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EDITORIAL

Maj Gen (Dr) G.D. Bakshi, SM, VSM, Retd

Time to Change Kashmir Strategy

Long-term Strategy for J&K

The level of Pakistani support for the separatists in Jammu & Kashmir (J&K) has crossed the threshold of Indian tolerance. Pakistan will not get away unscathed anymore. It should be made to realise that there will be costs and consequences. These must be made plain to Pakistan in the months ahead. India must, therefore, transit from a purely reactive and defensive posture confined to its own territory to one that proactively seeks to dissuade and deter by inflicting significant costs. Military costs can be inflicted by surgical strikes, fire assaults, aerial and missile strikes and hot-pursuit operations designed to capture key terrain that facilitates infiltration. Pakistan will need to understand clearly that there is adequate space for a limited conventional war within the two extremes of a sub-conventional conflict and an all-out nuclear exchange. Pakistan should be taken up the escalation ladder till as far as it wishes to go.

Population Control

Armed terrorists are no longer the primary problem in J&K. In the early part of this Century there were some 3,500-4,000 terrorists in that state. Today, this number has been brought down to just 150-200. Though Pakistan is trying desperately to infiltrate more, its main focus now is on instigating Palestinian-style Intifadas employing hired stone pelters and ghettoizing the Valley. The primary problem, therefore, is population control. For this, we have to dramatically increase troop density in the hinterland. Human rights lobbies had raised a cacophony that stupidly made us uncover the hinterland and move troops to the border. This created space for the Burhan Wani and Sabzar Bhattis. We need to clearly display an iron resolve to uphold the unity and integrity of India and increase troop density. Induction of additional troops will also serve to position forces that may be needed for hot-pursuit operations. We need to get tough with stone-pelters and Molotov cocktail artists. The rule of law must be enforced. The country comes first and getting kudos from sold out human rights NGOs comes much lower the food chain.

Target Iran

Pakistan has a history of renting out its territory for Jihads against its neighbours - often at the behest of foreign intelligence agencies. It is still grappling with the consequences of the CIA-Saudi Mukabarat's Jihad against the USSR in Afghanistan. Pakistan has now thoughtlessly made itself a

bridgehead for the Sunni jihad against Iran. Gen Rahil Sharif has been appointed the Generalissimo of the Sunni coalition against Iran. There have been a rash of terrorist raids against Iran. In sheer exasperation, the Iranian Chief of Army Staff threatened Pakistan with retaliatory raids and opened mortar fire. Fire is already being exchanged on the Pak-Afghan border and on the Line of Control (LC) in J&K. In short, all of Pakistan's neighbours are sick and tired of the shenanigans of this meddling state that is fast becoming an

international migraine. India should now exert its utmost to draw up a regional alliance of India-Iran-Afghanistan to raise Pakistan's costs for its unceasing regional adventurism. Fire assaults must now be delivered in tandem.

Outreach to Japan

With a fast rising and increasingly aggressive China, the one relationship that makes the greatest geo-political sense is the India-Japan partnership. We need to cement this to alliance status. Currently, Japan is very worried about North Korean missile and nuclear proliferation. US President Donald Trump's posturing and pressure on China has so far failed to deter North Korea. India would earn great Japanese goodwill if it clearly spoke out against North Korea's sabre-rattling and made it plain that it will not accept any threat of use of nuclear weapons against a friendly, Buddhist country like Japan. Once is more than enough. In the event of any such threat arising, India and Japan will enter into urgent mutual consultations. Such a gesture of support would go a long way towards cementing relations with Japan. We should also

aggressively seek to cooperate with Japan in producing cutting-edge weapons (especially fifth-generation fighters) and seek its support in furthering the Make in India initiative.

Promoting Fault-Line War?

The news from Washington gets more confusing. Donald Trump had threatened fire and brimstone against Islamic terrorism. His first major foreign visit, however, was to Saudi Arabia, the source of the 9/11 attacks and all Wahabi funding for radicalisation. Instead of sanctions, we saw deals worth \$350 billion being signed - \$150 billion for arms. Iran, he announced was the source of all terror. Trump's design of promoting a vicious fault line war within Islam seems increasingly transparent. What is disturbing is Pakistan anointing itself as the lead Sunni invader who will conclude the Karbala conflict with Generalissimo Rahil Sharief leading the charge.



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Army to Buy 39 AH-64E Apache Attack Helicopters

Apaches Will Bring Out Full Potential of Strike Corps

Lt Gen Vinod Bhatia, PVSM, AVSM, SM



Lt Gen Vinod Bhatia is Director of Centre for Joint Warfare Studies

The Defence Acquisition Council (DAC) – the apex decision making body on defence procurement, led by the defence minister – approved the induction of 39 AH-64E Guardian Apache multi-role attack helicopters (AH) from US aerospace manufacturer Boeing, for the Indian Army, on 20 May 2017.

Earlier, in Sep 2015, the DAC had approved a near \$2.5 billion deal with Boeing for purchase of 22 Apache helicopters for the Indian Air Force (IAF). The Apache is set to replace the aging Russian-built Mi-35 attack helicopters. The Ministry of Defence (MoD) is likely to exercise the option clause to import additional 11 Boeing AH-64E Guardian Apaches, with the same terms and conditions that applied to the IAF procurement, before the two-year deadline of 28 September 2017 expires. It is envisaged that initially only 11 will be procured for approximately \$1.2 billion, as the procedures allow for only 50% of the original order to be procured under the options clause. That implies that the requirement of the remaining 28 Apaches will be contracted separately. The 39 Apaches for the Army will form three squadrons, one each to be orbated to the three Strike Corps as an integral resource.

State-of-the-Art Machines

The Apache is the world's leading multi-role attack helicopter. The AH-64E Guardian Apache is the latest variant with enhanced performance, joint digital operability, improved survivability and cognitive decision aiding. The armament includes AGM-114L-3 Hellfire missiles, AGM-114 R-3 Hellfire 11 missiles, Stinger Block 1-92H missiles and the AN/APC-78 fire control systems in addition to other avionics and armament. It also features an uprated engine, tactical datalinks for sharing information with other friendly forces, an improved transmission, and the ability to control unmanned aerial vehicles from the cockpit. In addition to the laser guided precision Hellfire missiles, the Apache comes equipped with target acquisition and designation sight, pilot night vision sensors to locate, track, attack and destroy



AH-64E Apache attack helicopter

“The Indian armed forces are the only one where the fleet of communication or light helicopters is almost equally distributed between the army and air force, with the medium and heavy lift entirely with the air force.”

targets. It is also armed with 70mm rockets and 30mm automatic cannon with up to 1200 high explosive, dual purpose munitions rounds. Other operational enhancements of the Apache include:-

- Long range weapons accuracy and all weather/impact flying capability.
- Detection of moving and stationary targets/objects without being detected.
- Classification and threat prioritization of up to

128 targets in less than a minute.

- Integrated sensors, networking, and digital communications for situational awareness, management of the combat arena in real time, and digital transmission of images and target locations to joint operations battlefield commanders.

The state-of-the-art Apache, in service with the US Army among 14 other nations, bridges a critical void in the Indian Army's mechanised warfare capabilities. In the Indian context, what is even more important is that the Apaches have an operating ceiling of 6400 metres or 21,000 feet, which is required to operate in the high altitude border regions both along the Northern and North Western borders.

Inter-Service Rivalry

Like most militaries, in India too, the three Services are disjointed, guarding their turf with zeal. It is not uncommon to witness some good projects being shelved due to inter-Services rivalry. For far too long the 1.2 million strong Indian Army has been fighting to induct both armed and attack helicopters, without much success. The IAF controls and would like to control anything and everything with wings. Having inherited Second World War organizations, role and missions from

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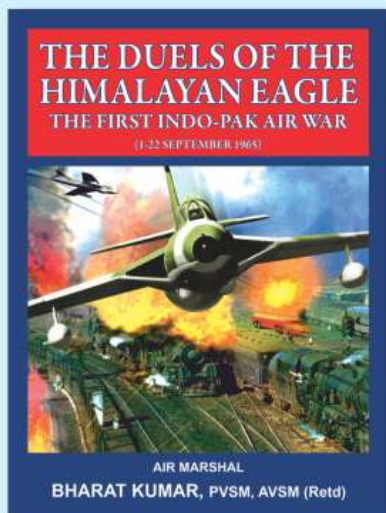
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The US army had laid out a demo of Apaches, Javelin ATGM, Chinooks with the Ultra Light Howitzer underslung at Fort Bragg, North Carolina, in November 2013. Other than the Javelin, the three systems are in the pipeline. Here the author is seen in the cockpit of an AH-64 Apache.

“The mechanised spearheads of both the pivot and the strike formations would be facing the stiffest resistance during the break-in and break-out battles and will need maximum and dedicated fire power from the aerial platforms to ensure success. Thus, there is an imperative to exploit the AH as a force multiplier during this critical phase of operations and, thereafter, to maintain the tempo and momentum of offensive.”

the British, the Indian Armed Forces resist change. Post-Independence all aviation assets continued to be operated and controlled by the IAF including the erstwhile Air Observation Post (Air OP) flights, albeit with pilots from the Army (Artillery). In 1986, the IAF gave way and the Army Aviation Corps (AAC) took shape and took control of helicopter operations, mainly employing the light helicopters – Cheetahs and Chetaks.

The Indian armed forces are the only one where the fleet of communication or light helicopters is

almost equally distributed between the army and air force, with the medium and heavy lift entirely with the air force. In contrast, the People's Liberation Army and Pakistan Army maintain control over a majority of the helicopters in their respective militaries. The Army wants total command and control of all tactical air assets for effective and integrated war fighting at the tactical and operational level, leaving the strategic domain to the IAF. The IAF's contention to retain all attack and medium-lift helicopters is based on expertise in operating the machines and preserving resources. The Army has been fighting long and hard for control of AHs, mostly in vain. In October 2012, the Army finally got approval from the then defence minister AK Antony to induct AHs in the AAC. The approval letter according to authorisation of AH to the Army was issued on 9 October 2012, clearly stating 'that the entire AH fleet will be owned, operated and maintained by the Army.' However, there was a catch. The letter was conditional, in that, it specified that all future procurements of AH will be for the Army. The implication was that the IAF would continue to control and operate the 22 Apaches approved for procurement. The operational imperative to optimise the full potential of this force multiplier was lost in inter-Service rivalry and a 'please all policy'.

Part of Mechanised Operations

In the present and future battlefield the AH is not only integrated in operations but an integral part of the mechanized spearheads. The analogy is much the same as followed earlier for Air OP pilots. The AH are an arm of manoeuvre operating not in concert or conjunction but as an integral part of the mechanised forces, integrated to the lowest tactical level of combat teams. In the present day tactical battlefield area (TBA) the lines and force dispositions will be blurred making it near impossible to identify friend from foe. The concept of Forward Line of Troops (FLOT) is no longer applicable, hence, it is imperative that the

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AH-64E Guardian Apache - Technical Specifications

Length	Maximum Level Flight Speed
Height	15.24 ft (4.64 m)
Wing Span	17.15 ft (5.227 m)
Primary Mission	
Gross Weight	15,075 lb (6,838 kg)
Vertical Rate of Climb	More than 2,000 ft per min
Maximum Rate of Climb	More than 2,800 ft per min
Maximum Level Flight Speed	More than 150 knots (279 kmph)

AH, a force multiplier, is operated by soldiers, who fully comprehend the ground/tactical requirement of integrated operations and are able to, not only communicate, but anticipate the mechanised column commanders manoeuvre and support requirements. This will be feasible only if these machines are piloted by the officers having on-ground experience of mechanized warfare. These are operational requirements and best planned and executed by army officers. The AAC in the last three decades has grown to be a professional force, responsive to Army needs with an equally impressive record of safety, serviceability of the machines and operational effectiveness.

Operational Philosophy

A quick look at the envisaged employment philosophy of AH in the Indian context is a must. After the year-long Operation Parakram in 2001-

2002, the Indian Army carried out a major review of the war-fighting strategy along the western borders with Pakistan and evolved the proactive strategy, initiating a paradigm shift in the concept of mechanical operations. The proactive strategy is based on an incident-driven conflict, wherein Pakistan sponsored terror attacks cross the threshold of India's strategic patience and restraint. The strategy aims to carry the war into Pakistani territory, characterized by speedy mobilisation, pre-emptive offensive by the pivot corps, and premeditated launch options by strike corps supported by massed fires. The initial thrust of the air war will necessarily and rightly be on counter-air operations, air defence, strategic targeting and, hence, battlefield interdiction and other tactical tasks, in support of ground operations, will be at a lower priority. However, in near simultaneous time frame, the mechanised spearheads of both the pivot and the strike formations would be facing the stiffest resistance during the break-in and break-out battles and will need maximum and dedicated fire power from the aerial platforms to ensure success. Thus, there is an imperative to exploit the AH as a force multiplier during this critical phase of operations and, thereafter, to maintain the tempo and momentum of offensive.

The obstacle-ridden terrain and increased urbanisation in the Western Theatre has restricted the space for manoeuvre of the mechanized forces. The actual engagements would, thus, be reduced to the lowest tactical level, creating a series of battles with no clear FLOT for the application of airpower in the classical sense. AHs will fill this void as an overhead manoeuvre arm integral to the advancing columns. Close integration and real time communication would be imperative in these situations.

In the modern day battlefield, enhanced intelligence, surveillance & reconnaissance (ISR) and data analysis would enable a commander to accurately predict the areas and timing of engagements. Planned and predictable engagements will enable a balanced deployment and effective employment of these platforms in the TBA, providing flexibility to the commander and agility to the force. The Apaches' operational reach, firepower and ability to operate in the high altitude regions, especially along the Northern borders will be a game changer, given the terrain friction and our infrastructure.

The IAF plans to employ the AHs for varied roles to include SEAD/DEAD, counter-air, interdiction at varying depths inside enemy territory, combat search & rescue (SAR) and in support of ground operations. The IAF's contention that the Army is creating its own 'mini air force' is flawed. The Special Forces (SF) of the Army are, by far, the most battle-hardened and combat-rich force in the world. The SF soldiers are all volunteers pooled from the very best of the 1.2 million volunteer army. The SF are more suited and trained to carry out all special operations. Despite the very best of SF with the Indian Army, the IAF went ahead with raising of their own Garuds (SF) from a very limited base of volunteers. The IAF argument for service specific forces has been violated by itself.

The Apaches are a versatile platform and will need to be exploited to enhance the combat effectiveness of the Army. It is important for the Army to ensure that nothing, whatsoever, comes in the way or retards the procurement process. It is equally important to ensure that the Apaches are inducted with complete wherewithal, simultaneously ensuring allied infrastructure, maintenance, manning



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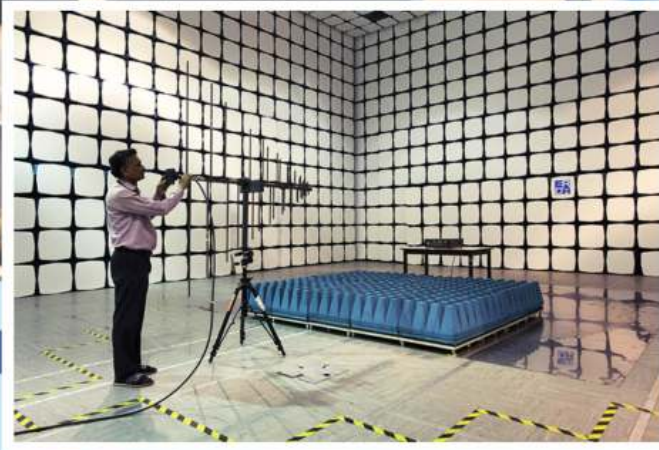
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Making Up Fighter Squadron Strength

Case for Additional Su-30MKIs

Rijul Singh Uppal



Rijul Singh Uppal is a Delhi-based advocate and strategic analyst.

Air Chief Marshal, B.S. Dhanoa recently wrote a personal letter to the officers of the Indian Air Force (IAF) asking them to be prepared for operations at very short notice. The letter has been widely interpreted as a hint by the Chief to his pilots that a short conventional war could take place at either border (Pakistan or China) or maybe even both. Against this backdrop, the IAF must concentrate on the immediate need for filling its squadron shortage. Continuous delays have plagued the operational capabilities of the IAF and have stretched thin the operational assets needed to cover the sizeable Indian airspace and inflict damage to the enemy.

