron of the LCA on July 1, 2016. The IAF has also decided to place an order for an additional 80 Tejas in the advanced LCA MK1A configuration. **SP**



Cover:

Air Chief Marshal Arup Raha flew in a Tejas trainer (PV-6) for around 30 minutes to check its capabilities and landed safely at the HAL airport in Bengaluru along with Group Captain M. Rangachari on May 17, 2016. Air Chief Marshal Raha became the first IAF chief to fly the fighter, designed and developed by ADA and built by HAL.

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OVER 5 DECADES SINCE 1964

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First Tejas squadron likely in July

After 33 years of development, the first signs of the indigenous light combat aircraft (LCA) Tejas being inducted into the Indian Air Force (IAF) is becoming real. The IAF Chief, Air Chief Marshal Arup Raha flew in the Tejas at the Bengaluru facility of Hindustan Aeronautics Limited (HAL) and has given a thumbs up. The first squadron with four Tejas jets will be formed in July this year.

After the first prototype took to the skies in January 2001, Tejas has clocked over 3,050 flight tests. Tejas which was supposed to replace the obsolete MiG-21, however, has taken excruciatingly long to take to the skies, but now it finally has made it. The IAF Chief carried out manoeuvres in the entire flying envelope and is said to have appreciated the qualities of the aircraft. The first LCA squadron is to come up in July and the IAF has also decided to place an order for an additional 80 Tejas in the advanced LCA MK1A configuration. The first Tejas squadron with four jets is slated to come up at Bengaluru.

The single-engine Tejas, of course, is still not combat-ready. Its final phase of weapon trials, including firing of BVR (beyond visual range) missiles, is currently under way. Moreover, the fighter is to get an AESA (active electronically scanned array) radar and advanced electronic warfare (EW) suite, apart from becoming capable of mid-air refuelling, for its Mark-IA version that the IAF actually wants.

It is a twin-effort, political will and the defence industrial base pulling up its socks. The two can propel India's indigenous defence sector. The former Army Chief, General V.P. Malik (Retd) has said that given India's increasing vulnerabilities and international demands to act as a net provider of security as a rising regional power, the defence allocation and expenditure needs to be supplemented to create the capabilities which the armed forces will need in future. The General is aghast that for the first time ever in the last five decades the country's Finance Minister Arun Jaitley did not utter the word 'defence' in his budget speech. The General won-

ders whether the political class is losing out interest in the country's defence and security.

In another critique, Air Marshal B.K. Pandey (Retd) has reported the Parliamentary Standby Committee on Defence which has considered this year's defence budget 'meagre and insufficient'.

In his viewpoint, Lt General P.C. Katoch (Retd) talks about how foreign direct investment (FDI) in defence is held up for some reason or the other. He states it obviously includes in-house red tape that shows no sign of abating. The Modi Government needs to address these issues on priority. In another viewpoint he mentions how the defence spending must take into account the three plus PLA Divisions augmenting the Pakistanis along our western border, even if protecting the China-Pakistan Economic Corridor (CPEC) is the stated task. Clearly much more thought to defence must be given by the Modi Government. Just saying allocations are adequate would not do.

Lt General Katoch also has analysed the draft map policy and how it impacts defence and security. Besides these, there are other interesting reports in the fortnightly.

Happy reading!



Jayant Baranwal
Publisher & Editor-in-Chief

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GENERAL
V.P. MALIK (RETD)

Are our politicians losing interest in India's defence?

Given India's increasing vulnerabilities and international demands to act as a net provider of security as a rising regional power, the defence allocation and expenditure needs to be supplemented to create the capabilities which the armed forces will need in future

The Parliamentary Standing Committee on Defence, headed by Bharatiya Janata Party (BJP) Member of Parliament Major General B.C. Khanduri (Retd), has recently conveyed to the Parliament that the "growth in the budgetary allocation for defence is not sufficient and woefully inadequate for modernisation." This assessment cannot be a surprise to anyone, except those who have stopped taking interest in India's defence requirements.

After Kargil war, during which I made that famous statement: "We shall fight with whatever we have", India's defence budget was raised to 2.41 per cent of its GDP. Since then, there has been a steady downslide, to 1.47 per cent this year, not counting the thousands of crores surrendered by the Ministry of Defence (MoD) near annually.

So the Defence Secretary G. Mohan Kumar was absolutely right when he admitted before the parliamentary panel that India's military spending for financial year 2016-17 is not as per the requirements of the services.

A question linked to the above-mentioned observation would be, "Are the government and political parties losing interest in India's defence?"

I believe so: not only the National Democratic Alliance (NDA) regime but all political parties seem to be losing interest in India's defence matters when one notices that only 10 out of 24 political parties had given their views in this report of the Parliamentary Standing Committee on Defence.

As an armed forces veteran, I noticed two firsts in the annual budget presented to the Parliament this year.

First, the Finance Minister Arun Jaitley never mentioned the word 'defence' in his speech. I cannot recall that happening in the last five decades or more. In the budget 2014-15, there was a cryptic reference to the 'Make in India' programme in defence self-reliance. This year, there was not even that. To many people, this lack of mention would have conveyed the impression that India's security and ₹3,40,000 crore of India's defence budget (total defence outlay plus the pensions bill) is of little importance.

Second, for the first time, the Finance Minister included 'defence pensions' as part of Defence Ministry Allocation (Item No. 21 in the Summary of Demands for Grant). Till now, military pensions were never a part of defence budget. It was a sepa-

rate allocation. The Finance Minister included this expenditure as part of the defence budget probably for two reasons:

- to convey that this particular item has impacted the rest of defence allocation (military pensions are likely to increase from ₹60,238 crore in financial year 2015-16 to ₹82,332 crore in financial year 2016-17), and
- to convey that total defence outlay has been increased substantially.

What is the actual defence allocation for this year? What are its implications for the armed forces? Let me analyse and state my views.

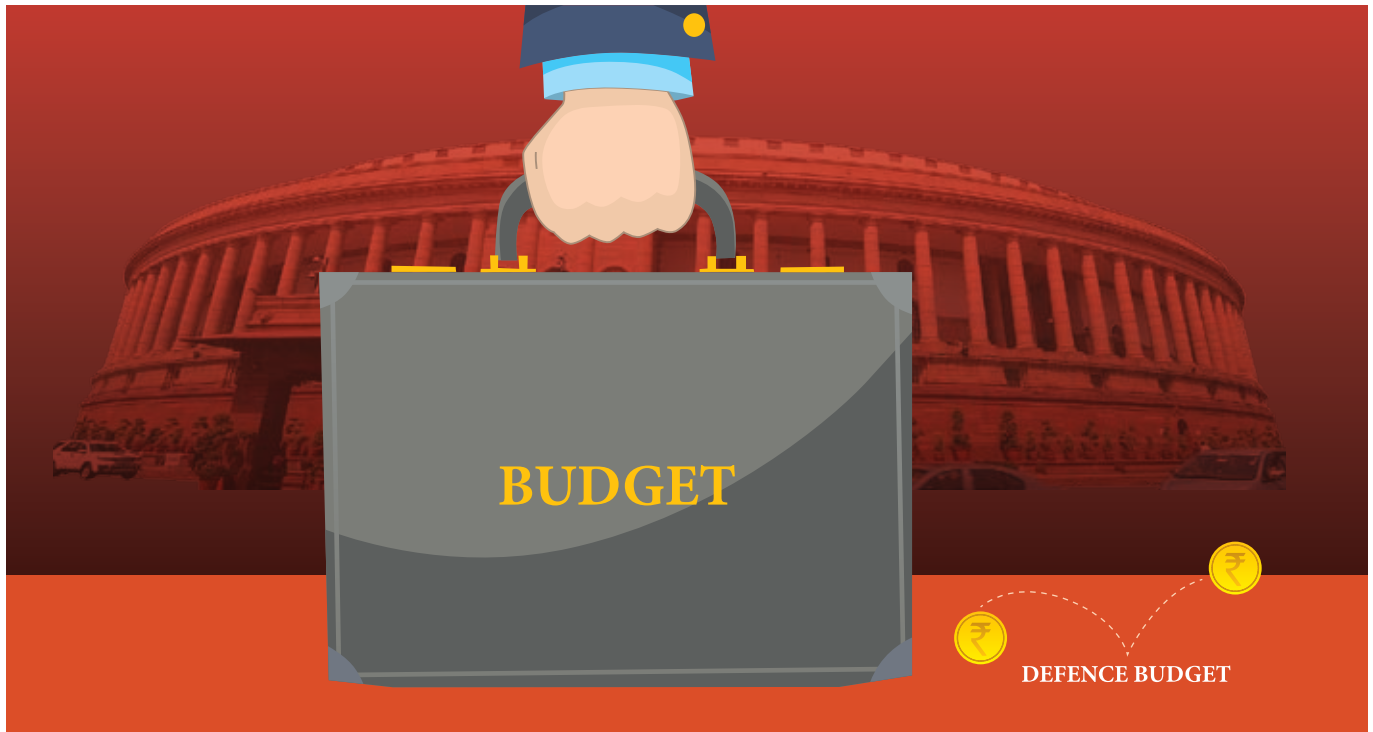
The defence allocation sought in the budget estimate (BE) for the financial year 2016-17 is: Revenue — ₹1,48,498.85 crore, Capital — ₹78,586.68 crore, Pensions — ₹82,332.66 crore, Miscellaneous (other than armed forces) — ₹68,537.63 crore. On the basis of BE of last year, there is an increase of mere 1.16 per cent. This allocation does not even cover India's inflation rate and will be insufficient to fulfil military's basic needs, let alone its modernisation.