Two main factors have led to the enormous delay in tackling the squadron shortage in the IAF. First is the lack of progress in the Make-in-India fighter (foreign) – not to be confused with the Light Combat Aircraft, LCA (Tejas) programme. Second is the confusion about the kind of aircraft the IAF wishes in its inventory. Remember, the Medium Multi-Role Combat Aircraft (MMRCA) requirement went down from 126 Rafales to 36 and we are now looking at a complement of about 200 light fighters like Saab Gripen or F-16, albeit manufactured in India. The F/A-18 Super Hornet is also a contender for this tender and, much like the Saab-Gripen, has offered support for the Indian Advanced Medium Combat Aircraft (AMCA) programme.

More Rafales?

The confusion is at home. A few points deserve mention. The original demand for 126 MMRCAs changed to 36 fighters with a complement of nearly 200 Made-in-India light fighters. This is partly because of the massive delays leading to the conclusion and final cancellation of the MMRCA deal with the signing of a government-to-government (G2G) deal for 36 Rafale fighters with an option of an additional 18, but also because of the delay in the LCA Tejas and realisation that single-engine light fighters are a necessity that cannot be disregarded.

Recent media reports suggest that Dassault



A C-130J Super Hercules transport aircraft fires decoy flares

is in fact negotiating a new contract to sell more Rafale fighters to India following the 36 already signed. India might use the option for the additional 18 fighters if it wants. There are some considerations here too. The initial deal for the 36 off-the-shelf aircraft cost India a little more than \$200 million per aircraft. This, of course, included the cost of the aircraft as well as weapons and spares. The deal puts the liability on Dassault for serviceability of the aircraft and also gives India the MBDA Meteor BVR AAM (beyond-visual-range air-to-air missile) as well as the Storm Shadow long-range air-to-surface missile. Whether India gets access to the Radar Absorbent Material (RAM) coating technology (as part of the main deal or the offset clause) is unclear. It is safe to say that an additional deal for 18 Rafale fighters may cost around the same, if not inflation-adjusted price per aircraft with the weapons and spares complements. It is clear that the Rafale, with the weapons complement it carries, would stay only as India's strategic deterrent aircraft, firing from a safe distance and returning to base, and not as a frontline fighter. With a squadron each being placed in the Western Sector (likely Haryana or Punjab) and one in the Eastern Sector (most likely West Bengal), the third squadron could find itself being placed at Gwalior.

This third squadron of the Rafales would then most likely be under the operational command of the Strategic Forces Command (SFC) and become part of the next-gen nuclear delivery system of the IAF. Whether any Su-30MKIs are under the operational command of the SFC is not known but this cannot be ruled out considering the capabilities of the fighter.

Gripen in the Wings

This leaves the IAF with limited options. While there is increased clamour in the corridors of power to deal more directly with the American defence industry, wisdom should have dawned by now that the new US President, following his ardent domestic jobs policy, may never clear a deal for shifting an F/A-18 or F-16 fighter line to India. Even if it is done, this deal could potentially make New Delhi continuously dependent on the American defence industry for parts. The most viable option for the IAF single engine fighter programme is now the SAAB Gripen, which is ready to partner with the IAF with its model and to manufacture in India and ensure maximum availability at all times. SAAB has submitted what can be called an unsolicited bid for the Make-in-India fighter project and although it is reliant on the American GE engine, it is much more likely to be a



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A Dassault Rafale in tiger markings carries out aerobatic stunts

successful endeavour than the F-16 or F/A-18. Of course, the Ministry of Defence (MoD) may be nervous to have only one vendor to rely on.

The Case for Su-30MKIs

For now, with the approaching retirement of a huge chunk of air and ground attack fighters, an increased order for the Su-30MKI is always a good option for the IAF. At a cost of nearly \$60 million per unit, and being successfully integrated with the Brahmos land attack missiles, it is perfect for the IAF wallet. With Russia having offered technology transfer for production of line replacement units and 485 lines for transfer of technology (ToT) to support, the Sukhoi fleet having been identified by India and Russia, it is clear that the Sukhoi will be the IAF's most available aircraft at all times. It would, therefore, be much more lucrative for the IAF to increase the order kitty of the Su-30MKI from 272 and add another 60 to 80 units to increase the squadron strength of this multirole fighter. The increased benefit here is the new willingness of Russian industry to take part in the Make-in-India program. This, depending on how New Delhi conducts the deal, could be very beneficial if clubbed with the expected "Super Sukhoi" upgrades. Earlier this year, the deputy director of the Russian Federal Service for Military Technical Cooperation had stated that Russia is ready to supply means of production to build as many jets as India needs. There has to be a sense of urgency within the corridors of the South Block now. The MiG-27s are scheduled to be retired within a few years and the SEPECAT Jaguar and Mirage-2000s have been upgraded enough to

"An additional order for the Su-30MKI offers much more to Indian defence than what meets the eye. Considering its long range and being armed with long-range air-to-ship missiles, a squadron of Su-30MKIs based at Andaman & Nicobar would add teeth to the Indian presence in the Indian Ocean."

last us till 2030. The last of the MiG-29s will retire by 2030. The MiG-21s will also see their last sorties by 2022 and we have no real strategy to fill the depleting squadron numbers.

A total of 54 Rafale aircraft (if India uses the +18 option) is only a drop in the water and, as stated, these are most likely to fulfil the strategic role for the IAF. The Hindustan Aeronautics Ltd (HAL) AMCA timeline puts its first flight around 2025 and even optimistically operational induction is unlikely to start before 2035. The Tejas light fighter is continuously running behind schedule and plans to setup a second manufacturing line to double the yearly output of the LCA remains what they were: Plans! The foreign collaboration Make-in-India fighter programme also remains where it was: on paper! Clearly, while India's air power does not look meek, necessary steps have to be taken to fill this shortfall. Back when the Rafale deal was stuck in negotiations, then Defence Minister Manohar Parrikar, had stated that the IAF could make do with additional Su-30MKIs and that with the upgrading and overhauling of the aircraft was a viable option. We must also note that during his time at the South Block, Parrikar had effectively upped the serviceability rate of the Su-30MKI. It is unwarranted to find senior experts often politely rubbish the Sukhoi by terming it as "whatever role it plays" aircraft. The Su-30MKI version is amongst the most potent and feared multirole fighters in the world today. Even the Russian Air Force had placed orders for a variant of the MKI, the Su-30SM for itself.

An additional order for the Su-30MKI offers much more to Indian defence than what meets the eye. Considering its long range and being armed with long-range air-to-ship missiles, a squadron of Su-30MKIs based at Andaman & Nicobar would add teeth to the Indian presence in the Indian Ocean. Here again, one cannot overlook the multi-mission capabilities of the Su-30MKI. An order for additional Su-30MKIs must also be taken into consideration for the fact that, while the IAF does not have its strength of 42 squadrons and has been making do with 30-odd squadrons, it is also coming to a stage where the inductions will

only be replacing the present squadrons and not adding to squadron numbers. In fact the pressure just keeps on increasing. The additional Sukhoi squadrons, therefore, taking care of the multi-role and air superiority needs of the IAF, will make it easier for the IAF to go ahead with a single-engine Make-in-India fighter.

With the F-16 production line having recently shifted from Fort Worth, Texas to South Carolina, it is understandable that the Americans will not be interested in setting up anything more than an 'assembly line' in India. The Gripen, therefore, would take the lead in this battle.

India and Russia have been in talks for setting up a hub in India for logistics and maintenance of Russian fighters in Indian service. This would greatly enhance the availability of the MiG-29Ks of the Navy as well as the Su-30MKIs of the IAF. It is only a matter of how India plays its cards with Moscow. With the S400 air defence system deal and another for the purchase of stealth frigates (both signed) stuck on the issue of bank guarantees and Moscow desperately needing to boost its defence exports, India can demand more in all deals, including the Indo-Russian Fifth Generation Fighter Aircraft (FGFA).

The IAF should also look into the prospects of having a mini fleet of close air support (CAS) aircrafts such as the Hawk and the HJT-36. The BAE Hawk already has an "Advanced Hawk" designed in collaboration with HAL, as a combat-role trainer. The IAF may not want to touch the "Combat Hawk". This, however, does not mean that the HAL HJT-36 cannot be modified by HAL (with experience from the "Advanced Hawk" project) to turn it into an "Advanced Combat Trainer". While the forces do operate attack helicopters and have more on order, there is certainly more on offer with subsonic aircrafts providing CAS (specially on the western border) for advancing infantry and armoured divisions and their complement of armed helicopters.

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 **COGES**

Delays Eroding Combat Edge With Pakistan

An IMR Assessment

The combat ratio of fighters between the Indian Air Force and the Pakistan Air Force at one time was 3:1 in India's favour. It has successively gone down to 1.3:1 today.

The IAF hopes to strengthen its combat units with the induction of the Tejas light combat aircraft, more Sukhoi-30s, Rafale warplanes, Indo-Russian fifth-generation fighter aircraft (FGFA) and possibly a medium-weight fighter that could be built in India in collaboration with a foreign player.

Plans to build single-engine and twin-engine fighters in collaboration with foreign military contractors are yet to take off.

How IAF Compares with PAF

The IAF has 33 fighter squadrons compared with almost 25 units, including those for training, of Pakistan Air Force (PAF), translating into a combat ratio of 1.3 to 1. A squadron usually has 16 to 18 fighters.

That is a significant dip from 3 to 1 in IAF's favour in the 1980s. Five years ago, the figure stood at 1.6 to 1.

The 36 Rafale fighter planes ordered from France after a long delay also fall short of the IAF's original requirement of 126 medium-weight fighters. The Rafale, equipped with latest weapons and tailored for Indian needs, will be delivered to the IAF between 2019 and 2022.

The IAF fleet has 14 squadrons of ageing MiG-21 and MiG-27 fighters that will be retired in phases by 2024. The IAF has ordered 123 Tejas aircraft that would be delivered by 2025, if all goes to plan.

The PAF operates more than 80 F-16s, including second-hand F-16A/B Block 15 jets bought from the Royal Jordanian Air Force. Bulk of the Pakistani fleet consists of older F-16A/B fighters, now upgraded to Block 52 standards in Turkey. It also has 18 F-16C/D Block 50/52 planes. Block refers to the F-16 evolution, with a higher number representing technological upgrades.

The PAF is also inducting JF-17 Thunder fighters, sometimes compared with the Tejas. Developed jointly with China, the PAF has nearly 90 JF-17s in its fleet.

Additional Rafales

French planemaker Dassault Aviation SA sees a new sale contract for its Rafale fighter jet in 2018. In India, where Dassault Aviation signed a long-awaited contract for 36 Rafale fighter jets in September 2016, chief executive officer Eric Trappier said in an interview to a French regional



HAL-built weaponised Hawk aircraft

“Indian Air Force's plan to induct 20 Hawk advanced aircraft for displaying aerobatic skills has been stuck for more than two years now over the issue of steep increase in price of the planes.”

newspaper Sud-Ouest, it was working on an additional order for the air force as well as a tender for 57 planes for the navy.

Boeing is also competing the Indian naval deal.

Delay in Buying Additional Hawks

Indian Air Force's plan to induct 20 Hawk advanced aircraft for displaying aerobatic skills has been stuck for more than two years now over the issue of steep increase in price of the planes.

The IAF had moved the proposal to buy these 20 planes from a British firm during the UPA regime as it wanted to replace the Kiran Mk 2 planes with the Hawk Advanced Jet Training jets to be equipped with smoking pots to fly with the Surya Kiran Aerobatic Team (SKAT).

The contract for the last batch of 57 planes was done between India and the British firm in 2010 to help in the training programmes of the Air Force and the Navy to add to the existing fleet of

66 planes bought in 2004.

The deal for the 20 airplanes has gone through many problems earlier also as the file related to the procurement case had mysteriously gone missing from a department under the Defence Ministry in 2014 leading to a delay of more than a year in completing the lapsed process. The old Surya Kiran team was disbanded in February 2011 after its HAL-built Surya Kiran HJT-16 Mk I and Mk II aircraft were diverted to train fighter pilots.

Sukhoi-30MKI Crash Unexplained

A Su-30MKI fighter aircraft crashed approximately 60 km from the Tezpur airbase on May 23. Analysis of the Flight Data Recorder (FDR) and certain other articles recovered from the crash site revealed that the pilots could not initiate ejection before the crash.

The two pilots, Sqn Ldr D Pankaj and Flt Lt S Achudev, were formally declared dead on 31 May.

Para (Special Forces) and the IAF's elite Garud commandos extended assistance to the Army's ground column and joined the recovery operation for the crashed Sukhoi-30 MKI aircraft.

While the court of inquiry will reveal the cause of the crash, some analysts based in the vicinity of New York and St Petersburg warned that the loss of an advanced and certified mechanically safe Sukhoi 30 fighter aircraft, close to the border with China may be the result of "cyber-interference with the onboard computers" in the cockpit. This may explain why even the pilots may have found it difficult to activate safety ejection mechanisms, once it became obvious that the aircraft was in serious trouble, as such mechanisms too could

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Debris of a Su-30MKI fighter which crashed on 23 May was located in a remote inaccessible forested area

have been crippled by computer malfunctions induced from an outside source.

The impact of cyber warfare on complex machinery may be judged by the crippling of the USS Donald Cook in April 2014 by electronic interference sourced from a high-flying Sukhoi-24. Exactly a year later, yet another Sukhoi disabled the USS Theodore Roosevelt (an aircraft carrier armed with multiple defensive and safety mechanisms) in the Baltic Sea. Both naval vessels had to be towed to safety, as their onboard propulsion systems got damaged by electronic interference.

They warn that the capabilities of Indian authorities in the cybercrime realm are of a "Fourth World" standard. They claim that only Open Source tools are used in this country to track depredators, including by locating IP addresses. However, such addresses can be easily disguised by experienced hackers, thereby leading to the wrong locations being blamed for a cyber attack. Hence, in case an attack comes from a particular country, it is close to impossible for Indian authorities to identify the source, which means that there is no way of knowing who to complain to and about whom. Unlike the US, Russia, Israel or China, where each has the capability to penetrate through such dodges and establish where exactly an attack originated from, India has thus far relied on outside police forces to deal with cybercrime in this country, many of which are in locations compromised by graft and connivance with criminal gangs.

Besides invaluable lives, this was the eighth Sukhoi fighter to have crashed with the cumulative losses being estimated at about Rs 2,700 crore.

With a speed of about 2,100 kmph and a range of 3,000 km, the Sukhoi 30 can remain airborne for more than 3.5 hours with mid-air refueling. Presently the frontline fighter aircraft of the Indian Air Force, the plane is capable of carrying a variety of weapons besides an ongoing effort to fit the supersonic Brahmos missile onto the aircraft.

The IAF is already reeling from a shortage of fighter aircraft squadrons. Of the 43 squadrons required in case of a two-front war scenario, the IAF fields only 33 squadrons.

SPYDER Tested

India successfully tested the Israeli surface-

to-air Python and Derby (Spyder) missile system from the launching complex-III of the Integrated Test Range (ITR) at Chandipur-on-sea against a UK-made unmanned aerial target, paving the way for its early deployment in the armed forces.

The trial of short-range quick reaction weapon system was carried out for validating various parameters and checking its operational readiness.

Three rounds of the missile were fired at Banshee pilot-less target aircraft in three days.

Acquired from Israel, Spyder is basically a short-range air-to-air defence system and is modified to be used as surface-to-air system. It is designed to strike an enemy aerial threat within a short time.

The defence system comprises two missiles - Python and Derby - with an active onboard radar which makes the Spyder system more lethal. Both the missiles are smokeless which makes it harder to detect them visually and the launch position.

The state-of-the-art missile has a strike range of about 15 km in low altitude. It works on fire-and-forget principle. India has its own surface-to-air missile system Akash which is an all-weather missile and has a strike range of 25 km.

Both the missiles are in the process of deployment along the border. The active radar in both the systems helps to seek and engage an incoming aircraft or missile automatically. Besides aircraft and unmanned aerial vehicles, they can destroy low-level cruise missiles.

Banshee is developed by UK-based aerospace and defence major Meggitt PLC, which in collaboration with Mumbai-based Sure Safety Solutions (SSS), has set up a unit at Gopalpur in Ganjam district for assembling unmanned aerial targets.

The SPYDER, which stands for Surface-to-air PYthon and DERby, is developed by Israel's Rafael Advanced Defense Systems. India and Israel concluded a deal for the missiles in 2009, under the previous Indian government.

The SPYDER is not India's sole surface-to-air missile systems designed for aircraft interception. New Delhi is developing its indigenous system, the Akash, which is a medium-range surface-to-air system capable of intercepting targets at a range of up to 30 kilometers and up to a maximum altitude of 18 kilometers.

AIR POWER

Employment of Air in Counter-Insurgency Operations Potent Option With Consequences

Air Marshal Anil Chopra, PVSM, AVSM, VM, VSM



Air Mshl Anil Chopra commanded IAF's Flight Test Centre ASTE and is a member of Armed Forces Tribunal

India has three regions affected by insurgency – Jammu & Kashmir, the North Eastern states and Central India.

The insurgency in Jammu & Kashmir is supported by the Inter-Services Intelligence of Pakistan by way of financing, training and arming the mujahideen. In 2015, former President of Pakistan Pervez Musharraf admitted that Pakistan had supported and trained insurgent groups in the 1990s. The border and the Line of Control (LoC) separating Indian and Pakistani Kashmir passes through some exceptionally difficult terrain. Militant groups train in Pakistan, which also provides launch pads close to the LoC. Pakistan has indirectly acquiesced its role in failing to prevent cross-border terrorism when it agreed to curb such activities after intense pressure from the Bush administration in mid-2002.

Insurgency in Northeast India involves multiple armed factions operating in India's northeastern states, which are connected to the rest of India by the Siliguri Corridor, a strip of land as narrow as 23 km wide. Some factions favour a separate state while others seek regional autonomy. Some groups demand complete independence, major militant activities are being conducted in Assam, Manipur, Nagaland and Tripura. Insurgent groups are known to have sanctuaries in Myanmar and Bangladesh.

The Naxalites claim that they are following a strategy of rural rebellion similar to a protracted people's war against the government in the affected states, namely Karnataka, Chhattisgarh, Odisha, Andhra Pradesh, Maharashtra, Jharkhand, Bihar, Uttar Pradesh, and West Bengal. The 60 districts that comprise the "Red Corridor" are some of the poorest in the country with dense forests and sparse roads.

Counter Insurgency Operations

Counter-insurgency operations (COIN) operations involve combination of conventional military operations and use of other means such as demoralization through propaganda, psy-



A Hawk light fighter armed with guns and rockets is suitable for counter-insurgency operations

“Air power can play an important role in COIN and is capable of wide range of operations. These include transportation in support of combatants and civilians, including casualty evacuations; Intelligence gathering, surveillance, and reconnaissance; Psychological operations through leaflet drops, loudspeakers, and radio broadcasts; and air-to-ground attack against ‘soft’ targets.”

operations, etc. COIN can be successful if the insurgents are made to become unpopular. To defeat insurgency government forces must retain strategic advantages of mobility, invisibility, and legitimacy. The major complexity in these operations is to distinguish between the uninvolved masses and the militant. The success depends on ability to treat the civilian population with humanity and dignity and hit hard on the militants.

Since such operations are on land, the police, para-military forces and the Army are the main force to engage in COIN. Tactics could include temporary forced relocation of some population to expose the rebels and also increased vehicle and personnel checkpoints. Cordon and search is a well known military tactic which is the basic COIN operation.

Indian Army's elite Rashtriya Rifles (RR), Central Reserve Police Force (CRPF), Border Security Force (BSF), Indo-Tibetan Border Police (ITBP) and state police forces are involved in COIN operations. In Andhra Pradesh the 'Greyhound' Force has had notable success against the Maoists.

Air Power and COIN

Air power can play an important role in COIN and is capable of wide range of operations. These



Injured CRPF men inside an IAF Mi-17 chopper during evacuation following the massacre at Sukma on 24 April 2017.

include transportation in support of combatants and civilians, including casualty evacuations; Intelligence gathering, surveillance, and reconnaissance; Psychological operations through leaflet drops, loudspeakers, and radio broadcasts; and air-to-ground attack against 'soft' targets. Air power provides a high-visibility response option. It has its risks and challenges too. One of the best ways of using air power is to provide low-profile long-term assistance to the ground forces. Sometimes it becomes mandatory to use offensive air power against well armed insurgents as is the case by Israel against Hezbollah rockets attacks or by Americans in Afghanistan and Western Pakistan. Insurgents faced with superior firepower will generally adapt by avoiding overt concentrations of force and will tend to melt away into the local populace when threatened. This disbursement itself can be considered a success. In Chechnya, Russians conducted many interdiction missions using imprecise bombing techniques resulting loss of civilian lives and damage to civilian infrastructure, inviting adverse international reaction. Use of air power often hastens the end, however, long term success has to be achieved on the ground. Offensive air power has many strengths but its employment in COIN has to be carefully assessed lest it undermines the effects being sought. There is, thus, need to examine strengths and weaknesses.

Past IAF COIN Operations

IAF had used Toofani jets in 1956 for COIN

operations in Nagaland and Vampires in North East Frontier Agency (Now Arunachal Pradesh) in 1960. In 1966 Hunters and Toofani fighters were used against insurgents in Manipur. IAF helicopters are routinely carrying out COIN operations during UN Peace Keeping missions in African sub-continent. On 4 June 1987, in a bid to provide relief in Jaffna peninsula, the Indian Air Force mounted Operation Poomalai. Five Antonov An-32s under fighter cover flew over Jaffna to airdrop 25 tons of supplies. IAF later deployed one squadron of An-32, two Mil Mi-8 units, one squadron of Mil Mi-24s and a unit of Chetak/Cheetah helicopters in Sri Lanka. India used air power in Sri Lanka against Liberation Tigers of Tamil Eelam (LTTE) during Indian Peace Keeping Force (IPKF) operations in 1989. The Jaffna University Helidrop was the first of the operations launched by the IPKF to secure Jaffna town. It was mounted on the midnight of 12 October 1987, and was planned as a fast Heli-borne assault involving Mi-8s and para commandos. The aim of the operation was to capture the

“The low-level and low-speed capabilities of helicopters are their source of strength and also their source of weakness. Operations at low level and low speed make helicopters vulnerable to attack from the ground. Insurgents are likely to have access to some form of low-technology tactical anti-air capability.”

LTTE leadership at Jaffna University. However, the operation ended disastrously, failing to capture its objectives due to intelligence and planning failures.

Specialised COIN Aircraft

High-speed Multi-role Fighters like the F-16, Mirage-2000, and Su-30 are not specifically

designed for close air support (CAS) or interdiction. They are too expensive and fly too fast for such a mission. Some of the operational risk may be mitigated through their highly capable sensors, but these too have limitations. Slower air-to-ground aircraft are more effective in counterinsurgency operations. They are cheap to operate, can be deployed with a small support infrastructure and can operate from less substantial facilities. Tactically they can operate at low altitudes and slow speeds which are better for target acquisition and identification. Though Americans designed A-10 'Warthog' especially for air-to-ground operations with armour protection, high system redundancies and a state-of-the-art missile decoy suite for survivability, most countries cannot afford them. Most COIN aircraft are light military attack aircraft designed for armed reconnaissance, air-escort for ground forces and ground attack support. These fixed or rotary wing COIN aircraft should have low loitering speed, long endurance, simplicity in maintenance, and the capability to perform short or vertical take-offs and landings from makeshift and roughly constructed runways. Sometimes the insurgent may possess man portable anti-aircraft weapons or long-range rifles, therefore counters to these are important. The American T-6 Texan and Cessna Skymaster, Brazilian Embraer Super Tucano and Swiss Pilatus PC-21 are some of COIN fixed-wing aircraft.

Americans also designed the AC-130 'Spectre' Gunship with long endurance, large payloads and advanced sensors and communications equipment especially for COIN operations. These carry their own accurate direct fire weapons, have ability to orbit the target area, observe and fire without interruption. But they are prohibitively expensive, costing double the normal C-130. Uninhabited Combat Aerial Vehicles (UCAVs) are emerging as the best platform for COIN operations. UCAVs can remain on station for extended periods of time. They are able to carry advanced sensors, advanced communications suites and precision weaponry. The altitude and speed at which they operate make them highly survivable platforms. Even if they are shot down, the fact that no lives are lost reduces the likelihood that support for the campaign will be affected. UAVs have great role in intelligence, surveillance, reconnaissance (ISR) inputs and for directing targeting. Israelis have considerable experience operating UCAVs over the West Bank and Gaza Strip.

Good sensor suites are a key requirement for the effective employment of offensive air power in COIN warfare. Correctly identifying and accurately engaging targets have always been fundamental to military operations, but their importance is even greater in counter-insurgency warfare. Electro-optical (EO) and IR sensors still require visual conditions in the target area. Synthetic aperture radars (SARs) can operate in all weather conditions. Good sensors are able to identify things such as the specific type of vehicle being targeted, or the number of people at a specific location and whether or not they are overtly carrying weapons. COIN warfare demands the use of precision weapons such as the laser-

Contd on page 63

INDIAN NAVY

After Trump Tells US Navy "Go Back to Steam"

STOBAR Scores Over CATOBAR

Navy Must Decide on Launch System For 3rd Carrier

Rijul Singh Uppal

US President Donald Trump expressed his anger at the U.S. Navy, on 11 May, for not using steam power for its new aircraft carrier. He suggested that the Navy scrap an already-built electromagnetic catapult system on the USS Gerald Ford aircraft carrier and replace it with a "goddamn steam" one.

Trump slammed the catapult launch system. The new system, the Electromagnetic Aircraft Launch System (EMALS), replaces the old steam-powered catapult launch system for hurling jets off a short runway, albeit with hefty up-front costs. While Trump's comments sent the US Navy into a tizzy, the Indian Navy must also look at the EMALS system afresh.

Keeping IOR Safe

The Indian Navy finds itself stuck in a major acquisition limbo with delays plaguing the development of the second Indigenous Aircraft Carrier (IAC-II), likely to be christened INS Vishal. The Navy must introspect about its needs and the reasons for the delay in development and modernisation, keeping in mind its objectives to counter foreign influence in its namesake ocean and ensure that the Indian Ocean Region (IOR) is kept as safe and open for trade as possible. The problem has become all the more acute because of the pace with which China has completed its second aircraft carrier and is now building its third.

The Indian Navy has embarked on a long standing future development and acquisition plan that includes Arihant-class Ballistic Missile Submarines (SSBN), of which one has already been commissioned, while the second is under sea trials and two more are under construction. These will be complemented by six indigenous nuclear powered attack submarines and a leased Russian Akula, to be delivered by 2020. These, along with six diesel powered Scorpene-class submarines and six indigenous Project-75I class submarines and various in-service and under-construction destroyers, frigates and anti-submarine warfare (ASW) frigates, will form the backbone of the Navy's blue water strategy by 2030 and help keep the IOR free from undue foreign (read Chinese) influence. The Navy, to its



EMALS catapults being demonstrated on the aircraft carrier Gerald R. Ford (CVN 78), with weighted sleds off the ship into the James River, 16 June 2015.

credit, as well as to the credit of Indian shipbuilders, has been focusing heavily on indigenously designed and manufactured platforms in its expansion and modernisation drive. Today we are building rather than buying a navy.

Future Launch System

However, all is not well with the Navy's plans for a third aircraft carrier, the IAC-II. The IAC-II, which the Navy had hoped to commission by 2025, does not look likely before 2030-2035, or even later, if work progresses at the current pace.

The reason for delay in the development of this carrier is the Navy's insistence that its third operational carrier (after INS Vikramaditya and INS Vikrant) should have a flat-deck and be capable of launching heavy aircraft like the Advanced Early Warning (AEW) and mid-air refuelling tankers, much like those that the US

Navy operates. This means that the third carrier would need a Catapult Assisted Take-off but with Assisted Recovery (CATOBAR) launch system instead of the ski-jump based Short Take-Off But with Assisted Recovery (STOBAR) launch system. The IAC-II is to be powered by nuclear propulsion with a 65,000 tonne displacement.

The Navy needs to introspect whether it operationally requires a CATOBAR-fitted carrier or if it can make do with a STOBAR carrier and start construction work on INS Vishal. The CATOBAR system, with the Navy completely dependent upon US Electromagnetic Aircraft Launch System (EMALS) system, may not be feasible for the Indian Navy and will further delay INS Vishal as it is inconceivable that the US would allow its technology to be incorporated on a carrier used to launch aircraft sourced from other nations. This would limit options to American fighters (the disastrous F-35) and leave us susceptible to

US Navy



An Indian Navy MiG-29K jet seconds before engaging an arrestor wire on landing at a Shore Based Test Facility in Goa.

being arm-twisted by the US for a comprehensive EMALS-aircraft deal for the IAC.

The Navy must carry forward work on a nuclear powered but STOBAR carrier to ensure that INS Vishal can be commissioned into active service by 2030 to mitigate future operational gaps. A next-gen carrier project (IAC-III, if you like) can be developed for operations much into the 2040s or even earlier, but this must not delay the IAC-II. The putative IAC-III could have CATOBAR systems and a higher displacement of up to 90,000-1,00,000 tonnes. Indian shipbuilding may also, through natural progression, not need to go abroad to look for CATOBAR technology. The real problem is keeping pace with the Chinese Navy, which plans to field six aircraft carriers of which two will always be on station in the IOR.

As regards the need for CATOBAR to launch heavier AEW and mid-air refuelling aircraft, the Navy must look towards proper and functional utilisation of the Andaman & Nicobar (A&N) Islands and its bases in South India. With the focus on the IOR, the A&N Islands have been under-utilised when it comes to placement of strategic assets. Both the Navy as well as the IAF have air bases at A&N and it is a travesty that the bases do not operate AEW, AEW&C and mid-air refuelling tankers. A&N Islands chain provides the perfect setup for the Navy to operate in the IOR without a CATOBAR enabled carrier.

We must also look into the functionality of a CATOBAR systems deal. Presently, the Indian Navy is said to be hard set to purchase up to three EMALS systems from the US for "future super carriers". Why the Navy wants three launch systems with only one carrier planned is beyond comprehension. A few things deserve mention.

One, we are planning an outright purchase of launch systems without even a hint of any talks on technology transfer and maintenance and are, therefore, placing the fate of our future fleet in the hands of American companies. A single change in American stance towards India in the future could leave us without the technological help required to fix any broken launch system. It is also incorrect to assume that American stance towards India will be positive throughout; India has obligations to Iran and the people of Gilgit-Baltistan and Balochistan. American foreign and security policy cannot be relied upon in this context.

Two, we must consider the term "super-carrier". The INS Vishal with a displacement of 65,000 tonnes and an expected fighter load of 50 fixed-wing and rotary-wing aircraft cannot be designated as a super-carrier and neither is it viable for the INS Vishal to lower its fighter aircraft numbers for additional AEW and refuelling aircraft. It is, therefore, illogical for the carrier to be needed to be operated with a CATOBAR system.

Third, we come to the future super-carrier of the Indian Navy. The Navy can start a separate futuristic design and development project for an IAC-III with a heavier 90,000-100,000 displacement. A carrier with a capability to have on-board a complement of 80-90 aircraft would need a CATOBAR system to operate the heavy aircraft that the Navy wants. There is a distinct difference between a 65,000 tonne displacement fighter carrier and a nearly 100,000 tonne displacement super-carrier. Another consideration that would then come into play is the Russian Project 23000E (Shtorm). This is a futuristic nuclear propelled aircraft carrier with a 90,000-100,000 tonne displacement. It would open avenues for India to look beyond the US for its future super-carrier technology - only if India does plan on diverting massive funds from submarines and destroyers to a super-carrier.

Cost Considerations

Then, there is also the issue of use of funds. The cost difference in construction of the carrier and further purchase of aircraft to complement a CATOBAR deck would take huge resources away from important surface and sub-surface ships. A CATOBAR deck on a 65,000 tonne displacement carrier may not leave space for any anti-air defensive shield for the carrier. This means a larger than normal carrier battle group (CBG) would be needed to secure the carrier. Even in dock such a carrier would be an easy target requiring further coastal acquisitions to defend it. This would further derail naval modernisation. Further, with the present aircrafts in development and in service globally, a CATOBAR configuration would vastly limit naval options during the consideration phase for aircraft purchase. Dependence for development of INS Vishal and arming it with heavy aircraft must not be placed on any single nation, whose security policy, though supportive today, may not be as conducive

tomorrow.

Having a CATOBAR ship at this stage would imply that not having heavier aircraft in the Naval Air Arm will be classified as a major gap and compel disproportionate naval resources into the IAC-II. The Naval brass as well as the foremost experts on naval warfare are aware that even with the planned and cleared/green-lighted acquisitions in progress, the Indian Navy falls far short of the desirable number of submarines and destroyers needed to preserve the sanctity of the IOR.

There is no golden rule about the essentials of a naval armada. Russia today has only one aircraft carrier in service – Admiral Kuznetsov – and has still been able to project naval might into the Mediterranean. A nation must work its power doctrine around feasibility instead of chasing a white elephant.