In the financial year 2015-16, MoD was unable to spend ₹18,295 crore out of its allocated budget. This included ₹11,595 crore from the Capital expenditure, or 13.4 per cent of the funds earmarked to purchase new military equipment. The rest unspent amount was from Revenue expenditure, mostly maintenance requirements of the military.

For the unspent money, which leads to reduction in the revised estimates (RE) year after year, we can blame the MoD for its cumbersome procedures, and also its Finance Adviser who takes his cues on curtailing defence expenditure from the Ministry of Finance. Usually, he is seen to be more loyal to his parent ministry than the one in which he is located.

For the financial year 2016-17, the capital expenditure outlay for the armed forces is ₹78,586.68 crore. Last year, at the BE stage, it was ₹85,894.44 crore. This clearly implies lesser money for modernisation this year. Of the allocated amount, more than 80 per cent funds are expected to be paid for deals which have already been signed.

Lack of funds will force the MoD to cancel several projects, and even withdraw some already floated tenders. The delays in the replacement of the army's obsolescent weapons and equipment, making up of deficiencies in fighter squadron strength of the air force and the submarine fleet of the navy



to meet future threats and challenges is indeed worrisome. Several big-ticket purchases being worked out for modernisation of the army, navy and air force are likely to suffer. This would also affect our defence industrial sector which is looking for expansion and more supply orders as part of India's 'Make in India' programme.

Everyone knows that India's defence modernisation had suffered heavily during the United Progressive Alliance (UPA) regimes which ordered probes into every charge of corruption and black-listed suspect defence vendors. The blacklisting went to such an extent that at one stage almost every defence industry company in the world stood banned. In fact, the NDA came to power accusing the UPA for its overcautious Defence Minister A.K. Antony neglecting the military, and promised to make India stronger.

The maintenance (revenue) expenditure is no less a worry. The allocation this year – ₹1,48,498.85 crore which is an increase from last year's BE ₹1,37,153.03 crore. The fact is that this expenditure has been bloating year after year and thus skewing maintenance versus modernisation ratio in defence allocation. Ideally, it should be about 50:50 for the air force and navy, and about 65:35 for the manpower intensive army.

In the past, whenever revenue expenditure overshot the budgeted allocation, there was a tendency to dip into the Capital expenditure. This year, with extra revenue expenditure required on account of the 7th Pay Commission recommendations, and post-Pathankot attack extra security measures for large defence installations, I doubt if we can come anywhere close to these ratios next year.

I have four additional comments to make.

- As a ratio of projected GDP for the financial year 2016-17, India's defence expenditure will be around 1.47 per cent. In comparison, China spends more than 2.5 per cent, and Pakistan around 3.5 per cent of their respective GDP. India's per capita expenditure on defence is less than \$10, while the average expenditure of the top ten spenders in Asia is approximately \$800. Given India's increasing vulnerabilities and international demands to act as a

net provider of security as a rising regional power, the defence allocation and expenditure needs to be supplemented to create the capabilities which the armed forces will need in future.

- The inability to spend allocated capital modernisation budget must be rectified urgently. We should reconsider 'non-lapsable, roll-on allocation' for defence capital budget. This was instituted by the last NDA Government under Atal Bihari Vajpayee.
- While seeking additional resources from the government, it is also the responsibility of the MoD and the armed forces to control the ever bloating revenue expenditure. This requires stricter check over manpower expansion, with greater use of technology where necessary. With greater integration of services, we can cut down duplication (sometime triplication) of our non-combat resources.
- In order to meet Standing Committee's observation on greater efficiency of spending, we should also institute a 'technical audit' every five years to check if the allocated capital resources have been utilised optimally for the desired capabilities.

In his speech to the Combined Commanders in December 2015, Prime Minister Narendra Modi said, "In a world of rapid changes, India faces familiar threats and new ones. Our challenges cover land, sea and air at the same time. It includes the full range, from terrorism to conventional threat to a nuclear environment. Our responsibilities are no longer confined to our borders and coastlines. They extend to our interests and citizens, spread across a world of wide-spread and unpredictable risks."

Surely, that could not be mere rhetoric?

There is a feeling amongst large number of armed forces personnel that the government, particularly the Finance Minister, was upset with some armed forces veterans' continuing agitation over 'One Rank One Pension' issue despite the government conceding most of their demands. My appeal to the government is that whether that is true or not, it must not come in the way of the armed forces modernisation. **SP**

The writer is former Chief of the Army Staff.



AIR MARSHAL
B.K. PANDEY (RETD)

Dilemma of defence spending

A report of the Parliamentary Standing Committee on Defence stated that the enhancement in the defence budget for the year 2016-17 over the previous year was meagre and insufficient



Need of the hour: Early induction of Rafale jets

On March 10, 2016, a senior functionary of the Indian Air Force (IAF), stirred up a hornets' nest when in a press conference on the eve of Exercise Iron Fist, he stated rather plainly that the IAF did not have the capability in terms of combat aircraft and other assets to fight a two-front war, i.e. in the event of a conflict with China and Pakistan at the same time. More recently, in fact just a few days ago, the Defence Secretary G. Mohan Kumar made a candid admission before a Parliamentary Standing Committee on Defence that "India's military spending as planned in the defence budget for 2016-17 is not as per the requirements of the Indian armed forces." While this perception of the Defence Secretary is shared by most analysts and defence experts in the country and the state of the Indian armed forces is

definitely not a closely guarded secret, what is perhaps more intriguing is that the statement by the Defence Secretary is in direct conflict with the position taken by the Minister of Defence Manohar Parrikar who had stated publicly earlier on that the allocation for defence in the national budget for 2016-17 is adequate. However, the Parliamentary Standing Committee on Defence did table a report in the Parliament that held a position that was in consonance with the views expressed by the Defence Secretary. The report explicitly stated that the enhancement in the allocation to the Ministry of Defence (MoD) in the national budget for the financial year 2016-17 over the previous financial year was indeed meagre and insufficient to fulfil the basic needs of the Indian armed forces, let alone meet with the demands of their urgently required modernisation.

PHOTOGRAPH: Dassault Aviation

National Security at Stake

With sustained economic growth, India is now reckoned to be a regional power and has aspirations of attaining the status of a global power to find its rightful place in the comity of nations. Along with the rise in the economic status of the nation, it is necessary that its military capability must also be enhanced not only to cater for the threats perceived from the well-known adversaries, both in the near and long term; but more importantly to safeguard the security interests of the nation that would continue to expand in consonance with the growth of the economy and extend well beyond the boundaries of the nation.