The Indian Navy must get to work on a 65,000 tonne nuclear-powered INS Vishal with STOBAR technology (to avoid delay) as it desperately needs a third carrier in order to have two functioning CBGs at all times. Also, Kamov Ka-31 AEW&C helicopters are already in service with the Indian Navy. Whether the Navy operates a full load of MiG-29K aircraft on-board the Vikramaditya and whether the MiG-29Ks are used for buddy refuelling is operational data. The Navy did send out a Request for Information (RFI) earlier this year for 57 multi-role carrier borne fighters, which included buddy refuelling capability for operation off the deck of INS Vishal.

Case for Additional MiG-29Ks

The US Navy operates nearly a dozen CATOBAR operated carriers, but the operational doctrine of the Indian Navy is vastly different. Indian Navy does not currently envision a future where it has to permanently place carrier battle groups in different parts of the world. The vision seeks a safe and free to navigate IOR.

India and Russia have been in talks for setting up a hub in India for logistics and maintenance of Russian fighters in Indian service. This would greatly enhance the availability of the MiG-29Ks the Navy operates off the deck of the Vikramaditya. The Navy can use the opportunity it has in the current global economy (with Russia needing to increased defence exports) to purchase additional MiG-29Ks as the fighters are also to arm the INS Vikrant (LCA-N clearly off the table here) and the Navy must not shy away from them to operate off a STOBAR-operated INS Vishal (an upgraded LCA-N Mk2 should also be operational by then).

The MiG-29K has unfortunately been at the receiving end of criticism, including a scathing report by India's Comptroller and Auditor General, on the serviceability of the aircraft. As the exporter nation itself had not inducted the aircraft, the lessons of the MiG-29K have been learnt in India. Russia, too, has learnt and while helping India overcome these issues, it is itself getting the MiG-29K ready to be its own frontline naval fighter. There can be no doubt that the MiG-29K will overcome these serviceability issues and it shall be an error to dismiss this fighter or dub it as one that is only a package deal with the Vikramaditya. With the fighters in service globally and the realities of geopolitics, it is the best option for the Indian Naval Air Arm.

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India Starts Work on Creating Panel to Expedite Arms Acquisitions

By VIVEK RAGHUVANSHI

NEW DELHI — India's government has started working on establishing a new Defence Procurement Organization, or DPO, which will be responsible for speeding up the procurement of weapons and equipment.

"The new DPO is aimed at ensuring quicker procurement of weaponry both from domestic and overseas sources as well," a senior Ministry of Defense official said. The new organization will also ensure that the entire budget is spent. Every year, over \$1 billion is surrendered by MoD because of delays in procurements.

Procuring weapons sometimes takes over 10 years, and in that time, the price increases and requirements can become redundant. "Tenders are cancelled midway without much reason bringing hardship in financial terms to overseas bidders who have to prepare for the bidding process and bring their weaponry for trials at their cost," said an executive of an overseas defense company here without being named.

"Though here is a well-defined structure within the current Acquisition Wing in MoD to take care of procurements, there is lack of well-intentioned coordination between the user (defense forces), MoD and the Finance Wings," the MoD official admitted.

The DPO will be based on the recommendations of an internal committee headed by Pritam Singh, management expert and former director of the leading public business school Indian Institute of Management (IIM) Lucknow, which had recommended setting up the new defence procurement agency. Analysts and officials are skeptical, however, whether the main recommendation of the committee to make the new DPO autonomous will be put into practice fearing that the bureaucrats will not like to loosen their grip.

"The DPO is not contemplated as a



Indian troops demonstrate a platoon attack as part of Army Day celebrations, Jan 15, 2014.

replacement for Defence Procurement Board, or DPB, currently responsible for purchases," said Amit Cowshish, MoD's former financial adviser for defense acquisition. "The apex level decision-making bodies would need some restructuring, but they will continue to play a role in the new system, Cowshish added.

The new organization will likely have several technical, financial and legal experts to optimize the buying processes. However, if the new DPO is set up, it will take a minimum of three years because it will be thought out in the MoD for one year and it will take at least two more years for restructuring after the cabinet approves it, MoD officials said in private. "It might take a year or two for the new organization to gradually take over the functions presently being discharged by various agencies," said

Cowshish.

Even as the DPO is being discussed, the MoD says it has taken steps to expedite weapons procurement, including reducing the Acceptance of Necessity validity to six months for "Buy" cases and one year for "Buy and Make (Indian)" cases, processing single vendor cases with due justification rather than automatic retraction, and enhancing the aim of the Fast Track Procedure to cover urgent operational requirements.

India currently imports an estimated 65 percent of its weapons needs, but expects to decrease it to 50 percent in the next five to seven years by boosting the domestic defense market.

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Sam Panthaky/AFP via Getty Images

Steep Price Rise Hits Indo-Russian 5th-gen Fighter Project

BY VIVEK RAGHUVANSHI

NEW DELHI — Just when its production was about to take off, the Indo-Russian fifth-generation fighter aircraft appears to be “lost” because Russians are demanding an “unaffordable price for the aircraft,” according to a senior Indian Air Force official.

The Russians are demanding more than \$7 billion as part of India’s share in the development of the FGFA. The Russian side argues that the higher price is justified because the aircraft’s development will include transfer of technology of several high-tech systems.

“India is not in a position to pay this kind of money, and the aircraft project appears to be lost” the official said.

The Indian version of the FGFA, known as the Perspective Multi-role Fighter, is being jointly designed and developed by India and Russia. State-owned Hindustan Aeronautics Limited from the Indian side and Rosoboronexport from Russia are the designated lead agencies.

India and Russia agreed to jointly build the FGFA in 2007 and signed an initial development agreement in 2010. The final agreement, which has not yet been inked, will release India’s share of development cost for the FGFA project.

In early 2016, an internal report by the Indian Air Force listed several drawbacks of the proposed FGFA with Russia, including the engine, stealth capabilities and an expensive radar.

According to the report, there are about 40 parameters related to the aircraft that require improvement, which the Air Force had wanted the Russians to meet. These



include better stealth, AESA radar, advanced sensors, networking and combat avionics, and supercruise.

After the Air Force report, Ministry of Defence officials here were quick to say that despite the shortcomings, solutions are being worked out and the FGFA project is on track.

The FGFA has a potential order by the Indian Air Force worth more than \$25 billion.

The service has a requirement for 120-130 swing-role planes with stealth features for increased survivability, advanced avionics, smart weapons, top-end mission computers and 360-degree situational awareness. The ability to supercruise or

sustain supersonic speeds in combat configuration without kicking in fuel-guzzling afterburners is a key Indian requirement, according to another Indian Air Force official.

The Russian side is moving ahead with its FGFA version known as T-50. The first flight of a T-50 took place in 2010, and induction is scheduled this year. Russia announced it will fly the T-50 with an advanced engine, giving it Mach 1.5 supercruise, by 2020.

The Russians are developing the FGFA in response to the American F-22 Raptor and F-35 Lightning aircraft.

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India’s MoD Demands Early Induction of Ballistic Missile Defense System

BY VIVEK RAGHUVANSHI

NEW DELHI — To ensure the early induction of India’s homemade ballistic missile defense system, the country’s

Ministry of Defence has directed the state-owned Defence Research and Development Organization to urgently submit a final induction strategy and timeline for the BMD system.

A senior MoD official said the ministry “is even considering to carry out an audit of DRDO claims about the performance of the tests.”

Despite tall claims made by DRDO five

Kirill Kudryavtsev/AFP via Getty Images

years ago regarding completion of the first phase, there remains no word from the agency on the project's completion, the MoD official added. DRDO has been developing the indigenous BMD system since 1995.

It was in the wake of the system's delay that India last year cleared the \$5 billion purchase of S-400 air defense systems from Russia; however, the final contract is yet to be inked.

DRDO had earlier said that by 2012 or 2013, the first phase of the BMD shield would be ready to protect New Delhi from hostile missiles with a 2,000-kilometer range. It also boasted that by 2016, the second phase would be operational, allowing the system to kill hostile missiles with a 5,000-kilometer range.

Regarding a potential audit of the authenticity of DRDO's BMD system claims based on a variety of tests, Mahindra Singh, a retired Indian Army major general, said: "It is important to know whether the interceptor missile hit the incoming missile during trials because a remote fuze can also detonate the incoming missile, and there is no guarantee whether the incoming missile [was] actually hit by the interceptor missile."

In February this year, a top DRDO scientist said the homegrown anti-ballistic missile Prithvi Defence Vehicle, or PDV, traveling at supersonic speed destroyed a target at an altitude of 97 kilometers in the exo-atmospheric region. The PDV interceptor missile is capable of killing an incoming missile with a strike range of



Smerch MBRL and BrahMos cruise missiles on display at India's Republic Day celebrations.

around 2,000 kilometers outside the Earth's atmosphere.

PDV is said to be an upgraded interceptor missile with a range of 50-150 kilometers and is set to will replace the Prithvi Air Defence missile, which has a range of 80 kilometers.

DRDO has successfully test-fired both exo-atmospheric and endo-atmospheric interceptor ballistic missiles.

India's BMD system consists of a long-range tracking radar developed in partnership with Israeli company Elta. It is based on the company's EL/M-2080 Green

Pine radar used in conjunction with Israel's anti-ballistic missile system Arrow.

The second component of India's BMD system is the computerized command and control system that plots and predicts the intruding missile's flight path and assigns interceptor missiles to destroy it.

The third component is the interceptor missiles and includes the exo-atmospheric missiles as well as the endo-atmospheric missiles, which can kill an incoming missile at a distance of up to 40 kilometers.

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India's BEL and Israel's IAI Ink \$630M Missile System Deal

BY VIVEK RAGHUVANSHI

NEW DELHI — Indian state enterprise Bharat Electronics Limited signed a \$630 million contract on May 19 with Israel Aerospace Industries to jointly produce four long-range surface-to-air missile systems for the Indian Navy.

"Yes, a contract was signed May 19 in Bangalore for [LRSAM] systems. However, work share and other commercial details are confidential and cannot be shared," BEL's marketing director, Anandi Ramalingam, told Defense News. "BEL will start delivering the [LRSAM] systems from

early 2020, onwards."

Under the contract, BEL will produce a major portion of the multifunction active electronically scanned array naval radar system, or MF-STAR, and the rest of the weapon control systems, Ramalingam added.

The company will also carry out system integration and commissioning activities.

In a May 21 news release, IAI announced it was awarded "an additional, \$630 million contract for supply of LRSAM air and missile defense systems for four ships of the Indian navy. The contract will be carried out, for the first time, with Indian

government company Bharat Electronics Limited (BEL), which serves as the main contractor in the project as part of India's 'Make in India' policy."

IAI president and CEO Joseph Weiss offered: "The new contract adds to other deals signed in the last decade by IAI with India's defense forces, reinforcing IAI's global leadership position in air and missile defense systems. The inclusion of Indian governmental company BEL for the first time, is a step up in our relationship with the Indian industry as part of the 'Make in India' policy."

According to the news release, the joint

development of the advanced air and missile defense system will involve IAI, its subsidiary Elta Systems, India's Defence Research and Development Organization, Rafael Advanced Defense Systems, and various Indian companies including BEL, Bharat Dynamics Limited and private Indian company Larsen & Toubro.

The LRSAM system is meant for both Indian and Israeli defense forces. Each unit comprises one command and control system, an MF-STAR radar system and two launchers that can send eight 150-kilometer-range radio frequency surface-to-air missiles simultaneously. The system also provides 360-degree coverage "Prior to signing the contract, the System was successfully tested last week in India as part of operational interception trial aboard India's navy ship, demonstrating again the [LRSAM] System's operational capabilities in a representative scenario with genuine target," the IAI statement said.

During the trial launch, the missile in



Two LRSAM launchers that can send eight 150-km-range radio frequency SAMs.

midair "engaged the target, aligned its course, hit it and destroyed it," IAI said. "All components of the weapon system have successfully met the goals set to them."

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India, Israel Forge Partnership For Small Arms Production

BY VIVEK RAGHUVANSHI

NEW DELHI — Firearms manufacturer Israel Weapon Industries and India-based private sector firm Punj Lloyd have begun to jointly produce a variety of small arms from the Israeli company's product line, of which some are for use by Indian armed forces.

The new venture, named Punj Lloyd Raksha Systems, or PLR, was formally opened last week, and its expected to tap a solid chunk of India's small arms market estimated at more than \$5 billion.

PLR is the first private manufacturer of small arms in India that produces equipment for both use by the Indian defense forces and for export. The joint venture has an equity holding in the ratio of 51:49 percent equity, with the majority stake going to Punj Lloyd.

"The small arms plant will be manufacturing the [Tavor] carbine, [X95] assault rifle, [Galil] sniper rifle and [Negev] light machine gun ... and [PLR] became fully operational on 4 May 2017 itself," said Ashok Wadhawan, the president of manufacturing at Punj Lloyd.

"We are targeting the supply of carbine,



India has an immediate requirement for 66,000 assault rifles, with a total requirement is 250,000. Here a visitor looks at the INSAS rifle at DEFEXPO show.

assault rifle, sniper rifle and light machine gun for armed forces, paramilitary forces

and state police. We are also going to be targeting the requirement of sights for the

Courtesy Israel Aerospace Industries

Manan Vatsyayana/AFP via Getty Images

weapon systems, which is vital for the accuracy of the weapons," he added.

One of the upcoming tenders is for the procurement of 7.62x51mm assault rifles. The Indian Army last year floated a global request for information to purchase a assault rifles with that specification in order to replace its existing 5.56mm INSAS (Indian small arms system) rifles.

The new venture could tap "a major chunk of the Indian defense market because of its Make in India character," according to Arkur Gupta, a defense analyst with Ernst & Young India. "The multi-caliber assault rifle and the carbine gun have both been retracted. So we should expect a fresh request for proposal."

India has an immediate requirement for 66,000 assault rifles, with a total requirement is 250,000. Expected in the next two months in a tender valued at \$1 billion for the assault rifles, said an Indian

Army official. The earlier 2011 global tender for 66,000 7.62mm assault rifles was canceled last year, the Army official noted.

Another major tender on deck is the purchase of sniper rifles for which an expression of interest was floated last year.

The Indian Army wants sniper rifles with higher caliber, 8.6mm bullets compared to the 7.62mm ammunition currently in use. In addition, the new sniper rifles are required to have 50 percent more range than the current 1,200-meter-range sniper rifles.

The major users of small arms are the three defense services, paramilitary forces and the state law enforcement agencies. It is estimated that the current inventory is estimated to contain around 3 million small arms.

In the next five years, the inventory is expected to rise to 8 million rifles. Until now, the state-owned Ordnance Factory Board continues to be the main source for small

arms, including imports. However, OFB has been lagging behind in its production program for ammunition and weapons.

The Army is currently using the INSAS 5.56mm rifle, designed by the Defence Research and Development Organization and built by OFB. It was introduced into service in the mid-1990s and is overdue for replacement. Most of the other small arms and ammunition held by the defense services are of foreign design and manufactured under license in India, but there are efforts to indigenously design and manufacture equipment.

The joint venture between Israel and India comes at a time when the Indian Army has chosen to use to the 7.62x51mm caliber rather than the 5.56x39 caliber "with the aim of killing and not injuring as part of a new philosophy," an Army official offered.

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India's Larsen & Toubro to Deliver 100 Howitzers to Indian Army

BY VIVEK RAGHUVANSHI

NEW DELHI — In the first Howitzer order to a domestic private sector company, the Indian Ministry of Defence signed a \$700 million contract defense company Larsen & Toubro (L&T). L&T will produce 100 155mm /52 caliber tracked Howitzer guns at Indian facilities for the Indian Army jointly with Hanwha Tech Win of South Korea.

No official of the South Korean company would comment on the level of transfer of technology that will be given to domestic company to manufacture the tracked guns, but a senior official with the Indian Army said, "The South Korean company is unlikely to transfer technology fully in the K-9 gun with a low order of only 100 numbers."

"L&T could get additional orders ahead as there is a requirement of more tracked artillery guns," the source added.

The L&T- Samsung team with the K9 Vajra-T Howitzer gun beat the 2S19 MST-A howitzer from Rosoboroexport of Russia in response to a 2011 global tender. Defense News announced plans for the award in 2016.

An executive of L&T said: "More than 50 percent of the work share is with L&T, and HTW Samsung will supply the turret of the gun."

The guns will be made at L&T's newly



Larsen & Toubro will produce 100 155mm /52 caliber tracked Howitzer guns jointly with Hanwha Tech of South Korea, based on their K9 Thunder SP gun.

set up Armoured Systems Complex at Hazira in the central Indian state of Gujarat.

As part of the Field Artillery Rationalization Plan, The Indian Army plans to replace all existing field artillery guns with a variety of 155mm/52 caliber

artillery guns at a cost of over \$6 billion. One piece of that buy will be a mix of around 3600 155mm/52 caliber artillery guns by 2025.