As per data available in the report of the Parliamentary Standing Committee on Defence, the expenditure on defence as a percentage of government expenditure has been on the downslide in the last 15 years or so. From a high of 15.24 per cent in the financial year 2000-01, it has progressively declined to 12.59 per cent in budget estimates for the financial year 2016-17. The operational capability of the Indian armed forces has suffered constant erosion over the last few decades. The Indian Army has not been able to induct modern artillery guns after the procurement of the Bofors guns from Sweden in the 1980s that unfortunately led to an ugly controversy that haunts the nation even today. The combat arms of the Indian Army have been overtaken by obsolescence as they have not been replaced in the last over six decades. The Indian Navy is woefully short of submarines and also needs to replace the fleet of carrier-borne combat aircraft. The Indian Navy of today is not well equipped to secure the nation's exclusive economic zone, the 7,500 km of coastline as well as the sea lines of communication. It is doubtful whether in its present state, the Indian Navy would be in a position to confront the Chinese Navy in the Indian Ocean if the need arose for it to do so.

The combat fleet of the IAF is dwindling rapidly and estimates are that by the end of this decade, on account of the mandatory phasing out of the life expired older fleets of MiG-21 and MiG-27 aircraft, the fleet will be down to around 60 per cent of its authorised strength. Six years ago, the then Chief of the Air Staff (CAS) had stated publicly that 50 per cent of the equipment in the IAF was obsolete. The state of affairs has in fact worsened since the erstwhile CAS had made this observation public as efforts by the IAF to induct 126 of the medium multi-role combat aircraft (MMRCA) initiated in 2002 has not been successful. Eight years after the request for proposal for the MMRCA was issued for which the Rafale combat jet from Dassault Aviation of France was selected by the IAF, the tender was cancelled. Even the supplementary effort initiated personally by Prime Minister Narendra Modi to procure 36 Rafale jets through a direct deal with the Government of France continues to be plagued with uncertainty. Even if the 36 Rafale jets arrive, with just two squadrons added to the combat fleet, it will only provide partial relief to the difficulty the IAF is in with regard to the erosion of its operational capability as its existing fleet of combat aircraft will be deficient by 17 squadrons or around 300 platforms by the end of this decade.

As years roll by and continued neglect by the government and its indifference to reality, the problem will only get worse thus seriously undermining national security

year 2016-17 stands at ₹2,49,099 crore. The problem also gets compounded by the inability of the Service Headquarters to fully utilise the allotted funds within the financial year owing to the infinitely complex and time-consuming procurement procedures laid down for the procurement of military hardware and the painfully slow decision making especially by the bureaucracy at the level of the MoD and the Ministry Finance. Besides, the government is not willing to allow funds that remain unspent in the financial year to be carried over to the next year. With the passage of time, challenges in respect of expenditure on defence procurement get further aggravated on account of the progressive and steep hike in the cost of military hardware. The way things are, the gap which appears to be ever widening can never be closed with expenditure on defence being limited to less than two per cent of GDP. As years roll by and continued neglect by the government and its indifference to reality, the problem will only get worse thus seriously undermining national security.

The Menace of Misdemeanour

The programme for the modernisation of the Indian armed forces at this point in time appear to be in a state of aimless drift. The long-term strategic master plan for the modernisation of the Indian military has never really been articulated clearly at any stage by any government in power at the Centre. Also, there has hardly been any sensible public debate in the media on this issue. The Indian armed forces had great hopes of the NDA Government in this regard; but despite the rhetoric emanating frequently from the highest echelons of the political leadership, there has been little movement on the ground. Another problem that could emanate from the fact that the government seems to have gone into an overdrive to unearth scams in the procurement of military hardware and the ensuing and unhealthy political slugfest. Whether or not the nation will ultimately benefit from this exercise is difficult to predict at this stage. However, one fallout of this exercise is certain in that it is likely to have a deleterious effect on the ongoing as well as future programmes for the procurement of military hardware. Both the civilian bureaucracy and the military hierarchy responsible for processing proposals of high-value military hardware will be chary of taking decisions for fear of being implicated in the future is some misdemeanour, perceived or otherwise. **SP**

The programme for the modernisation of the Indian armed forces at this point in time appear to be in a state of aimless drift. The long-term strategic master plan for the modernisation of the Indian military has never really been articulated clearly at any stage by any government in power at the Centre.



LT GENERAL
P.C. KATOCH (RETD)

Defence spending – Faux pas in MoD

A.K. Antony, during his decade-long tenure as Defence Minister, maintained that budget allocations were more than adequate and more money could always be made available. It is a separate issue it was difficult to establish whether he was the worst Defence Minister or V.K. Krishna Menon accredited with the Jeep scandal and 1962 debacle, with even a former diplomats penning Antony brought the military down to 1962 levels. To Antony's good fortune, the Parliamentary Standing Committee on Defence was headed by film star Raj Babbar (UPA idiocy) didn't go beyond Bollywood.

But this changed with the Modi Government. The Parliamentary Standing Committee on Defence is now headed by the Bharatiya Janata Party Member of Parliament Major General B.C. Khanduri (Retd) who had proved his mettle as a Cabinet Minister during the previous NDA regime. Now Defence Minister Manohar Parrikar has been publicly stating that the defence budget allocation for the current year is adequate, which obviously has been fed to him by the Ministry of Defence (MoD) bureaucrats. However, Defence Secretary Mohan G. Kumar has admitted before the Parliamentary Standing Committee on Defence that India's military spending for 2016-17 "is not as per the requirements of the services".

The Committee has tabled its report in Parliament saying the meagre increase in this year's defence spending was insufficient to fulfill the military's basic needs, let alone modernisation. The report said India's defence spending as percentage of government expenditure had 'nosedived' from 15.24 per cent in 2000-01 to 12.59 per cent in budget estimates (BE) for 2016-17, adding, "this is highly alarming and needs to be rectified". The Committee noted that the BE for the year stood at ₹2,70,000 crore (gross), and if the government cannot provide additional budget, it should ensure efficiency of spending. In February 2016, the government announced it would spend ₹2,58,000 crore on defence in 2016-17, a marginal hike of 9.7 per cent over last year's revised estimates. This year's defence spending, excluding pensions, accounts for 1.7 per cent of the country's gross domestic product. Experts believe the figure should be around 3 per cent of the GDP to counter China's rapidly growing military might. The panel expressed disappointment with the government over its failure to clinch the Rafale fighter deal and bolster the Indian Air Force's (IAF) offensive potential despite considerable time having elapsed. Significantly, the Committee also asked the government to create the post of the Chief of Defence Staff (CDS) at the earliest.

But the mismatch between what the MoD bureaucracy would like the Defence Minister to state publicly, what the Defence Secretary had to admit to the Standing Committee on Defence, and what the Committee submitted to Parliament is not the only faux pas. Another one was when Parrikar held a press briefing to announce One Rank One Pension (OROP) and mentioned Voluntary Retirement Scheme (VRS), without knowing there is no VRS in military. Yet another one is that

MoD has failed to define what is meant by 'state-of-the-art', because of which all cases of FDI in defence beyond 49 per cent are stuck with the Foreign Investment Promotion Board (FIPB). India should have a defence budget of 3 per cent or more of the GDP for next few years considering what Antony did to the military.

The economy has begun to look up under Prime Minister Modi albeit defence has been most neglected despite every government announcing there will be no dearth of money. The Defence Acquisition Council (DAC) approved Long Term Integrated Perspective Plan 2012-27 and the 12th Five Year Plan, were based on defence allocation at 3 per cent GDP but defence allocations have always been way below. Defence budget allocations have to be in backdrop of not only enormous shortages in the military including in ammunition but also that 50 per cent defence equipment held by the army, navy and air force is obsolete. Subconventional conflict are the order of the day but defence budget 2016-17 leaves only ₹12,000 crore for modernisation from the ₹78,587 crore capital expenditure, rest being for committed liabilities. So, what comes to the foot soldier will likely be meager, if at all.

The Comptroller and Auditor General of India (CAG) reports of last five years point out that the equipment provided by the Defence Research and Development Organisation (DRDO) is substandard and provisioned at excessive costs besides enormous amount of money and time spent on R&D without even consultation of the user (military) and some even without MoD sanction. Boosting the indigenous defence industry no doubt is excellent but the functioning and products of the governmental defence-industrial complex have been appalling. Parrikar recently released a list of achievements of DRDO but one look would tell you that there are many half truths. For example, the Akash weapon system that is being touted as a success of DRDO is a complete fiasco, forcing the army to seek imports. The army cut more than 14,000 jobs between 2005 and 2013 and has ordered another study to downsize the force. But how downsizing the civil defence employees who are expanding, upgrading and consuming 47 per cent of the defence pension bill despite their small numbers compared to those in uniform? What about the expansion of the DRDO, whereas they should actually be pruned down and tasked with only R&D, with commercial production transferred to private industry? What about the hundreds of police and Central Armed Police Forces (CAPF) battalions being raised without the CI deployment of the army going down?

Our defence spending must also take into account the three plus PLA Divisions augmenting the Pakistanis along our western border, even if protecting the China-Pakistan Economic Corridor (CPEC) is the stated task. Clearly much more thought to defence must be given by the Modi Government. Just saying allocations are adequate would not do. **SP**

The views expressed herein are the personal views of the author.



Symbolic transformation from the old to new. The outgoing Sea Harriers being flanked by the newly inducted MiG-29K fighters of the Indian Navy at INS Hansa, Goa

Sea Harriers fly away into glory

[By Rear Admiral Sushil Ramsay (Retd)]

The illustrious and unique Sea Harriers of the Indian Naval Air Squadron (INAS) 300 were given a befitting farewell in a function organised at INS Hansa, Goa, on May 11, 2016. The function was attended by Admiral R.K. Dhowan, Chief of the Naval Staff (CNS), Vice Admiral Sunil Lanba, Flag Officer Commanding-in-Chief, Western Naval Command, serving and retired officers and men and all personnel who have served in the INAS 300. Speaking on the occasion CNS lauded the stellar role played by the squadron in the defence of the country and acknowledged the professionalism of the pilots, the maintainers and all those personnel associated with flying and maintaining the aircraft in peak efficiency during their service. He said that the rich legacy would continue as the baton is being passed on to the proud young crew of the MiG-29K Squadron who have been successful in seamlessly integrating the successor fighters with INS Vikramaditya in the shortest possible time.


In appreciation of the faithful service to the nation by INAS 300

‘White Tigers’ an impressive ceremony was held which saw the Sea Harriers fly for one last time, and MiG-29K flanking their outgoing cousins and ceremoniously assuming the honourable position of the new generation successor fighters of the Indian Navy. The air display included supersonic pass by MiG-29K and formation flying by two each Sea Harriers and MiG 29Ks. The composite air display symbolised a smooth transition from the old to the new in continuance with the proud legacy of the INAS 300. On completion of the air display, “washing down of the Sea Harriers” was carried out in a traditional manner. A first day cover was also released by CNS to commemorate the occasion.

The White Tigers who stand for excellence, determination and aggressive spirit, heralded the era of carrier borne aviation into Indian Navy. Almost six decades ago the squadron was commissioned at RNAS Brawdy, UK with its distinctive ‘White Tiger’ logo and equipped with the Sea Hawk aircraft. After providing yeoman service for over two decades, the squadron was reincarnated with Sea Harriers in 1983. INAS 300 with its potent Sea Harriers formed the teeth of naval combat power and consequently was the cen-



Invited to witness the de-induction ceremony of Sea Harriers, Alistair Castle, Vice President and General Manager, India, BAE Systems commented, “We are very proud of our support to the Indian Navy in keeping the iconic Sea Harriers airworthy over the last 33 years. Three decades ago, when the Sea Harriers were inducted, these aircraft with modern weaponry, avionics and an engine which could land the aircraft vertically, defying all the laws of aerodynamics, introduced

V/STOL for the Indian Navy. On this symbolic day, we rededicate ourselves to our partnership with the Indian Navy through our continued support on the Hawk advanced jet trainer.” 



INS Viraat and Sea Harriers



(Top) The final flight of the Sea Harriers of INAS 300 still managed to enthrall the crowds at INS Hansa, Goa; MiG-29K undertaking tight turns to showcase its powers; (above) Unveiling of plaque marking the deinduction of Sea Harriers and induction of MiG-29Ks in INAS 300; Admiral R.K. Dhowan releasing the first day cover on the ceremony of deinduction of Sea Harriers and induction of MiG-29K in Goa.

trepreneur of naval operational strategy. With their professionalism, the White Tigers assured the control of areas of interest and emerged as a force to reckon with, by ensuring air dominance for Indian Navy's Carrier Battle Group. Resultantly, Sea Harriers' potent and lethal combat skills and dynamic manoeuvrability was appreciated globally, including the foreign navies as also the Indian Air Force.

At 0852 hours on Wednesday, May 11, 2016, Commander Shikku Raj, Commanding Officer, INAS 300, landed the Sea Harrier at INS Hansa, Goa, for the last time as he remembered the first time his father took him to see this incredible flying machine. It was in 1983, then Commander PV. Rajan Pillai (now a retired naval veteran), was a member of the technical support team of INAS 300. On this occasion young Shikku Raj conjured a dream to fly the fighter aircraft one day. After his last sortie on May 11, 2016, Commander Shikku Raj recalled, "It was a moment of nostalgia. We took off at 0827 hours for the flypast along with MiG-29Ks. It was a short 25-minute exercise." As he landed, he radioed the Air Traffic Controllers: "It's been an honour. Thank you!" He continued, "It takes a lot from the pilot to just land. In every other aircraft, landing is second nature. In the Sea Harrier, you have to actually think how to land the aircraft, because it is so unconventional. Every recovery on the Sea Harrier in that respect is memorable." A complex aircraft by every definition, the Sea Harrier, an otherwise brawny fighter jet, can hover like a heli-

copter, when required. Manufactured by British Aerospace, the Sea Harrier is a naval short/vertical take-off and landing (V/STOL) jet fighter, which uses four vectorable nozzles for thrust.

One of the eminent guests at this ceremony was Admiral Arun Prakash (Retd), former Chief of the Naval Staff, an original Sea Hawk pilot who had earned the distinction of gallantry award of Vir Chakra during 1971 Indo-Pak war. Relevant to the context is his distinction of being the first IN pilot to be trained and converted to fly the Sea Harriers. He became the first Commanding Officer of INAS 300 (Sea Harriers) but not before the baptism by fire as during the intensive training phase he had to bail out of the Trainer Sea Harrier in a snow-bound area and suffered severe frostbites. For ferrying the brand new Sea Harriers he fought his way through convincing the authorities that the first set of aircraft are taken in fly-away condition. He successfully led the formation of first three Sea Harriers, flying all the way to India, via Malta, Luxor and Dubai. They landed at Dabolim, Goa, on December 16, 1983, to a jubilant welcome by the Indian Navy.

After witnessing the last sortie of the Sea Harrier when asked, Admiral Arun Prakash said, "I feel a mixture of nostalgia and happiness. We brought this aircraft and it has done a great service to the Indian Navy for 33 years. I miss flying. This time also I asked if they could give me a ride in the Harrier Trainer but they said no, you are too old. Not even a last ride, because the Ministry of Defence rules do not permit!" SP



LT GENERAL
PC. KATOCH (RETD)

FDI in defence remains elusive

In a written reply given to the Parliament in response to a question about foreign direct investment (FDI) in defence, Defence Minister Manohar Parrikar said, “The actual flow of foreign direct investment takes time to mature. From August 2014 to February 2016, a total amount of ₹112.35 lakh has come into the country as FDI in the defence sector”. This actually amounts to a pittance compared to the overall FDI coming in and the ‘Make in India’ campaign. According to Nomura brokerage firm of Japan, FDI in India during financial year 2015 was \$34.9 billion; 61.6 per cent jump from \$21.6 billion during 2014.

The credit obviously goes to the ‘Make in India’ call given by Prime Minister Narendra Modi. The Economic Survey released in February this year states that FDI in India has received a dramatic boost from the launch of the ‘Make in India’ initiative. After the September 2014 launch of ‘Make in India’, there was some 40 per cent increase in FDI during October 2014-June 2015 over similar period in previous year.

Under the ‘Make in India’ programme, the government has awarded 56 defence manufacturing permits to private sector entities in the past one year, after allowing 49 per cent FDI in the defence sector in August 2014, compared with 47 granted in the preceding three years. There is no doubt that funds flowing in through FDI are also suspect with ongoing investigations in the VVIP helicopter scam indicating possibility of bribe money of some ₹100-120 crore having come through FDI.

Significantly, the Economic Survey mentioned herein also states, “These inflows need perhaps to be examined more closely to determine whether they constitute actual investment or are diversions from other sources to avail of tax benefits under the Double Tax Avoidance Agreement that these countries have with India.” Notwithstanding this, there is a need to seriously examine why the defence sector has failed to attract FDI even in the backdrop that when the Modi Government took over in May 2014, it hiked the FDI limit from 26 per cent to 49 per cent in defence equipment manufacturing, and also announced the ‘Make in India’ campaign to encourage Indian industry to take over some sections of manufacturing which were being imported. Significantly, the Parliament had also approved FDI in defence sector beyond 49 per cent on case-to-case basis, obviously for state-of-the-art products.