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AFP, Getty Images

India Floats Repeat Tender For Rocket Launchers Valued At \$2bn

By VIVEK RAGHUVANSHI

NEW DELHI — In a move aimed at becoming more self-sufficient with multi-barrel rocket launchers, the Indian Ministry of Defence has floated a big-ticket bid to buy six regiments of homemade Pinaka multi-barrel rocket launchers for \$2 billion. The order for the acquisition is expected to be placed within 18 months.

Last December, the ministry placed an order for two regiments — one regiment is 18 systems — totaling a \$350 million order for the Pinaka rocket launchers. Industry sources say India is now contemplating exporting the Pinaka.

The order will be split between the prime state-owned contractors Bharat Earth Movers Limited and the Ordnance Factories Board, or OFB, and private sector defense companies Larsen & Toubro and Tata Power SED. Under the contract, BEML will supply the vehicles for the rocket launchers; L&T and Tata Power SED will supply the launcher systems; and OFB will supply the rocket ammunition.

L&T and Tata Power SED have designed and developed the Pinaka system with the Defence Research and Development Organization, or DRDO. The Indian Army currently operates two regiments of the Pinaka systems.

"The indigenous rocket launcher system is required to meet Army's operational necessities and also to reduce dependence on foreign sources and replacing the Russian Grad BM-21 and Smerch rocket systems," an Indian Army official said. The Army needs the extended range Pinaka Mark-II at the earliest, the official added, "however, the latest order is for Pinaka Mark-I with a range of 30 kilometers even though the Indian Army had preferred Pinaka Mark-II, which has a range of up to 65 kilometers but is still under development."

Jayant Damodar Patil, head of defense and aerospace for L&T, said "Pinaka Mark-II is a developmental program of DRDO.



Indian Army's Pinaka 214mm MBRL on display at the Republic Day parade.

The technical trials have been completed a couple of months back, but the induction decision is awaited."

"DRDO and Indian industry will now target to export Pinaka Mk-I," he said. However, some Army officials cited problems with the rockets of the two regiments that have been in use for more than a decade.

Bhupinder Yadav, a defense analyst and retired Indian Army major general, said there is a problem with the rocket ammunition supplied by OFB. "The production of Pinaka rockets is on hold after some quality-related issues mainly relating to OFB-produced propellant such as short ranges, residues after firings and accidents relating to burst in launchers, etc."

However, such defects occur if the propellant is non-homogeneous and have air bubbles, he asserted, adding that "the supplies of fuzes and its quality assurances is also an issue."

"Absorption of technology by OFB appears to be poor, and it (OFB) may not be able to maintain quality standards at the manufacturing stage, particularly for mass production," according to Rahul Bhonsle, a defense analyst and retired Indian Army brigadier.

No MoD official was available to comment on the problems with the rockets and their current status.

On the possibility of imports of rockets and ammunition for Pinaka, Patil said: "Rockets ammunition are expected to be ordered to OFB as well as the private industries that would take technology transfer from DRDO (which has developed the rocket ammunition)."

"No imports are likely as any imported ammunition will have to undergo detailed evaluation trials that can take years to get cleared," Patil added.

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Navy Should Return To 'Goddamned Steam' On Carrier, Trump Says

By JON SIMKINS

President Trump says the Navy should abandon longstanding plans for electromagnetic catapults for carrier aviation and return to the traditional steam-powered launch and recovery system, according to the president's interview with TIME.

In the interview, Trump was asked about the future of Ford-class carrier technology and he specifically addressed perceived differences between the antiquated steam-powered system and the Ford's new Electromagnetic Aircraft Launch System, also known as EMALS.

"You know the catapult is quite important," said Trump. "So I said what is this? Sir, this is our digital catapult system. He said well, we're going to this because we wanted to keep up with modern [technology]. I said, 'You don't use steam anymore for catapult?' 'No sir.' I said, 'Ah, how is it working?' 'Sir, not good. Not good. Doesn't have the power. You know the steam is just brutal. You see that sucker going and steam's going all over the place, there's planes thrown in the air.'"

The president's attitude became increasingly skeptical when discussing the switch to a new launch technology.

"It sounded bad to me. Digital. They have digital. What is digital? And it's very complicated. You have to be Albert Einstein to figure it out. And I said — and now they want to buy more aircraft carriers. I said what system are you going to be — 'Sir, we're staying with digital.' I said no you're not. You going to goddamned steam, the



President Donald J. Trump speaks with Sailors in the hangar bay aboard Pre-Commissioning Unit Gerald R. Ford (CVN 78), March 2, 2017.

digital costs hundreds of millions of dollars more money and it's no good."

The system replacing the steam-powered launch and recovery system, however, isn't digital, but electromagnetic. For years the Navy has struggled to get the new technology up and running.

The EMALS technology, installed for the first time on the Ford, aims to improve efficiency and substantially reduce cost of maintenance, a vast improvement over the fund-draining, maintenance-intensive steam catapult technology, which is less compatible with modern propulsion systems.

The switch to the EMALS, as well as

other technological advancements, is estimated to save the Navy \$4 billion in maintenance costs over the course of the ship's 50-year lifetime, Navy officials say.

The new Ford-class carriers are built with two newly-designed reactors that can produce 250 percent more electrical capacity than the carriers of previous generations.

The 90,000-ton carrier Ford is widely considered the most technologically advanced — and most expensive — warship in history, coming in with a cost of \$12.9 billion. The ship set sail for the first time in April.

'Performance Enhancing Drugs' Considered For Special Ops Soldiers

BY DAVID B. LARTER

TAMPA, Fla. — Special Operations Command wants to create super-soldiers through pushing the limits of human performance, and is looking to nutritional supplements and even performance enhancing drugs as options.

America's elite operators already have access to the kinds of fitness and performance resources available to a pro football player with dietitians, athletic trainers and physical therapists embedded with the units. But U.S. Special Operations Command is looking to go even further, pushing operators to increase pain

tolerance, injury prevention and recovery, and physical performance in austere environments. SOCOM is looking to private industry and academia for ideas to get them there.

"If there are... different ways of training, different ways of acquiring performance that are non-material, that's

US Navy

preferred but in a lot of cases we've exhausted those areas," said Ben Chitty, senior project manager for biomedical, human performance and canine portfolios in the Science and Technology office at USSOCOM.

Chitty said some of the areas they are looking to push big leaps forward in human performance are in places where humans aren't necessarily evolved to be at maximum capacity: at high altitude or underwater for extended periods of time without access to food or water, for example. One of the puzzles is how to have an operator who has been underwater for hours without sustenance still perform once he gets to the objective, Chitty explained.

SOCOM is looking at nutritional supplements, such as the kind you find at GNC, but also at performance enhancing drugs, Chitty said.

"For performance enhancing drugs, we'll have to look at the makeup and safety in consultation with our surgeon and the medical folks before making any decisions on it," he said.

While pushing supplements and drugs on operators to push performance might seem like a risky proposition —



Tech. Sgt. Joshua J. Garcia

reminiscent of Rocky's scientifically optimized Soviet opponent Ivan Drago in Rocky IV — Chitty said the focus would be on safety first and foremost.

"We're not cutting any corners," Chitty said. "We want to make sure its safe first and then we want to look at the effectiveness of it."

"If there are things in the nutraceutical realm that are available, those are good in the sense that its not a new drug that's being developed. If the best thing for our folks is a pharmaceutical then we're interested in understanding what's the space that industry and academia can provide for us."

When Fighting Outside In 50 Degrees Below Zero, The Enemy Is Moisture

BY DAVID B. LARTER

TAMPA, Fla. — When sweat hits arctic temperature, it freezes. Where that happens in your clothes makes the difference in cold weather warfare.

Russia is aggressively expanding their military presence at the top of the world, and the U.S. military is taking notice. But while U.S. troops have been spending more time in the Arctic, their gear has sometimes not lived up to the harsh conditions.

In March about 200 Marines took part in an exercise in Norway, but their gear had shortcomings. Troops operating in the cold found their gear less than a match for temperatures sinking well below freezing. One cold-weather gear expert said that's because just adding layers doesn't solve the problems faced when troops need to fight in temperatures that drop as low as -50 degrees Fahrenheit or colder.

"They looked like the Michelin Man, with all these big clothes," Jonas Rydholm said of the Marines. "They think they'll be warm but

they are freezing like hell.

A sales executive with the Swedish outdoor gear company Torraka, Rydholm said heat and moisture coming off the body will freeze somewhere inside the layers of clothing in harsh cold, and you want that moisture freezing as far from the body as possible.

"It's actually all about moisture," Rydholm said. "That's the trick and they don't understand this."

Torraka's gear is lightweight and designed to send moisture to the outer layer, through a waterproof Gortex membrane and into a layer between the outer shell where it will freeze. The fabrics in the base and mid-layers are all surprisingly light, and all are quick-drying to minimize the risk of freezing. The layers are also easy to put on and remove.

The system that they are selling to



David B. Larter/Staff

Scandinavian countries, including Norway, is designed to be used anywhere from moderately cold conditions with wet snow falling, all the way down to about -50 degrees, Rydholm said.

Modernisation Plans Creeping Forward

Short and Long Range SAMs

Israel Aerospace Industries announced, on 21 May, that it had signed a huge contract with the Indian Navy, worth \$630 million to provide four air and defense missile systems for four ships.

This is the first time that a contract will be carried out with the Indian government company Bharat Electronics Ltd. Before the deal was signed, the Israeli Barak 8 long-range surface-to-air missile system (LRSAM system) was successfully tested from an Indian Navy ship. During the test, the missile system proved once again that it can identify an airborne threat and destroy the target.

In April, IAI struck a deal worth almost \$2 billion to supply India's army and navy with missile defence systems. Israel is one of the top three arms suppliers to India.

The Indian Navy successfully test-fired Medium Range Surface-to-Air Missile (MR-SAM), an advanced air defence system being jointly developed by Defence Research and Development Organisation (DRDO) and IAI developed jointly by India and Israel, from INS Kochi on 17 May.

The previous tests of MR-SAM were conducted from land at the Integrated Test Range at Chandipur, Odisha. MR-SAM is a variant of long-range surface-to-air missile (LR-SAM), Barak-8, which is used by Navy.

Each MRSAM weapon system comprises of one command and control system, one tracking radar, missiles, and mobile launcher systems. The MRSAM surface-to-air missile is powered by a dual-pulse solid propulsion system developed by DRDO.

The 4.5 meter long missile can strike down an enemy aircraft at a range of 70 kms. The missile's explosive warhead, featuring a self-destruct fuse, provides high-probability of kill against enemy targets with minimal collateral damage.

Prime Minister Narendra Modi-led cabinet had in February this year given its nod to deal worth Rs 17,000 crore to acquire the Medium Range Surface to Air Defence Missile (MR-SAM) system from Israel to protect India's airspace from enemy aircraft and drones.

The Air Force had got clearance for its MR-SAM programme in 2009.

Minesweepers Shortage Critical

Indian Naval Ships Karwar and Kakinada, both minesweepers belonging to the Western Flotilla, were decommissioned on 9 May.



MRSAM test 17 May INS Kochi

INS Karwar (M67), was the first of the 'Natyá' class minesweepers acquired from the erstwhile USSR. She was commissioned on 14 July 1986 at Riga (Russia). The ship operated from Vishakhapatnam till 2013 after which, the ship was based at Mumbai. Manned by a crew of six officers and 90 sailors, INS Karwar had her motto 'Hamesha Tayyar'.

INS Kakinada (M70), was the second of the same class and also commissioned at Riga on 23 December 1986. Like her sister ship, Kakinada also operated from Vishakhapatnam till 2013 before shifting base port to Mumbai.

Both ships have rendered over 30 years of stellar service to the nation. The ships have undertaken countless mine-sweeping missions using both, the older mechanical sweeps as well as the modern Side-scan SONARS.

India is left with only four specialised warships used to detect, track and destroy enemy mines to keep harbours and shipping traffic safe. This operational gap comes at a time when Chinese nuclear and conventional submarines are stepping up their deployments in the Indian Ocean Region (IOR).

But the long-pending Rs 32,000 crore deal to build 12 advanced mine countermeasure vessels (MCMVs) at Goa Shipyard with South Korea's help is yet to be inked.

At least seven Chinese submarines have been tracked by the Indian Navy in IOR since December 2013.

The Navy, in fact, requires 24 MCMVs to

effectively guard the west and east coasts. Adequate number of submarines, multi-role helicopters and MCMVs have been right on top of the Navy's modernisation wish-list for well over a decade now, but to no avail.

The Navy, incidentally, had begun the hunt for eight MCMVs in July 2005. Even if the contract with South Korea for the 12 MCMVs is inked this year, the first specialised warship will roll out only by 2021, at the earliest. The plan is for the other 11 MCMVs to be delivered at nine-month intervals to complete the entire project by 2026.

But this will require some effort. Price negotiations for transfer of technology of the MCMVs between Goa Shipyard and Korean shipyard Kangnam are in the final stages. Thereafter, the commercial proposal will be submitted to the defence ministry and Cabinet Committee on Security for the final approval.

But the subsequent selection process, in which Kangnam was chosen over Italian Intermarine, got enmeshed in allegations of agents and other irregularities. The tender was finally scrapped in 2014.

Then, in February 2015, the defence acquisitions council, headed by then defence minister Manohar Parrikar, cleared the project at Goa Shipyard with foreign collaboration. The deal for 12 minesweepers or Mine Counter Measure Vessels is worth about ₹32,640 crore and the ships would be manufactured in India under Transfer of Technology. The first ship is expected to be delivered three years after the contract is



Indian Naval Ships Karwar and Kakinada were decommissioned on 9 May 2017

signed.

The 1,000-tonne minesweepers are crucial to detect mines and explosives planted by the enemy targeting our ships as they enter or leave harbours with their high-definition sonars, acoustic and magnetic sweeps. They then use remote-controlled systems like small underwater vehicles to detonate the mines at safe distances.

Indian Navy and Space Application Centre to Share Data

Vice Admiral SN Ghormade, Director General Naval Operations and Tapan Misra, Director, Space Application Centre (SAC) signed a Memorandum of Understanding on Data Sharing and Scientific cooperation in the field of Meteorology and Oceanology on 15 May 2017 at SAC, Ahmedabad. With this initiative, both the organisations have embarked on a common platform of mutual cooperation, wherein the scientific advancements and expertise achieved by SAC would be synergised into the Indian Naval efforts to keep the Nations Defence Forces in step with rapid development in the field of Environment Sciences and Satellite Data acquisition technology. This has further boosted the already established collaboration between the two organisations.

The broad areas of cooperation include, sharing of non-confidential observational data for pre-launch sensor calibration and post launch satellite data validation, operational use of SAC generated weather products, provisioning expertise for installation of various satellite data processing modules at Naval METOC organisations, carrying out calibration and validation for ocean models, transfer of technology to generate weather information, training on latest technology and sharing of subject matter experts between the organisations for effective knowledge transfer.

Carrier-borne Fighters Tender

24 May was the last day to respond to Request for Information (RFI) on Indian Navy's 57 Multi-role carrier-borne fighters (MRCBF) tender. Four companies have expressed keen interest to supply 57 multi-role combat aircraft for the Indian Navy's aircraft carrier, according to Navy Chief Admiral Sunil Lanba, who declined to disclose the names of the companies which are interested.

Earlier, after the Indian Navy had rejected the indigenously built 'Tejas' as being too heavy, a Request for Information to procure the combat fighters was issued.

At present, the Navy operates 45 MIG-29K jets which face serviceability issues from time to time.

Currently, six planes are compatible for the aircraft carrier. They are Rafale (Dassault, France), F-18 Super Hornet (Boeing, US), MIG-29K (Russia), F-35B and F-35C (Lockheed Martin, US) and Gripen (Saab, Sweden). While F-18, Rafale and MIG-29K are twin engine jets, the remaining three have single engines.

Under MRCBF Tender, Indian Navy intends to procure 57 Day and night capable, all-weather multi-role deck based combat aircraft which can be used for air defence, air-to-surface operations, buddy refuelling, reconnaissance, EW missions, etc, from Indian Navy aircraft carriers.

Dassault's CEO Eric Trappier had said that it made sense to have the same jet used by Indian Air Force also for Indian Navy and had cited an example of Indian Navy procuring Naval Carrier-borne Mig-29K based on an extensive experience gained by IAF operating Mig-29A fighter jets in its fleet.

US aerospace giant Boeing also has submitted its proposal to compete for the naval programme with its F-18 Super Hornet and SAAB reportedly has sent proposals for its Sea Gripen Concept fighter jet, while another US aerospace giant Lockheed Martin did not participate in the tender for unknown reasons even though it had F-35B and F-35C Naval Carrier-borne 5th Generation fighter jets in the offering.

Conventional Submarines Under Project-75I

French, Russian, Spanish and German submarines are seen as leading contenders in India, to supply six conventional diesel submarines to the Indian Navy in upcoming Project-75I tender

French Naval defence group DCNS is largely recognised as developers of India's Scorpene-class submarines (Kalavari-class). Spain's Navantia has expressed its desire to bid for Indian tender by offering its S 80-class submarines.

Scorpene-class submarines were jointly developed by the French Direction des Constructions Navales (DCN) and the Spanish company Navantia. After execution of Indian Project-75 which are still currently under construction in India, Navantia broke off ties with DCNS and are now luring India with a better offer.

DCNS offer of Super Scorpene design under India's Project-75I is largely based on S 80-class submarine due to their earlier joint cooperation.

INS Kalvari to Join In July-August

Eighteen years after an action plan was announced for having 24 modern submarines by 2030, the Navy would finally get its first indigenous sub shortly.

Navy Chief Admiral Sunil Lanba said, on 31 May, that first of the six indigenous submarines would be commissioned in July or August. The subs have been named 'Kalvari' (meaning deep sea tiger shark) after the first-ever Indian submarine that was commissioned in 1967 and decommissioned in 1996.

Speaking on the sidelines of a seminar, "Building India's Future Navy Technology Imperatives", Admiral Lanba said, "Kalvari, which fired an indigenous torpedo last week, is going through final trials."

Being built by MDL (a Ministry of Defence-owned company) in collaboration with France's DCNS, Kalvari runs on a mix of diesel-electric power. It is a stealth sub referred to as 'conventionally powered' in security circles.

The six submarines would be equipped with anti-ship missiles and long-range guided torpedoes along with a modern sensor suite.

For Naval planners, the worrisome part, however, is that China's submarine fleet-of nuclear and conventionally powered-is four times that of India's.

The Indian battle-ready under-sea fleet of diesel electric vessels is at present down to 14: nine Kilo-class (EKM)s, four German-designed HDWs (SSKs) and one Akula class nuclear-powered submarine (SSN) on a 10-year lease from Russia (since 2012).

The Navy plans to have 22 submarines by 2021-22 and is looking at building more of these under the newly announced strategic partnership, which allows foreign companies to partner with Indian firms under the "Make in India" initiative. Making submarines here is one of the four targeted sectors, the other three being fighter jets, helicopters and tanks.

The second Scorpene submarine Khanderi - named after an island fort of Maratha ruler Chhatrapati Shivaji - was launched in the sea in January and will begin sea trials on June 1.

MILITARY STRATEGY

Important Step Towards Efficacy in Joint Operations

Analyses of the Joint Doctrine

Lt Gen Vinod Bhatia, PVSM, AVSM, SM

On 23 Apr 2017, the Chairman Chiefs of Staff Committee (COSC) Admiral Sunil Lanba, along with the Chiefs of the Army and Air Force, Gen Bipin Rawat and Air Chief Marshal BS Dhanoa, released the Joint Doctrine of and for the Indian Armed Forces. It was a show of solidarity among the Service Chiefs indicative of congruence and convergence of interests leading to enhancing the efficacy of joint operations in the long run.

For far too long the Services have been blamed for protecting their turf and thwarting optimisation of scarce resource. The perceived divide among the Services has been exploited over the years to thwart projects, modernisation and growth of the services, often playing one against the other. The Joint Doctrine driven by HQ Integrated Defence Staff (IDS) has finally found approval among the three Services as also it is rare for a security conscious military to have promulgated this doctrine concurrently in the public domain, and hence should be analysed in this backdrop.

Prime Minister's Challenge

While addressing the Combined Commanders' Conference, in December 2015, onboard INS Vikramaditya, Prime Minister Narendra Modi challenged senior military commanders to reform their "beliefs, doctrines, objectives and strategies" identifying five broad areas for reforms – enhancing jointness (the ability of the army, navy and air force to operate together), manpower rationalization, defence planning, restructuring higher defence management and the defence procurement process. The analysis of problems challenged the assumptions and perspectives of India's senior military commanders. The Indian military is among the least 'joint' major militaries in the world, which needs to be addressed.

All major nations have a joint doctrine for their respective armed forces, which facilitates jointness in all military domains. Logically, all military doctrines and war waging/ war fighting philosophy is culled from the National Security Strategy (NSS). The ideal construct is that the NSS lays down the framework for the armed forces to derive the National Military Strategy (NMS). The NMS in turn dictates the National Military Objectives (NMOs). The Joint doctrine is,



Chief of the Army Staff General Bipin Rawat, Indian Navy Chief Admiral Sunil Lanba and Indian Air Force Chief Air Chief Marshal Birender Singh Dhanoa salute the national tri-colour.

“The Joint Doctrine in the Indian context aims to facilitate the five domains of Joint Intelligence, Planning, Communications, Logistics and Training. Jointness in these domains is an imperative to enhance the efficacy and effectiveness of joint operations.”

thereafter, derived from the NMS and the NMOs in keeping with the NSS. The joint doctrine once articulated and promulgated dictates the desired military capabilities giving structural shape to the organisations, material, manpower, training and leadership needs of the armed forces. The Joint

Doctrine in the Indian context aims to facilitate the five domains of Joint Intelligence, Planning, Communications, Logistics and Training. Jointness in these domains is an imperative to enhance the efficacy and effectiveness of joint operations. The single Service doctrines promulgated till date shied away from optimising the resources and war fighting strengths of the other services. Though derived from the same document – Defence Minister's Operational Directive, these were competitive and conflicting in many areas.

Defence Minister's Directive

In the 1980s, Defence Minister's Operational Directive was for the armed forces to maintain a posture of dissuasive deterrence vis-à-vis Pakistan and one of dissuasive defence in relation to China. Translated into policy, it meant that the Army could plan defensive strategies which could involve deep strikes into Pakistan. However, with regard to China, the idea was to defend Indian territory with a plan that did not involve any incursion into Chinese territory. However, in the mid-2000s this changed and the Operational Directive called on the forces to be prepared to



Army paratroopers show their skills at an IAF fire-power demonstration at Pokhran Ranges.

fight and win an all-out two-front war that could involve coordinated action by Pakistan and China, covering the entire spectrum from sub-conventional to that involving the use of nuclear weapons. This assessment was not based on any rigorous exercise like a White Paper or a Defence Strategy Review, but a several paragraph long document drafted by the bureaucrats and the military and signed by the minister.

In the absence of a strategic vision for defence, the MoD is engaged in routine: Producing the Integrated Defence Staff-written Raksha Mantri Directive for Armed Forces, which is no substitute for a Strategic Defence and Security Review or a CCS-scripted Strategic and Political Guidance.

Highlights of the Joint Doctrine

The Indian Armed Forces are one of the most battle hardened and combat rich force in the world with a proven record of ensuring national security. However, the key question is, are they optimal and future ready? Lack of jointness has been recognised as a major weakness and hence the imperative need for a pragmatic, acceptable and an implementable Joint Doctrine for the Indian Armed Forces. What does this joint doctrine detail? The joint doctrine starts by amplifying the national values, aim and interests, outlining the National Security Objectives and the NSS, a task which has been self assigned.

While releasing the Joint Doctrine, Chairman COSC Admiral Sunil Lanba quoted the aim, "This Doctrine, pitched at the Military Strategic Level, is meant to guide all members of the Indian Armed Forces, on the necessary concepts, principles, and ideas, under which to achieve the higher goals set upon by the political leadership as deemed in the Indian Constitution". He went on to amplify that the doctrine "is a reference for the policy makers, bureaucrats, technocrats, diplomats, defence industry in public/private sector, academia, fourth/fifth estate, our citizens, etc". The document is, hence, obviously broad-based being a doctrine - a 'code of beliefs' or a

"In the conventional domain, the joint doctrine lays down the conceptual framework of the application of military power in the land, sea, air, space, cyber and special operations domain, amplifying the planning and conduct of joint operations in the Air-land, Air-transport, Airborne, Maritime-air, Amphibious and Battlespace awareness operations."

'body of teachings', and, hence, leaves out many specifics. The Joint Doctrine does pass muster and will contribute to and guide "Force Development".

The 61-page document also attempts to cover the multiple security threats and challenges and the nature and levels of war. Thereafter, the joint doctrine attempts to detail the military role as an instrument of national power and not as an essential element of comprehensive national power, it lays down the various functions of military power from the conventional to the sub-conventional and non combat domains.

Doctrine dictates and defines the five key elements of organisational structure, material, manpower, training and leadership. The primary role of the military is to ensure national security, territorial integrity and unity - defending the nation

from external aggression, translated it implies that the military's primary goal is operation preparedness and readiness for conventional operations against external aggression. Preparation for war ensures peace and hence doctrine for conventional operations is central to the military. In the conventional domain, the joint doctrine lays down the conceptual framework of the application of military power in the land, sea, air, space, cyber and special operations domain, amplifying the planning and conduct of joint operations in the Air-land, Air-transport, Airborne, Maritime-air, Amphibious and Battlespace awareness operations. To say that these are comprehensive will be a fallacy but the authors must be commended for making a brave and honest beginning, which will definitely form the foundation of jointness among the Indian Armed Forces in the years ahead.

In the sub conventional domain the Doctrine includes "Surgical Strikes" a phrase which has caught the imagination of the Indian public. 'Surgical Strikes' is one of the many methods of executing 'punitive operations'. It would have been better if the sub conventional doctrine had included both 'punitive' and pre-emptive operations' as that would have facilitated capacity enhancement and capability development for these operations in the future as also sent out a clear signal to Pakistan in the doctrinal shift. On ground of course punitive operations have been executed without remorse in the pulverising of Pakistani post in Naushera sector on 23 May 2017, as retaliation for the beheading on 1 May.

Much of the debate in the public on the Joint Doctrine is based on the use of the phrase 'credible deterrence' rather than 'credible minimum deterrence', the debate is on whether or not there is a shift in the draft nuclear doctrine and India's position on the subject or this is an error which needs to be corrected. The verdict on this is of course awaited. Though many feel that an ambivalent nuclear doctrine has its own advantages specially so in the context of Pakistan, however India as responsible nation has a clearly defined NFU doctrine.

In trying to dissect every word we will miss the woods from the trees. To say that this is a very comprehensive and all encompassing document will be incorrect and also to criticise this as an exercise in futility calling for the withdrawal of the document will be equally naive. Very often we tend to ape the US structures and systems little realising that in the Indian context, the threats are mostly defined and recognizable. The military structures and doctrines should be designed for and cater to India's security threats and needs, addressing the various challenges imposed by unsettled borders in the North with China and a proxy war being waged by Pakistan in the West. The threats in this document do not take into account a collusive or a collaborative threat from China and Pakistan, a threat which was stated by none other than the National Security Adviser (NSA) at the Hindustan Times summit on 23 Nov 2014, as, "India has to be prepared for a two-front war and build deterrence that ensures conflict is not an option for its adversaries- India has two neighbours, both nuclear powers (which) share a

strategic relationship and a shared adversarial view of India."

Jointness vs Integration

Somewhere along the course of defining and achieving jointness, the doctrine does get mixed up between jointness and integration, attempting more than it can handle. The doctrine clubs integration/jointness, seeking integrated structures to enhance effectiveness in joint operations. The joint doctrine should have remained focussed on enhancing the efficacy of joint operations by giving the requisite impetus to joint intelligence, planning, communication, logistics and training. The doctrine, however, lays down integrated structures for planning, intelligence, training and logistics in addition to procurement and perspective plans. It also amplifies integrated structures in the cyber, space and special operations domain, rather than laying down the organisation, mandate and road map for joint commands in these domains. Jointmanship and Integration are very often used interchangeably, but they are two different concepts. While jointmanship would help achieve the desired end state, integration would invariably result in synergy and thus transcend the desired end state. Jointmanship can be enforced physically while integration commences in the mind. This lack of integrated thinking was obvious in the 1962 and 1965 conflicts; the former was left purely to the Army to conduct, and the latter saw each service fighting very much their own individual wars. During the 1971 War the armed forces demonstrated an unparalleled jointness in planning and conduct of operations, more due to the personalities involved rather than formal structures. Another example of effective joint operations is Operation Cactus in the Maldives - again the success is owed to personalities rather than formal structures. The joint doctrine should have focussed on joint structures rather than integrated, which would have come with time after jointness gains more acceptability and the various benefits are visible.

Criticism Unjustified

Defence analysts and the strategic community within India have mostly been critical of the Joint Doctrine issued. In essence their arguments are similar, pointing mainly to certain areas not being comprehensively addressed. Though they may be right in their contention, however, this document must be studied in a positive light as it does attempt to ensure convergence among the three services, and a focused approach to capability development guiding the two major components of 'Force Structuring' and 'Force Development'. The attempt to define and promulgate the doctrine is even more laudable as this has been achieved in the absence of a National Security Strategy. The document is hence premised on the armed forces perspective of the national aims and NSS. Certain critics have been unduly harsh and have not only been critical of the Joint doctrine but also of the military. This is quite understandable as military bashing is the order of the day.



A T-72 main battle tank wades ashore from a landing craft during an amphibious exercise 'Tropex 2009'

"The attempt to define and promulgate the doctrine is even more laudable as this has been achieved in the absence of a National Security Strategy. The document is hence premised on the armed forces perspective of the national aims and NSS. Certain critics have been unduly harsh and have not only been critical of the Joint doctrine but also of the military."

Combat Effectiveness

The doctrine also attempts to address two major weaknesses, that of Higher Defence Organisation reforms and Civil-Military relations. These are subjects for study in itself and could have been best avoided. Though these two form the basis why the Indian military continues to be confined to a military force and not be a military power. Based on the directions of the former defence minister Manohar Parrikar, the Lt Gen Shekatkar Committee was tasked to study and submit a comprehensive report on "Enhancing Combat Effectiveness by Rebalancing the Defence Budget". The committee submitted its

report in end-December 2016 and, as has been widely reported, implementation instructions have been issued only for 88 of the 218 recommendations. The implementation instructions pertain to the Services only and recommendations with regard to other structures of the MoD including Defence Research & Development Organisation (DRDO), Indian Ordnance Factories, Directorate General of Quality Assurance (DGQA), Controller General Defence Accounts (CGDA), Military Engineering Service (MES), Directorate General Border Roads (DGBR), etc., remain unactioned as it adversely impacts established comfort zones of the non-military organisations of the defence domain. The implementation of the recommendations would in itself have enhanced considerable jointness in all structures and systems of the MoD.

Irrespective of the few flaws, the Service Chiefs and the CISC should be complimented on issuing the Joint Doctrine for the Indian Armed Forces and, equally importantly, posting this on the public domain for deliberations and discussions. There is nothing wrong with criticism as it serves its own purpose. However, responsible and rational deliberations leading to constructive contributions will definitely be appreciated by the armed forces. The issue of the Joint Doctrine is only one step towards enhancing the combat effectiveness of the armed forces, much more needs to be done in the defence reforms. Streamlining of defence procurement procedures and a push to achieve strategic autonomy by reducing the dependency on imports and involving the private sector in defence manufacturing is in the implementation stage. However, other important defence reforms, in particular addressing issues of higher defence organisation and appointing of a Chief of Defence Staff (CDS) with a requisite mandate and authority seems no where on the horizon - a must to enhance the efficacy and effectiveness of the armed forces and joint operations.

DRDO News

Tejas LCA Test-Fires Derby AA BVR

Tejas, the Light Combat Aircraft successfully demonstrated, on 12 May, missile firing capability by releasing Derby Air-to-Air Beyond Visual Range (BVR) missile in radar guided mode. The missile launch was performed in Lock-On After Launch mode for a BVR target in the look-down mode and the target was destroyed.

The objective of the test was to assess the Derby integration with aircraft systems on-board Tejas including the aircraft avionics, fire-control radar, launchers and Missile Weapon Delivery System and to verify its performance.

The test was conducted on a Manoeuvrable Aerial Target at the Interim Test Range (ITR), Chandipur. The sensors at ITR also tracked the target and missile.

A safe separation was followed by missile guidance towards radar acquired target. The flawless launch was demonstrated with all on-board systems performing satisfactorily and the missile scored a direct hit on the target with complete destruction of it.

The test firing achieved all its planned objectives. The Derby firing is a major step towards clearing BVR capabilities on LCA aircraft for Final Operational Clearance (FOC).

Aeronautical Test Range Inaugurated

Defence Research & Development Organisation's (DRDO) new Aeronautical Test Range (ATR) was formally inaugurated on May 28 by acting Defence Minister Arun Jaitley, although it has been functional for some time.