The hesitation of FDI in defence is because of multiple factors. The Defence Procurement Procedure (DPP) 2016 issued is incomplete: criteria for choosing strategic partners are not defined; whether wholly-owned subsidiaries of foreign companies qualify as Indian offset partners (IOPs) is not clear; detailed offset guidelines not notified; no changes mentioned to the Technology Perspective and Capability Roadmap (TPCR) in vogue past decade-and-a-half which hasn’t helped much; no worthwhile changes in other procedures including the Fast Track Procedure (FTP); no changes in the Technical Oversight Committee (TOC) mechanism in terms of combining it with the Staff Evaluation Committee and raising its threshold from the existing ₹300 crore as also dropping of the defence public sector undertaking (DPSU) member as recommended by the defence private industry,

and; chapter containing the revised standard contract document as well as various annexures and appendices has not been released. Next, just facilitating foreign companies to bypass government and the Foreign Investment Promotion Board (FIPB) in finalising defence investment deals is unlikely to suffice. The issues of IPR and the number and guarantee of what would be absorbed in India too need to be addressed.

Going by the Futuristic Infantry Combat Vehicle (FICV) experience private sector is apprehensive about sincerity of government in providing level playing field, Ordnance Factory Board (OFB) having been included from an erstwhile empanelment despite fresh EoI issued in March 2014. Significantly, while Parliament approved FDI in defence beyond 49

per cent on case-to-case basis in 2014, the Ministry of Defence has still to define what is ‘state-of-the-art’. This is an atrocious state of affairs, which has only come to light when FIPB was questioned about the Tata-AugustaWestland JV to manufacture helicopters in India.

Obviously all cases pertaining to FDI in defence beyond 49 per cent are stuck because of the same reason. So, when Defence Minister Parrikar told Parliament “The actual flow of foreign direct investment (FDI) takes time to mature”, it obviously includes in-house red tape that shows no sign of abating. The Modi Government needs to address these issues on priority. **SP**

The views expressed herein are the personal views of the author.



155mm M777 Ultra Lightweight Howitzer



LT GENERAL
P.C. KATOCH (RETD)

High-tech border fence – Good, but not enough by itself

As reported in the media, the government has approved the establishment of a 'Comprehensive Integrated Border Management System' (CIBMS) for 24 x 7 x 365 surveillance of the border through technology. This was considered the only solution to avoid further terror attacks like Pathankot, including infiltration and smuggling activities. It is first time that India will completely 'lock' its 2,900-km western border.

The five-layered surveillance cover will entail CCTV cameras, thermal imagers, night-vision devices, battlefield surveillance radar, underground monitoring sensors and laser barriers to track all movement from the other side along the border. Adequate redundancy is proposed in the integrated set-up to ensure if one device doesn't work, another will alert the control room in case of a transgression. Control rooms are planned every five-six kilometres. At a cost of ₹1 crore per km, the CIBMS project is to cost some ₹2,900 crore. Laser barriers are to cover 130 unfenced sections including riverine and mountain terrain from Jammu and Kashmir (J&K) to Gujarat.

There were 224 infiltration attempts from Pakistan during 2014 and 100 during 2015. The government plans to complete the entire CIBMS project in two years. As reported on April 27, a dozen laser walls had been made operational along the Indo-Pak border in Punjab to plug the porous riverine and treacherous terrain. Eight infrared and laser beam intrusion detection systems were 'up and working' while four more were to be operationalised in the next few days. A total of 45 such laser walls are to be installed in such areas along the international border (IB) in Punjab and Jammu. In addition, work on two pilot projects on stretches of five km each, one in Punjab and another in Jammu, was started after issuing a global tender two weeks ago. The next phase will be stretch of 30-km each in Gujarat and Punjab. With round the clock 360-degree coverage, the CIBMS is also to target anti-national elements that help in infiltration from the Indian side of the border.

MHA has also approved one such pilot project along the Indo-Bangla border in West Bengal. Two pilot projects in J&K are already on. It was reported in these columns last September that Army had tried three new designs for a high-tech modular fence during 2014-15; one provided by the Snow and Avalanche Study Establishment (SASE) and two prepared in-house by the Army. Testing was done by constructing one-km-long sample fences in Kupwara sector. In the new design, strong, circular pole are used instead of traditional iron picket. Also, a new type of concertina coil is used that has a double-twisted galvanised mesh added to either side. The design is modular, which makes

it easier to carry the stores, and to construct and repair the fence. The new design includes night-vision cameras, alarms and visual map displays integrated with the fence, all of them linked to a monitoring room, giving local commanders real-time data enabling quick reaction against any attempt to tamper with the fence. The fence is also proposed to be lit up using LED lighting where feasible.

Existing fence in Jammu sector is already lighted. While the construction began by the Army, for overall construction and maintenance of the fence, the government had sanctioned three new Territorial Army Engineer battalions for the Northern Command. Soldiers for these units were recruited, undergoing training, and were to be deployed by March 2016. The CIBMS undoubtedly is an excellent initiative but the bottom line is that it is not possible to completely 'lock' any border albeit it certainly reduces the chances of terrorists and infiltrators slipping through. A good lock has enhanced security in the sense that thieves take longer to break the code or the lock itself. We have a master thief in Pakistan and a very determined one at that.

The degree of success of CIBMS would therefore be subject to the following: one, Pakistan resorting to firing and artillery, mortar shelling to assist infiltration – they have done so both in the line of control (LoC) and IB sector in J&K; two, adverse weather conditions degrading functionality of surveillance devices; three, use of demolitions and IEDs from one or both sides of the LoC/IB especially optimising low visibility in adverse weather conditions; four, quality and range of underground monitoring devices considering tunneling activities along the Indo-Pak border and elsewhere in the world, and; five, any amount of redundancies can be offset by the human factor. Temporary technical failures can be engineered.

Radicalisation apart, India consumes some 11 tonnes of heroin alone annually. Over ₹7,500 crore worth of drugs is consumed on an annual basis in Punjab alone. The political nexus in such trade is obvious. That is why the inquiry into the Pakistani infiltration for the Pathankot terror attack including the questioning of Superintendent of Police Salwinder Singh has been allowed to die down—possibly in face of forthcoming elections in Punjab. Significantly, the Parliamentary Standing Committee on Home Affairs has observed that the role of Punjab Police was very 'questionable and suspicious' during the January 2 terror attack in Pathankot. This was the main reason why Army's Technical Support Division was shut down through a sham board, as it could monitor such activities both along our western and eastern borders. The CIBMS, therefore, will perform be operating under such constraints. **SP**

The new design will have night-vision cameras, alarms and visual map displays integrated with the fence, all of them linked to a monitoring room, giving local commanders real-time data enabling against any attempt to tamper with the fence

Vice Admiral Sunil Lanba is the CNS designate

Vice Admiral Sunil Lanba, presently the Flag Officer Commanding-in-Chief, Western Naval Command, has been approved by the government to be the next Chief of the Naval Staff with effect from the afternoon of May 31, 2016. The present Chief of the Naval Staff Admiral R.K. Dhowan will superannuate from service on May 31, 2016.

Born on July 17, 1957, Vice Admiral Lanba was commissioned on January 1, 1978, into the Executive Branch of the Indian Navy. During his long and distinguished service spanning nearly 38 years, he has served in a variety of Command, Operational and staff appointments. His Sea Commands include commanding the Minesweeper, INS Kakinada, Frigate INS Himgiri and Executive Officer of INS Viraat, the aircraft carrier. Before taking over as FOC-in-C, Western Naval Command, he was FOC-in-C, Southern Naval Command, Vice Chief of the Naval Staff and the Commandant, National Defence College, New Delhi.

Vice Admiral Lanba is a qualified specialist in navigation and direction course. He attended the course at the Royal College of Defence Studies, UK. Vice Admiral Lanba is a recipient of Param Vishist Seva Medal and Ati Vishist Seva Medal.



Vice Admiral Lanba on May 31, 2016 will strike two firsts—son of a former naval officer first to rise to become the Chief of the Naval Staff and the first Mayo College alumnus to rise to become the Chief of any of the three armed forces of India. **SP**

Exercise Chakravayuh-II culminates



In a follow-up to Exercise Shatrujeet by the Strike Corps (Strike One) last month, the pivot formations held the fortnight-long military training exercise code-named Exercise Chakravayuh-II, which concluded on May 10 in the general area of Suratgarh in Rajasthan.

The exercise conceptualised by the Pivot Corps involved rapid mobilisation and execution of plans in sync with the Indian Air Force in desert terrain and was declared a success. The exercise validated the battle readiness and operational effectiveness of the Rapid Division along with all its affiliated components.

The two-sided exercise had elements depicting opposing forces to add realism in planning and execution and was conducted in various phases to test the operational readiness and the battle efficiency of various elements of the modern-day battlefield.

Lt General D.R. Soni, General Officer Commanding, Pivot Corps, witnessed the operational manoeuvres of the Division on May 9, 2016, and appreciated the soldiers for their commitment and keen involvement through the month-long training exercise. **SP**

PHOTOGRAPHS: Indian Navy, Indian Army, PIB

General Dalbir Singh visits Armoured Corps Centre at Ahmednagar

General Dalbir Singh, the Chief of the Army Staff, visited the Armoured Corps Centre and School and the Mechanised Infantry Regimental Centre, Ahmednagar, recently. General Dalbir Singh appreciated the laudable work being done by both institutions and the mechanised forces in general.

The Chief of the Army Staff complimented the Armoured Corps Centre and School and the Mechanised Infantry Regimental Centre for state-of-the-art training infrastructure and focus towards enhancing battle preparedness standards. He stated that he was confident of the mechanised arms to take on renewed operational roles as part of our Army. He also expressed that the commitment, morale, training and operational capabilities of the mechanised forces was praiseworthy.

General Dalbir Singh also inaugurated the two-day Biennial Armoured Corps Conference being organised at the Armoured Corps Centre and School. **SP**



Symposium of 100 years of tank

A symposium on '100 Years of the Tank' was organised by South Asia Defence & Strategic Review on May 2, 2016, at Kothari Auditorium, DRDO Bhawan, in New Delhi on the occasion of the Armoured Corps Day. Various important serving military and civilian dignitaries apart from serving officers and veterans from the Armoured Corps attended the same.

The opening address was delivered by Lt General Ajai Singh, the former Governor of Assam. Other important addresses included address on 'Future Battle Space - Fostering Combined Arms Effect' by Lt General Subrata Saha, Deputy Chief of Army Staff (P&S), 'A Dominant Multi-Spectrum Force of Decision' by Lt General A.B. Shivane, Director General Mechanised Forces, 'Armour—The Way Forward' by Lt General A.K. Singh, the Lt Governor of Andaman & Nicobar and Puducherry.

The second session was chaired by Lt General Philip Campose, former Vice Chief of the Army on 'Glorious Past, Dominating Present and Challenging Future'. A panel discussion was also held on 'Leadership Challenges in Combat in Modern Day Mechanised Battlespace' chaired by Lt General Amit Sharma, Commander in Chief, Strategic Forces Command which also included talk by Colonel Efraim Defrin of the Israel Army on 'Major Tank Battles post WW-II and Takeaways.'

The final session on 'Tanks in Future Battlespace' was chaired by Lt General Anil Chait (Retd), former CISC and commenced with the address by Lt General K.J. Singh, Western Army Commander



Lt General Ajai Singh, the former Governor of Assam, Lt General A.K. Singh, the Lt Governor of Andaman & Nicobar and Puducherry, Lt General Subrata Saha, DCOAS, and Lt General A.B. Shivane, DGMF, during the Conference.

on the 'Envisaged Role of Tanks in the Indian Context in Contemporary Battlespace'. Lt General K.J. Singh also chaired the panel discussion on 'Touch Stones for Future Ready Mechanised Forces', which also included talk on 'Armoured Vehicles for the Future Battlespace - Role and Employment' by Brigadier James Carr Smith, Deputy Commander of the United Kingdom's 1 Division. **SP**

Indian warships enter Manama in Bahrain on a four-day visit



PHOTOGRAPHS: Indian Army, Indian Navy

Indian Naval Ships Delhi, Tarkash and Deepak under the command of Flag Officer Commanding Western Fleet, Rear Admiral Ravneet Singh, NM entered Manama on May 16.

During the visit, the crew of Indian Navy ships will undertake professional interactions with the Royal Bahrain Naval Force (RBNF) pertaining to nuances of maritime operations, including means of combating maritime terrorism and piracy. In addition, calls on senior government and military authorities, sporting and cultural interactions and sharing of best practices, aimed at enhancing cooperation as well as strengthening mutual understanding between the two navies, are also planned. The visiting Indian Navy ships are also likely to conduct exercises with the RBNF.

The current four-day visit by Indian Navy ships will facilitate sharing of best practices, enhance maritime cooperation and evolve a shared understanding of the maritime security challenges between the Indian Navy and the Royal Bahrain Naval Force. It will further bolster the strong bonds of friendship between India and Bahrain and enhance the security and stability in this vital part of the Indian Ocean region. INS Delhi is commanded by Captain Sandeep Singh Sandhu, INS Tarkash is commanded by Captain Pradeep Singh, NM and INS Deepak is commanded by Captain Sujit Kumar Chhetri.

Bilateral relations between India and Bahrain are characterised by strong bonds of friendship based on cultural and economic ties dating back to ancient contacts between the Indus Valley civilisation in India and Dilmun civilisation in Bahrain. Presence of over 3,50,000 Indian nationals, comprising nearly a third of Bahrain's total population, is an important facet of this strong bilateral relationship. High level visits from both sides, rising trade and investment and growing convergence on counter-terrorism and security issues has provided new impetus to this strong and age-old relationship. Indian Navy ships Delhi, Deepak, Trishul and Tabar last visited Manama in September 2015. A delegation from the RBNF also participated in the recently concluded International Fleet Review at Visakhapatnam. **SP**

The IAF team sets course back at the end of a 'Perfect Flag'

The prestigious Red Flag exercise 2016, has concluded its advanced aerial combat training between the Indian Air Force, the US Air Force and the US Navy on May 13, 2016. A report...



An IAF IL-78 takes off as a Su-30MKI starts up at Eielson Air Force Base, Alaska, during the start of main phase of Exercise Red Flag 16-1; An IAF Su-30MKI fighter aircraft assigned to the 15 Squadron, Sirsa Air Base, India, takes off from Eielson Air Force Base, May 4, 2016

[By SP's Correspondent]

Red Flag Alaska 16-1, which was an advanced aerial combat training exercise hosted at Eielson Air Force Base in Alaska (a successor to the previous Cope Thunder exercise series), concluded on May 14, 2016. The main phase of the exercise had commenced on April 28, 2016, with a mix of combat and support elements participating from the Indian Air Force (IAF), the United States Air Force (USAF) and the United States Navy (USN). Over the last decade, IAF has been actively participating in various operational exercises hosted by various countries wherein its capabilities have been pitted against the best air forces in the world. While referring to the overall exercise plan and objective Red Flag Alaska 16-1, the Team Leader Group Captain H. Assudani said, "[The] objective of this intercontinental deployment was not only to showcase IAF capability in undertaking Integrated Air Ops but also to imbibe operational lessons from the exercise engagements which will help us add more teeth to our overall war-waging capabilities".

The exercise is played under multiple simulated scenarios designed to provide realistic settings. The overall demarcation is between Red Force (simulated as the Defensive Force component fighting to protect own airspace and assets) and the Blue Force

(simulated as the offensive composite package). The Red Force was mainly constituted by the 18 Sqn Aggressor Sqn flying the F-16s. The IAF along with the other USAF (F-15, F-16, F-22) and USN (F-18) constituted the Blue Force. During the exercise IAF also flew as a part of the Red Force alongside the Aggressors which was a first of its kind.

The exercise saw the IAF's potent Su-30MKI aircraft participating in Offensive Counter Air Ops in which they provided escort cover to the strike elements. Apart from this, the IAF Jaguars DARIN II undertook integrated strike missions dropping practice bombs over the world renowned JPARC Air to Ground Range. Both these fleets performed their roles exceptionally well. There were three missions commanded by the IAF in this exercise. Mission commanders of both the Jaguars and Su-30s were involved in planning, execution and conduct of debrief. One of the missions was commanded by Sqn Ldr Sidhu, who, while speaking on the mission, said that "it was a great opportunity to lead all the coalition forces. It gives one an immense satisfaction when all the participants execute the briefed plan which becomes a success".