The ATR is a facility under the Aeronautical Development Establishment (ADE), which works on a range of unmanned air vehicles (UAVs). It will be an integrated test centre for the DRDO's cluster of aeronautical laboratories, most of them based in Bengaluru.

More than a decade ago, when a new international airport for Bangalore was being planned at Devanahalli, its private developers feared that the new landing site and paths of its civil flights would clash with a World War II airfield some 70 km away in Kolar. The DRDO was using the airfield to test its new projects.

Bangalore got a new civil airport in May 2008 and in the bargain, the DRDO got a new flight testing place for itself.

The laboratories primarily using the range will be the Centre for Air Borne Systems (CABS), the Gas Turbine Research Establishment (GTRE), Defence Avionics Research Establishment (DARE), Centre for Military Airworthiness & Certification (CEMILAC), all based in Bengaluru, and the Aerial Delivery Research & Development Establishment (ADRDE), Agra.

Military development laboratories need large spaces to repeatedly fly and test aeronautical products that they are working on. In November last year, DRDO used the ATR to conduct the first successful flight of the UAV 'Tapas' 201, earlier called Rustom-2. As recently as on May 21, ADE engineers again flew one of the two early versions or prototypes of Tapas at Challakere for six minutes.

Tapas is a MALE or medium altitude, long endurance UAV that can continuously, slowly watch over a 200-km area for 24 hours. The pictures it captures will be interpreted by the armed forces or security.

The 28-km perimeter of the strategic facility is fenced and under radar surveillance. About 3 km inside, the DRDO has built a 2.2-km runway at the ATR for the pilotless Tapas aircraft and is due to extend it to 3.2 km in course. The longer runway will enable the developer labs to bring in bigger aircraft for tests: for instance the AEW&CS (Airborne Early Warning & Control Systems) aircraft meant for surveillance and intelligence gathering from sensitive areas.

While these are pilotless planes, the ATR will also serve development of manned aircraft versions such as the LCA fighters.

DRDO Chosen For SR-SAM Contract

DRDO has been selected for a Rs18,000-crore contract to supply Akash short-range missiles to Indian Army. The decision was taken at a meeting of the Defence Acquisition Council chaired by defence minister Arun Jaitley on 28 May.

The DAC preferred state-run DRDO over foreign vendors, including from Sweden, Russia and Israel for supply of the Akash surface-to-air missile system.

Akash missiles can be used for protection against incoming aircraft and unmanned aerial vehicles of the adversaries and the system would be deployed on both the Pakistan and China border, sources said.

The Army, however, is reported to have sought improved missiles that are on par with foreign ones in terms of a few specific systems and equipment. DRDO is reported to have assured incorporation of the systems suggested by the forces.

The selection process has been slow, considering that the three foreign vendors from Israel, Sweden and Russia were in the race for bagging the contract for which the process was initiated in 2011, and trials were held in 2014.

While it took nearly seven years for the selection process for a vendor for the air defence system to conclude, DRDO has also lagged behind in the indigenous development of aircraft and land warfare systems. However, the development of a range of strategic missile systems by DRDO has helped improve the



DRDO chief Dr S Christopher

capabilities of the armed forces while also saving precious foreign exchange.

The Army wanted two regiments of the missile system to be provided to the army air defence, which has been operating with obsolete equipment for a long time, with the government itself saying that around 98 per cent of it was outdated.

The cabinet committee on security has already cleared a Rs17,000-crore Medium Range Surface to Air Missile project with Israel.

Rudra M-II ASM Gets Funding

DRDO has been sanctioned Rs 489.06 crores to develop a new air-to-surface missile (ASM) named Rudra M-II for Indian Air force.

Recently DRDO has issued tenders to build an Aluminium container for R167 Article for storage and transportation of RudraM-II Missile.

Very little has been known about the missile since the project approval for Rudra M-II Missile was only given in March 2016 by the government and looking at the speed at the missile development has been progressing it can be said that it will be similar to the new generation anti-radiation missile (NGARM) in design aspect which is under development.

Extension for DRDO Chief

The government approved, on 19 May, a one-year extension in service to DRDO chief Dr S Christopher, an aeronautical scientist who was to retire by end-May, after a two-year term.

The appointments committee of the cabinet said Dr Christopher would continue as secretary of the department of defence research and development and DRDO chairman for a period of one year with effect from May 29.

The Modi government in May 2015 had bifurcated the post of scientific advisor to the defence minister-cum-DRDO chief, which was held by one person till then. While Dr Christopher was appointed the DRDO chief, a younger scientist G Satheesh Reddy became the SA to defence minister.

Will Astra Missile Live Up To Expectations?

Debry and Meteor Will Set The Standards

Katikeya Sethi



Katikeya Sethi is a military technology columnist

The Indian Air Force (IAF) successfully tested the Israeli Derby beyond visual range (BVR) air-to-air missile (AAM) developed by Rafael Advanced Defense Systems, on 12 May in India. Derby can be considered as an alternative to the DRDO-developed Astra BVR AAM until its testing is completed. Derby will also serve as a reference for

further upgrade of the Astra.

Meanwhile, as part of the Rafale medium multi-role combat aircraft package negotiated with France, the Indian Air Force will also get the MBDA's Meteor BVR AAMs.

About Derby

Derby is a BVR AAM can be integrated onto a variety of fighter aircraft such as F-5, F-16 Fighting Falcon, Gripen E and Mirage and is capable of engaging aerial threats from short ranges and near-beyond visual range. The improved I-Derby extended range (ER) has been selected by India to equip the LCA Tejas light combat supersonic fighter.

The missile entered service in 1998 and is operational with six countries. In February 2005 the Indian Navy purchased 20 Derby missiles and six practice missiles for integration onto the Indian Navy's Sea Harrier aircraft.

The upgraded I-Derby AAR missile is equipped with a software-defined active radar seeker and was unveiled at the Aero India 2015 exhibition. It features a solid-state active radar seeker and a dual pulse rocket motor, which provides an operational range of up to 100km.

The Derby missile, featuring lightweight design, is equipped with four main wings and four conventional planar fins in the tail assembly. It is designed to offer increased operational flexibility and multi-shot capability.

The weapon has a length of 362cm, a wing span of 64cm and a diameter of 16cm. It weighs 118kg and is armed with a 23kg warhead. The seeker and guidance system are fitted in the front of the missile, while the rocket motor is placed at the rear.

The missile can operate in lock-on before

launch (LOBL) and lock-on after launch (LOAL) modes. In LOAL mode of operation, it receives target information after being deployed from its launch platform, while in LOBL mode, which is enabled in tight dogfights, the seeker is locked onto the target before the missile is launched.

The active radar seeker provides guidance and improved target accuracy at radio frequency (RF). The radar's look-down / shoot-down capability enables the missile to attack targets below and along the line of the horizon. The weapon features fire-and-forget engagement capability.

About Meteor

Meteor is an active radar guided BVR AAM being developed by MBDA. Meteor will offer a multi-shot capability against long range manoeuvring targets in a heavy electronic countermeasures (ECM) environment with range in excess of 100 kilometres.

It is intended to equip the Royal Air Force (RAF), Saudi, German, Spanish, Italian Eurofighter Typhoons, British and Italian F-35s, Dassault Rafale of French Air Force, Saab JAS 39 Gripen of the Swedish Air Force, Czech Air Force, Dassault Rafales of the Indian, Egyptian and Qatar Air Forces.

BVR Combat

The paradigm of BVR combat originates in the Cold War period, when the Soviet Air Force's analysis indicated that low kill probability of missile seekers and airframes, especially if degraded by countermeasures and having to outmanoeuvre highly agile combat aircraft, would be a major impediment to success.

To increase the kill probability at BVR ranges, a salvo of about 2-3 missiles could be fired which is very much possible in the Su-30MKI. Given its technological prowess, the Su-30, in combined effort with aircrafts can guide the missiles in-flight to the respective targets allowing the pilot and the WSO/navigator to focus on managing mission critical objectives.

The mathematics of multi-round missile engagements is well defined - the size of a missile salvo launched is a stronger driver of success than the actual kill probability of the individual missiles. If the missiles are identical by seeker type, then a factor degrading the kill probability of



LCA Tejas successfully test fires Derby BVR AAM



A French Navy Rafale F3R firing a Meteor missile

one missile is bound to have a similar effect on other in the salvo. However, when the missiles differ by seeker type, the kill probability will be significantly higher.

About Astra

To boost the capability of the frontline combat aircraft, DRDO has developed and tested Astra BVR AAM. Astra is claimed to have a range of upto 100km and tail chase of up to 15km. It utilises a terminal active RF seeker and an updated mid course internal guidance system to find and track targets. It includes an onboard electronic counter measures (ECCM) system to increase its survivability in a complex RF battlefield. The Astra has been tested several times and there is a lot of scope for improvement in its performance.

The testing yielded optimum results from which we can infer that advances in electronics and advanced computation algorithms are extremely important for survivability of the missile up to the neutralisation of the threat.

In order to improve the performance of the Astra, a joint venture (JV) can be sought to help improve the missile at each stage of its production.

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New Policy Promotes Private Sector Partnership With Global OEMs

Strategic Partnership Policy Notified

Maj Gen Ravi Arora



Maj Gen Ravi Arora is the Chief Editor of IMR

The long-awaited and delayed Strategic Partnership (SP) policy, intended to promote Indian private sector participation in defence manufacturing, formally came into effect on 31 May. The Defence Ministry notified the policy as the final chapter under the Defence Procurement Procedure.

"The SP model is being implemented to enable participation of private Indian firms in 'Make in India' in defence. The SP is expected to play the role of a system integrator by building an extensive ecosystem comprising development partners, specialised vendors and suppliers..." says the policy that was uploaded on the Defence Ministry website.

The policy acknowledges that the Indian private sector currently has "limited experience in defence manufacturing and even lesser in respect of final integration" of complex defence systems and sub-systems.

In view of this, the policy states, "besides any experience in defence manufacturing, potential SPs will be identified primarily based on their experience and competence in integration of multi-disciplinary functional system of systems, engineering and manufacturing."

In a bid to avoid cancellation of deals in case of a single vendor situation, the policy states that "even if only one Original Equipment Manufacturer (OEM) submits a proposal in any given segment, the process of technical evaluation will be completed".

The Framework

The policy envisages establishment of long-term strategic partnerships with Indian defence majors through a transparent and competitive process wherein they would tie up with global original equipment manufacturers (OEMs) to seek technology transfers to set up domestic manufacturing infrastructure and supply chains.

Various selection and evaluation criteria have been stipulated for short-listing the SP.

Initially, the strategic partners will be selected in four segments – fighter aircraft, helicopters,



Minister for Finance, Consumer Affairs and Defence, Arun Jaitley chairing an interactive meeting on strategic partnerships with industry representatives, in New Delhi on May 11, 2017.

“The policy envisages establishment of long-term strategic partnerships with Indian defence majors through a transparent and competitive process wherein they would tie up with global OEMs to seek technology transfers to set up domestic manufacturing infrastructure and supply chains.”

submarines and armoured fighting vehicles/main battle tanks. It is expected to be expanded to other segments at a later stage.

Of the four segments under SP, two are for the Navy: submarines and utility helicopters. Both the Navy deals have been held up from some time due to delay in finalising the SP policy.

The deals in the four segments are six submarines under Project-75I expected to cost around Rs 50,000 crore, deal for 100-plus single-engine fighter aircraft estimated at Rs 60,000 crore, the Future Infantry Combat Vehicle programme estimated at around Rs 50,000 crore and utility helicopters for the Navy estimated at Rs 12,000 crore.

A 49 per cent FDI cap has been kept for setting up ventures under the strategic partnership model for production of defence platforms and the companies will be in control of Indian entities.

The management of the applicant companies will have to be in Indian hands with majority

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representation on the board of directors. "A company shall be considered as 'Owned' by resident Indian citizens if more than fifty per cent of the capital in it is directly or beneficially owned by resident Indian citizens and/or Indian companies, which are ultimately owned and controlled by resident Indian citizens.

The notification said the chief executive of the applicant company shall be resident Indians who are part of the Indian group owning and controlling the company or the strategic partner. The Indian group will have the right to appoint a majority of the directors or to control the management or policy decisions.

In certain extreme circumstances of conflict like war, the government would have the right to acquire control over the intellectual property used and facilities developed pursuant to the strategic partnership, as per the policy. The ministry said any subsequent change in shareholding pattern/ownership of the strategic partner shall require prior approval of the defence ministry.

As per the framework, to manufacture major defence platforms, the select Indian companies will require tie-ups with foreign OEM for transfer of technology (ToT) and assistance in training skilled human resources.

"Such partnerships or tie-ups between SP and OEM may take the form of joint ventures (JV), equity partnerships, technology-sharing, royalty or any other mutually acceptable arrangement between the companies concerned, subject to the ownership conditions," the Ministry said.

The Ministry said it will issue an expression of interest (EOI) to seek applications from Indian private companies for selection of Strategic Partner in identified segments and a final decision will be made following a transparent process.

To facilitate selection of OEMs, the Ministry will implement a process of shortlisting of OEMs for each segment simultaneously with the process of identifying Sps.

"The OEM will be jointly responsible along with the SP for certification and quality assurance of the platforms supplied to Ministry of Defence.

It further said, "As part of the EOI, OEMs will provide a formal acceptance of their

"A pool of six defence firms is likely to be formed under the model, allowing them to bid for big-ticket military projects. The firms are L&T, Tata Advanced Systems Ltd., Tata Motors, Mahindra Defence, Reliance Defence, Bharat Forge and Adani Group."

government(s) that necessary licenses to transfer technology will be granted in case the OEM is selected as a partner for the SP to manufacture the platforms/equipment in India."

Such a commitment may also be supported by inter-governmental agreements to be signed between India and the countries concerned, at the stage of award of contract.

The Ministry said the contract between the SP and OEM will cover provisions for protection of classified information and technology transferred by the OEM.

The OEM will also have to confirm life-cycle support for the platform along with the SP.

Defence Minister's View

Defence Minister Arun Jaitley, speaking, on 28 May, at the 9th Convocation of Defence Institute of Advanced Technology in Pune, said in context of the Strategic Partners policy, "If economy requires us to become a manufacturing hub, then security requires us to become a hub for defence manufacturing. The country will have to unleash national energy and use large resources which are there in the country. We will have to use

a large number of academic institutions we have, for training human minds and cover up the critical gap that still exists. We have now entered a stage, where we have accepted that this is not just the government prerogative but also a prerogative of the private sector. And they have to be equal partners in this area."

No country can secure itself by depending on others for its defence supplies, the minister said amid steps by the government to bring in private players in the sector.

Speaking at a function held to award DPSUs for excellence in manufacturing, on 30 May, Jaitley stressed the need for India to "unleash its own potential" to become an arms-manufacturing hub.

"No country can indefinitely win wars and battles only on the strength of trying to buy or import equipment from outside. Its security preparedness would be incomplete if it relies only on that," he said.

He said, "Healthy competition between defence PSUs and private sector will bring out the best potential. Competition is always the best guarantee for competence, efficiency, and price control."

Incorporating DPSUs

Clearly, it appears that the MoD has had to compromise – because of strong objections put up by the public sector organisations – on its earlier stand that Defence Public Sector Undertakings (DPSUs) and Ordnance Factory Board (OFB) will be kept out of the competition.

While the SP policy is for the private sector, the government has stated that it looked at the feasibility of how DPSUs can be involved in the process and what their contribution would be. It is learnt that there was a lot of resistance from the DPSUs and the Department of Defence Production to be involved in the policy.

All DPSUs had full order books and were working at full capacities. Probably at some stage in future, there could be collaborations between them and the selected Sps.

In order to build the country's domestic defence manufacturing base, DPSUs will have to compete with the private sector, which is being promoted in a big way, Defence Minister Arun Jaitley said, on 30 May, after giving away the Defence Minister's awards for excellence to DPSUs.

"The emphasis is to use our entire potential as a country to expand rapidly and therefore the policies are also being liberalised to allow a fair competition between the DPSUs and the private sector... A healthy competition between the two will certainly bring out the best potential in both the areas," Mr. Jaitley said.

It was a clear message to the DPSUs that they need to improve efficiency and capabilities.

Private Companies in the Race

There are broadly six or seven companies viewing to become strategic partners which will be selected by a two-stage evaluation process. Minimum criteria have already been drawn up in Stage I and those shortlisted will be evaluated in detail under Stage II.

The Strategic Model

Private companies to be short-listed for each sector; selection on financial and technology parameters.

Once shortlisted, India companies will be asked to tie up with foreign players and bid.