While talking about the IAF in the Red Flag exercise Lt Colonel Brian Toth, Chief Operations Officer of 354 operations group, said: "The IAF's participation has been extremely good from my perspective. For most nations it takes an exercise or two to step up to meet the requirements of a mission commander. The IAF has been mis-



(Top, L-R) A media pool captures images of pilots assigned to the Indian Air Force during the exercise; USAF Technical Sergeant James Anderson, 354th Maintenance Squadron, provides insight into sheet metal operations to Airmen with IAF; (above, L-R) USAF Airmen join their IAF counterparts for a photo; USAF Senior Master Sgt. Doug Palmisano, a boom operator with the 909th Air Refuelling squadron, Kadena Air Base, Japan, refuels an aircraft while an IAF airman watches during an incentive flight over the skies of Alaska.

sion commander three times and also performed the package commander roles and they have done a tremendous job”.

During the exercise a set of Red Flag team formed the White Force and using high-tech instrumentation and mission debrief tools were used to evaluate the performance of the participants in an objective and logical manner. The White Force watched the entire exercise in real time on tactical displays in the operations room on ground. Kill removal (removal of the pilots and aircraft assumed shot by the enemy) made the exercise more realistic.

The temperatures were sub-zero during a large part of the exercise, which posed a challenge to the maintenance team. The team kept all the aircraft fully serviceable and mission capable at all times. It is noteworthy that despite the challenging environment, the maintenance team ensured 100 per cent serviceability of all platforms throughout the four weeks. Lt Colonel Clarence McRae, the Red Flag-Alaska 16-1 Expeditionary Forces Maintenance Group commander, said: “Red Flag Alaska provided all of the participants a fantastic opportunity to train with members of IAF. The exchange of lessons learned and best practices with our partners in the Indo-Asia-Pacific region have enabled us to strengthen our partnership and signifies our commitment to this area of operations. The professionalism of the IAF airmen made bolstering our countries’ relationship easy and helped provide realistic combat training for all participants”.

The Senior Engineering Officers of the IAF units were happy with the comprehensive IAF technical practices which are well defined and meticulous. Adherence to these have ensured a high tarmac availability that allowed aircrew to perform their missions. Wg Cdr Pratyush Anand, SEO of Su-30 Squadron, said, “Out-of-box thinking of the technicians has earned praise from all quarters. The participating airmen got an opportunity to see a variety of aircraft and this exposure and interaction with other fleets will go a long way in evolving our own practices”.

In the closing address Colonel William Culver of 354th Fighter Wing Vice Cdr said: “This was one of the best Red Flags I has seen. I compliment the exceptional standards displayed by the IAF and am amazed to see all the ten aircraft IAF had brought (4 Su-30s, 4 Jaguars and 2 IL-78s) maintaining 100 per cent serviceability for the entire four weeks and their aircraft flying on all days as per plan”.

Wg Cdr Saumitra Tamaskar, Exercise Director, said: “Having set out with well-defined objectives, the IAF contingent’s effort over the past month has ensured that they take back important lessons which will help undertake operations across a wide and diverse spectrum and meet any future challenges”.

The contingent started their deinduction phase on May 14, 2016, and are planned to return to India in the last week of May 2016. The Su-30s will additionally participate in exercise ‘Desert Eagle II’ with UAE Air Force on their way back. **SP**

Aerial solutions for firefighting task

The raging forest fires in Uttarakhand and the inability to douse the fires immediately has thrown up the issue of equipment and also strategy. We have listed some aerial solutions in this onerous task.



McDonnell Douglas DC-10: Specifications

Length	55.50 metres
Height	17.70 metres
Wingspan	50.41 metres
Number x engine type	3 turbofan engines
Engine	General Electric CF6-50C / Pratt & Whitney JT9D-20
Climb rate	2,000 fpm
Cruising speed	378 KTAS
Flight altitude	9,100-12,100 metres
Capacity	11,600 gallons of fire suppressant
Suppressant tanks	Constant flow and gravity fed
Crew, persons	3

Source: Various sources

Lockheed Martin C-130J: Specifications

Length	29.3 metres
Height	11.9 metres
Wingspan	39.7 metres
Speed	417 mph at 6,706 metres
Ceiling	8,615 metres with 19,090 kg payload
Engine	Four Rolls-Royce AE 2100D3 turboprops; 4,700 horsepower
Maximum take-off weight	69,750 kg
Maximum allowable payload	19,090 kg
Range at maximum payload	2,071 miles (1,800 nautical miles)
Crew	3

Source: af.mil



Bombardier Q-400MR Airtanker: Specifications

Length	32.84 metres
Height	8.34 metres
Wingspan	28.42 metres
Number x engine type	2 x turboprop
Engine model	Pratt & Whitney PW150A
Maximum take-off weight	67,200 lbs
Maximum tank capacity	10,000 litres
Cruising speed loaded	360 knots
Crew, persons	2

Source: conair.ca



PHOTOGRAPHS: Wikipedia, defenseimagery.mil, stephanhervault@yahoo.fr / wikimedia

To be continued in the next issue of SP's M.A.I.



LT GENERAL
PC. KATOCH (RETD)

Draft map policy: What about defence and security?

The Ministry of Home Affairs (MHA) has released the draft Geospatial Information Regulation Bill, 2016, which is open to public for comments till June 3. Under this bill, the Central Government will set up Security Vetting Authority (SVA) whose permission will be needed for acquiring maps, geospatial data through space or aerial platforms (satellite, aircraft, balloons, UAVs, terrestrial vehicles) or any other means. It says publishing or sharing 'illegal' maps would invite fines up to ₹100 crore and/or a seven-year jail term.

What prompted the bill were instances of social networking sites like Twitter showing Kashmir in China and Jammu in Pakistan, which was corrected after the Indian Government protests. Some other maps on social networking sites showed Jammu and Kashmir (J&K) and Arunachal Pradesh part of Pakistan and China respectively. The draft bill will ensure that online platforms like Google will have to apply for a licence to run Google Maps or Google Earth in India. At the same time, according to the draft bill, it will be mandatory to take permission from a government authority before acquiring, disseminating, publishing or distributing "any geospatial information of India". Such wording lends itself to ambiguity and confusion. Internet and public policy experts have criticised the proposed legislation for its vague wording and harsh penalties and feel it could adversely affect doing business. Many feel that sharing geospatial information could even mean location coordinates and the bill could create a licence-permit raj.

Publishing illegal maps of India is one thing and exchanging geospatial information another, especially in this age of digitisation. Military and security forces are doing so on daily basis and so would intelligence agencies and those in the civil especially during business transactions. Besides, what happens if Twitter or Google want to show illegal Indian maps captioned as shown by China/Pakistan as the case may be. Can the caption be made mandatory or we want these blocked altogether so we don't know what propaganda our adversaries are up to? What of a Chinaman or Pakistani subscriber of Twitter or other social media puts up such map? What about countries who are publishing 'illegal' maps of India? China,

Japan, even the United States? What action do we contemplate in such instances?

How many of us are aware that in 1967, the US Defense Mapping Agency began to show India-Pak boundary on Tactical Pilotage Charts as proceeding from NJ 9842 east-northeast to the KK Pass on the China border without justification/documentation, cartographically giving entire Siachen-Saltoro area to Pakistan. Deliberate US mischief or not but many official/private cartographers and atlas producers followed suit and Pakistan thenceforth claimed this as boundary. Are we going to sue atlas producers in such future eventuality? What about the National Map Policy 2005 (in cold storage for past 15 years despite implications for defence and security) which

defines two series of incompatible maps; Defence Series Maps (DSM) based on WGS 84 / LCC and Open Series Maps (OSM) based on WGS 84 / UTM. There is no mention anywhere of the elevation system to be used - whether it should be WGS 84 or another. Moreover, the policy does not cover the nautical and aeronautical charts. The policy is restricted to small-scale maps and is silent on responsibility for attribute collection. The overall implications are that we have two incompatible projections and associated different grids that are an operational nightmare.

Similarly, under the Remote Sensing Data Policy of 2011, the National Remote Sensing Centre (NRSC) is vested with the authority to acquire and disseminate remote sensing data. All data of resolutions up to one metre is distributed on a non-discriminatory basis. All data

better than one metre resolution is to be screened and cleared by appropriate agency prior to distribution. This policy also talks of specific sales/non-disclosure agreements for data better than one metre resolution. The implications are it places undue restrictions on genuine users (more licence raj) for the simple reason that point five resolution data is available in the public domain through Google Earth, etc. We need to take a holistic view of geospatial intelligence and make laws that are practical, implementable and not binding the user unnecessarily. **SP**

The views expressed herein are the personal views of the author.



Note: The graphic is for representational purpose only

New Directors take charge at BEL

Two new Directors have taken charge at Navratna Defence PSU Bharat Electronics Ltd (BEL) on May 1, 2016. They are Girish Kumar, Director (Bengaluru Complex), and Nataraj Krishnappa, Director (Other Units).

Girish Kumar was Executive Director (Radar) & Unit Head of BEL Ghaziabad Unit, prior to his elevation.

Girish Kumar joined BEL Ghaziabad as a Probationary Engineer in 1979 after completing his BE (Mech.) from MITS Gwalior. Over a period of next 30 years, he worked in Ghaziabad, Kotdwara and Bengaluru units of the company and headed Production, Materials Management, Quality Management and Services Divisions.

Girish Kumar is a qualified assessor for ISO 9001:2000 and Business Excellence. He has participated in the Union of Japanese Scientists and Engineers study mission on TQM in July 2008. He has authored a book on ISO 9000 which was published in 1996. He has been profiled by Professor TV. Rao in the book *100 Managers in Action*. He is keen on trekking and literature.

Nataraj Krishnappa, Director (Other Units), was GM (Missile System) at BEL Bengaluru



Girish Kumar



Nataraj Krishnappa

before his elevation. Krishnappa joined BEL Ghaziabad on March 1, 1984, after graduating in Mechanical Engineering from the National Institute of Engineering, University of Mysore. In 1986, he was transferred to BEL's Panchkula unit, where he put in 15 years of service. Panchkula unit was in its formative stage and he belongs to the first batch of engineers to be posted to the unit. He has worked in various departments responsible for manufacturing and procurement functions. He headed Product Group-I and has made significant contributions to the manufacture of communication equipment such as hand-held radio and STARS V Manpack radio as well as encryption products.

In June 2008, he was transferred to Military Radar SBU as Project Head of Akash missile system. Krishnappa, who is a PMP from PMI, USA, has successfully used project management concepts while executing the Akash missile system project. Akash missile system integrated in the country for the first time is a world-class surface-to-air missile system that has been inducted into both the Indian Air Force and the Indian Army. He served as GM (HR) and as GM (Missile System) at BEL Bengaluru before his elevation as Director (Other Units). **SP**

Boeing-equipped training centre enhances worldwide P-8A maintenance

Boeing has equipped the US Navy's new P-8 Maintenance Training Facility with a suite of realistic, interactive training systems, another key step in the service's efforts to fully integrate the aircraft into the fleet.



Based at Naval Air Station Jacksonville, Florida, the centre allows the Navy to provide immersive training for those maintaining P-8A Poseidon aircraft around the world. The virtual maintenance training devices provide interactive, high-fidelity simulations based on actual mission systems software, while the hardware-based trainers are full-scale replicas of aircraft components.

Navy maintainers will learn more than 1,000 procedures using seven virtual maintenance trainers, 14 hardware-based devices and an ordnance load trainer. The realistic training speeds familiarity with the aircraft and its systems, enabling them to quickly become proficient in both preventive, corrective and diagnostic tasks.

"Our new P-8A Maintenance Training Facility will provide the fleet with qualified technicians equipped with the skills and knowl-

edge needed to keep the P-8A aircraft flying for many years to come," said Robert Powden, Department Head of the US Navy's P-8A maintenance training unit. **SP**

European space industry operational: Agreement signed for Airbus Safran Launchers JV

Airbus Group SE and Safran have signed an agreement for the second and final phase of their 50/50 joint venture, Airbus Safran Launchers. Both companies will contribute to the current joint programme with industrial assets dealing with civil space launchers and military launchers.

Closing of the deal is expected in the second quarter of 2016 after completion of the remaining corporate and other formalities. Financial details of the transaction will be communicated at closing.

Under the first phase of the JV, Airbus Group and Safran created a joint programme company with their respective civil programme contracts and major participations related to civil launcher activities. In this second and final phase, industrial assets and military launchers will be integrated in the joint venture. Airbus Safran Launchers will be a fully-fledged operational company.

Airbus Safran Launchers will employ around 8,000 staff and provide competitive solutions based on a family of versatile, high-performance, cost-competitive launchers that meet the needs of both government and commercial customers. This deal will ensure the success of the European space launcher business in the face of growing international competition. **SP**



Hillary Clinton's e-mail issue dogs her

Judicial Watch, a conservative watchdog group in the US, has said that the former Secretary of State Hillary Clinton used an unsecured phone line when the secure line was experiencing technical issues. The group said she directed a top aide to call her on her home number.

"I give up. Call me on my home [number]," Clinton told then-Chief of Staff Cheryl Mills in a February 2009 e-mail after more than an hour of trouble trying to communicate via a secure line. "I just spoke to ops and called you reg line — we have to wait until we see each other b/c [the] technology is not working," Mills said in another e-mail sent at almost exactly the same time. "Please try again," responded Clinton, a few moments later.

It's unclear whether the two did connect or if they moderated any discussion they may have had to avoid sensitive topics while on an unsecure landline.

But the episode is likely to cause concern among critics of Clinton, who have previously accused her of resorting to unsecure forms of communication out of convenience, potentially jeopardising sensitive information. Another e-mail of Clinton's, released in January, appeared to show her telling a top aide to remove identifying details and send a sensitive document through a 'non-secure' channel instead of via 'secure fax.'

"This drip, drip of new Clinton e-mails show Hillary Clinton could not care less about the security of her communications," said Tom Fitton, the President of Judicial Watch, in a statement. **SP**

Security company goof up behind Manchester United stadium bomb scare

A suspicious package destroyed by a bomb disposal team after prompting the evacuation of Manchester United's stadium recently was a fake device accidentally left behind after a training exercise. The police evacuated about 75,000 fans just before a Manchester United football game which got postponed. The entire exercise due to the bomb fiasco is said to cost about five million dollars. The Old Trafford stadium is one of the world's most famous football grounds.

Two of the Old Trafford stands were evacuated about 20 minutes before the scheduled kickoff of the Premier League game against Bournemouth when the item was found in the toilets at the ground. The match was called off soon afterwards and the whole 75,000-seater stadium cleared.

Manchester United said in a statement on their website that the package had been found in the North West Quadrant, adding that the match was abandoned on police advice. United Executive Vice Chairman Ed Woodward said staff were regularly trained in security with the police and emergency services. The club will investigate the incident fully.

Police used sniffer dogs to search the area before calling in an army bomb disposal unit which carried out a controlled explosion on the item they described as being "an incredibly realistic-looking explosive device". **SP**

Parliamentary panel blames security for Pathankot incident

The government came under a sharp attack from a parliamentary panel for lapses and failures in the Pathankot airbase security, and said "something was seriously wrong" with India's counter-terror mechanism.

A report by the Parliamentary Standing Committee on the Home Ministry has red-flagged India's overall security apparatus to battle cross-border terrorism. It said the January 2 strike at Pathankot was preventable after "concrete and credible intelligence inputs" were received about a possible attack by terrorists from across the border with Pakistan.

The panel, headed by P. Bhattacharya of the Congress, lamented how Indian security agencies "were so ill-prepared to anticipate [terror] threats in time and counter them swiftly and decisively.... Something is seriously wrong with our counter-terror security establishment," said the report.

In the Pathankot terror attack seven Indian security personnel were killed at the sprawling airbase complex which houses some of India's high-value security assets, including fighter jets.

The Parliamentary Standing Committee questioned how the "Pakistani terrorists" managed to cross the border "despite fencing, floodlighting and patrolling by" Indian frontier guards. The panel "is unable to understand that in spite of terror alert sounded well in advance, how terrorists managed to breach the 'high-security' airbase". **SP**



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