Foreign vendors to be shortlisted by defence ministry on basis of technology offered.

Selection will be on the basis of lowest price bid. Indian company to lead process.

Concerns Met

As per policy, group companies will be allowed to bid for more than one sector

Financial parameters to be drawn up individually for each segment at later stage.

Companies like Tata, L&T and Reliance spread across segments like naval systems and aviation gain.

PSUs concerns met. They will be involved as per needs of each sector.

Sector Opened

Submarines.

Criteria: Dry dock and outfitting bay for 3000 ton, 90m long submarines.

Delivery of one warship or ship in past 5 years.

Contenders: L&T, Reliance Defence, MDL.

Fighter Aircraft and Helicopters

Criteria: Hangar and land space, experience in production of aircraft or components, availability of specialized machines.

Contenders: Tata, Mahindra, Adani Group, Reliance, Bharat Forge, HAL.

Armoured Vehicles

Criteria: Land and testing facilities, simulation capabilities, integration of complex automotive systems, metal and composites processing.

Contenders: Tata, Mahindra, L&T, Bharat Forge, OFB.

Contd on page 64

Defence Minister's Awards for Excellence for 2014-15 and 2015-16

BEL Bags Maximum Awards

Minister of Defence, Finance & Corporate Affairs Arun Jaitley gave away Raksha Mantri's Awards for Excellence for the years 2014-15 and 2015-16 in recognition of exemplary performance amongst Ordnance Factories and the Defence Public Sector Undertakings (DPSUs) in New Delhi on 30 May.

Speaking on the occasion, Shri Jaitley said that India has conventionally depended for its defence preparedness on DPSUs, which have done an excellent job. Now the emphasis has to be to utilise its entire potential as a country to expand rapidly in defence production. Emphasising on the need for defence preparedness, particularly on the strength of domestic manufacturing, and as India evolves the need for this cannot be more overemphasised.

The Defence Minister further said the policies therefore, are also being liberalised to allow a fair competition between both the DPSUs and the private sector and that is why the recent policy, which the Ministry of Defence (MoD) has approved on the Strategic Partners, factors in both these contents.

Jaitley noted that no country can indefinitely win wars and battles only on the strength of trying to buy imported equipment from outside and said, "I think history has provided us with an opportunity where now our emphasis has to be to improve on manufacturing and that is why the Prime Minister gave this great emphasis on the 'Make in India' brand and manufacturing abilities would be incomplete for a country like India unless we improve on our defence manufacturing. Defence manufacturing is also impacted by the security

Anandi Ramalingam, Director (Marketing), and Kiran V, General Manager (International Marketing Division), BEL, receiving from Arun Jaitley, Raksha Mantri, the Raksha Mantri's Institutional Award for "Best Performance in Export" for the year 2015-16.



Bharat Dynamics Limited has been awarded Raksha Mantri's Institutional Award for Excellence in Performance and Group/Individual Award in Innovation category for 2014-15.

requirements of a country and security requirements are dictated by the kind of neighbourhood you have, and obviously in view of the peculiar situation from a geopolitical point of view where we are located, our preparedness is the best deterrent and which is certainly a guarantee for peace as far as our region is concerned."

Following is the full list of the awardees:

For 2014-15

Institutional Awards

1. Excellence in Performance - Bharat Dynamics Limited, Hyderabad
2. Best Performance in Exports - Goa Shipyard Limited, Goa

Best Performing Division/Factory/Shipyard Awards

1. Best performing Division among DPSUs - Hindustan Aeronautics Limited, Hyderabad
2. Best performing Factory of OFB - Ordnance Factory Medak, Telangana
3. Best performing Shipyard among Shipyards - Mazagon Dock Shipbuilders Limited, Mumbai

Group/Individual Awards

1. Indigenisation (On Order Projects) - Development & Engineering - R & FCS/NS2, Naval System 2 (R & FCS) Bharat Electronics Ltd, Bengaluru for Doppler Weather Radar (S Band Doppler weather Radar & C Band Polarimetric Doppler weather Radar).
2. Design Effort (On Order Projects) - Awarded jointly to



BEL wins six Defence Minister's Awards

Navratna Defence PSU Bharat Electronics Ltd (BEL) has won six of the prestigious Defence Minister's Awards for Excellence for the years 2014-15 and 2015-16. MV Gowtama, Chairman & Managing Director, Directors and other senior officers of BEL received the awards from Arun Jaitley, Raksha Mantri, and Subhash Bhamre, Minister of State for Defence.

Here are the six awards won by BEL:

- Defence Minister's Group/Individual Award for "Indigenisation" for the year 2014-15 under the category On Order Projects for Doppler Weather Radar (S Band Doppler Weather Radar & C Band Polarimetric Doppler Weather Radar) developed by the Development & Engineering (D&E) Division of the Naval Systems 2 (Radar Systems & Fire Control Systems) Strategic Business Unit (SBU), BEL-Bangalore.
- Defence Minister's Group/Individual Award for "Design Effort" for the year 2014-15 under the category On Order Projects for LYNX U2 Naval Gun Fire Control System developed by the D&E Division of Naval Systems 2 SBU, BEL-Bangalore, for the Indian Navy.
- Defence Minister's Institutional Award for "Best Performance in Export" for the year 2015-16.
- Defence Minister's Best Performing Division/Factory/Shipyard Award for the "Best Performing Division" among DPSUs for Naval Systems 2 SBU, BEL-Bangalore, for the year 2015-16.
- Defence Minister's Group/Individual Award for "Indigenisation" for the year 2015-16 under the



M V Gowtama, Chairman & Managing Director, BEL, and Girish Kumar, Director (Bangalore Complex), BEL, receiving from Arun Jaitley, Raksha Mantri, the Raksha Mantri's Best Performing Division/Factory/Shipyard Award for the "Best Performing Division" among DPSUs for Naval Systems II SBU, BEL-Bangalore, for 2015-16.

category On Order Projects for the Light Weight Portable Laser Target Designator developed by the D&E Division of BEL-Pune.

- Defence Minister's Group/Individual Award for "Design Effort" for the year 2015-16 under the category On Order Projects for the Test Bed for

Automated Air Defence Control and Reporting System (ADC&RS) developed by the D&E Division of Network Centric System (NCS) Group/Air Defence Control and Reporting System/NSC SBU of BEL-Ghaziabad, for the field force of the Indian Army.

a. Development & Engineering - Fire Control System / Naval Systems (Radar & Fire Control System) Group, Bharat Electronics Limited, Bengaluru for LYNX U2 Naval Gun Fire Control System for Indian Navy.

b. Aircraft Upgrade Research & Design Centre, Hindustan Aeronautics Limited, Nasik for Integration of Indigenous RWR (Tarang MK - 1B) on various IAF Platform (MiG-21 T-96, MiG-21 T-75, AN-32RE and AN-32 NON RE aircraft)

3. Indigenisation (Own initiative Projects) - Awarded jointly to

a. Technical Services Group - Goa Shipyard Ltd., Goa for Initial Design of 72m Anti-Submarine Warfare Shallow Water Craft (ASW SWC)

b. Excavator Group, R&D, KGF, Bharat Earth Movers Limited, Bengaluru for Design & Development of 180 Ton Class Electric Hydraulic Excavator - BE 1800E.

4. Innovation (On Order Projects). Mishra Dhatu Nigam Limited, Hyderabad for Development of India Specific - Reduced Activation Ferritic-Martensitic Steel (IN-RAFMS) for ITER Program

5. Innovation (Own initiative Projects). Design and Engineering Division, Bharat Dynamics Limited, Hyderabad for Amogha - I Anti - Tank Guided Missile.

For 2015-16

Institutional Awards

1. Excellence in Performance - Hindustan Aeronautics Limited, Bengaluru

2. Best Performance in Exports - Bharat Electronics Limited, Bengaluru

Best Performing Division/Factory/Shipyard Awards

1. Best performing Division among DPSUs - Naval Systems (Radar Systems & Fire Control Systems), Bharat Electronics Limited, Bengaluru.

2. Best performing Factory of OFB - Ordnance Factory Medak, Telangana.

3. Best performing Shipyard among Shipyards - Goa Shipyard Limited, Goa

Group/Individual Awards

1. Indigenisation (On Order Projects). Development & Engineering Division, Light Weight Portable Laser Target Designator (LWPLTD) Group, Bharat Electronics Limited, Pune for Light Weight Portable Laser Target Designator.

2. Indigenisation (Own initiative Projects). Indigenization Cell, Engine Division, Hindustan Aeronautics Limited, Bengaluru for Indigenous Development of Adour - 871 Low Pressure Compressor Vane - 1 Assembly.

3. Design Effort (On Order Projects).

a. Development & Engineering Network Centric System 3 (NCS3) Group / Air Defence Control and Reporting System [ADC&RS], NSC-Strategic Business Unit (SBU), Bharat Electronics Limited, Ghaziabad for Test Bed for Automated Air Defence Control and Reporting System (ADC&RS) for the Field Force of Army.

b. Central Design Office, Garden Reach Shipbuilders & Engineers Limited, Kolkata for

Detailed Design of CGS Barracuda.

4. Innovation (On Order Projects). Aircraft Upgrade Research & Design Centre (AURDC), Hindustan Aeronautics Limited, Ojhar, (MIG) Nasik for Integration of BrahMos Missile on Su-30MKI.

5. Innovation (Own initiative Projects). Awarded jointly to:

a. Engineering Deptt., Shipbuilding Div., Hindustan Shipyard Limited, Visakhapatnam for Shafting Work.

b. Shipbuilding Div., Hindustan Shipyard Limited, Visakhapatnam for Innovation in welding techniques at HSL.

c. Engineering Ship Repair Complex, Hindustan Shipyard Limited, Visakhapatnam for Rudder Carrier Bearing Modification.

Jaitley inaugurated a grid connected solar power plant of 16 MW capacity at the Ordnance Factory, Medak in Telangana through video link. It has been set up at a cost of Rs. 105 crore by Bharat Electronics Limited. The plant has been set up for captive consumption of the factory, on 80 acres of spare land available with it, making it self-sufficient not only for its power requirement but also reduced carbon footprint.

Jaitley also inaugurated a 9 MW windmill project installed at Dammur, Karnataka at a cost of Rs. 53 crore by BEML through video link. With commissioning of 9MW windmill project at Dammur, BEML would be generating 250 Lakh units which will meet 68 per cent of its energy requirement.

A 'must read' book for all public policy leaders, administrators, professors, students, analysts, consultants and business leaders.

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This book explores various recessions which occurred in the world from the Great Depression of 1929-30 to that of 2008; their classification, definitions, causes and effects. The analysis of major economies of the world in the post-2008 scenario provides deep insight into economies of U.S., U.K., Brazil, China, South Africa, Russia, European Union and India.

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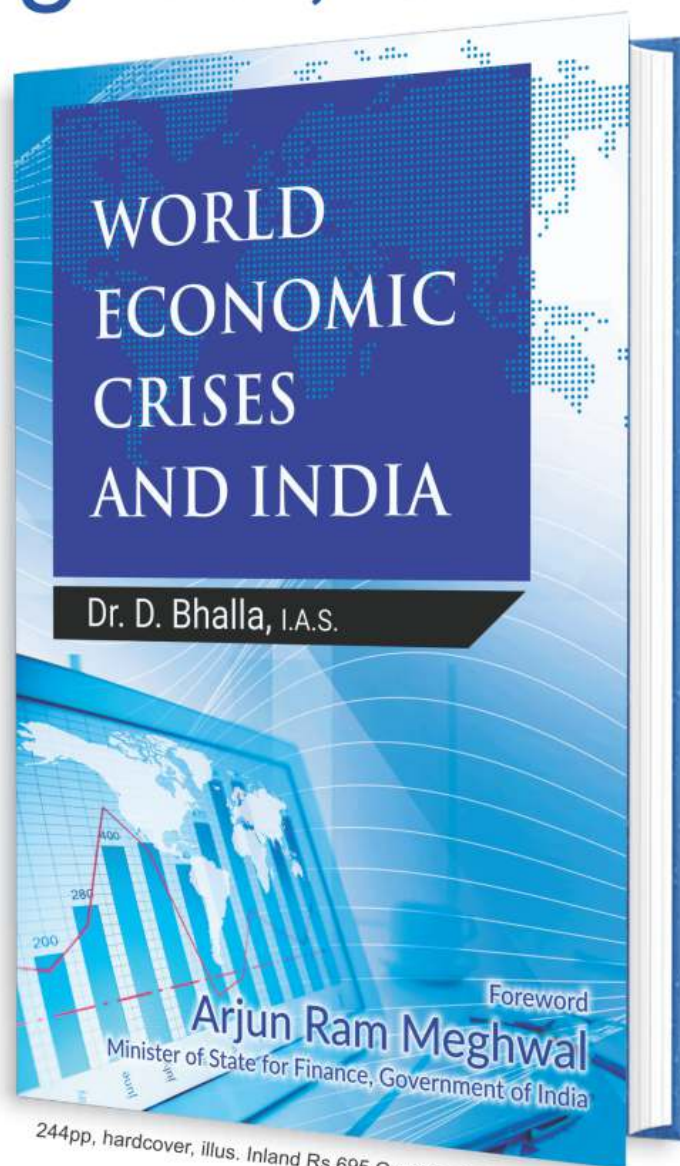
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Udayant Malhoutra, CEO, Dynamatic Technologies Ltd

Dynamatic Technologies Ltd is meeting customers' requirements across six continents with highly engineered products for automotive, aeronautic, hydraulic and security applications. With facilities located in India (four locations) UK (two locations) and Germany and three design laboratories in India and Europe, Dynamatic Technologies has numerous inventions and patents to its credit. Employing 60 scientists and 600 engineers, it has emerged as a leading player in the indigenization of defence products. Udayant Malhoutra, CEO Dynamatic Technologies, spoke to Maj Gen Ravi Arora Chief Editor IMR on a range of issues.

IMR. What is the lineage of Dynamatic Technologies?

UM: From the early 1990's, starting with manufacturing of small hydraulic components, Dynamatic has come a long way to providing innovative and creative solutions and has received numerous awards from Hindustan Aeronautics Ltd (HAL), Defence Research & Development Organisation (DRDO) and the National Award for excellence in indigenization of defence products from the Ministry of Defence.

Following the collapse of the Soviet Union, we partnered with the Ministry of Defence (MoD) for the critical hydraulic transmission systems of the T-72 Main Battle Tank (MBT). Subsequently, we became a developmental partner with DRDO for the Arjun MBT. Our major contribution was in the steering control system, turret control system and brake actuating system for the Arjun tank.

IMR. What about aerospace and aero structures?

UM: Today, Dynamatic has the largest infrastructure in the Indian private sector for the manufacture of exacting air frame structures and precision aerospace components.

Dynamatic has worked closely with ISRO and DAE on strategic programmes. Specifically, we partnered with Aeronautical Development Establishment (ADE) for the Lakshya target drone and with HAL's Aircraft Research & Development Centre (ARDC) for the development and prototyping of Ailerons and flaps of Intermediate Jet trainer HJT-36.

Dynamatic Technologies is the sole supplier of class-I flight critical Flap-Track-Beam assemblies for every major variant of airbus aircraft produced worldwide.

IMR. How extensive are your UK operations?

UM: With the acquisition of advanced manufacturing facilities in the United Kingdom, Dynamatic Technologies became the first Indian company to establish a global manufacturing supply chain for leading International aerospace



“Dynamatic manufactures complex parts at its factories in Bristol & Swindon, UK, in stage-I machining and completes stage-II manufacturing with artisanal craftsmanship and final assembly at its facility in Bengaluru, providing Airbus with global best-value aero structures.”

companies.

Dynamatic Technologies is the single source for manufacture of Flap-Track-Beam assemblies for Airbus single aisle aircraft (A318, A319, A320 & A321). We have just commenced commercial production of Flap-Track-Beam assemblies for Airbus wide-bodied aircraft (A330) on a single source basis.

Dynamatic manufactures complex parts at its factories in Bristol & Swindon, UK, in stage-I machining and completes stage-II manufacturing with artisanal craftsmanship and final assembly at its facility in Bengaluru, providing Airbus with global best-value aero structures.

It has developed a unique value proposition based on a combination of advantages that India and the UK collectively enjoy.

IMR. What about your partnership with HAL?

UM: Dynamatic is the work-share partner with HAL on the Sukhoi 30 MKI, India's largest aerospace defence programme. Over one-sixth of the airframe structure, including critical control surfaces are manufactured by Dynamatic at its facility co-located at HAL Nasik and is the largest PPP for manufacturing between HAL and the Indian private sector.

Over the years, HAL has conferred the Best Supplier Award in 2002-03, Outstanding Vendor Award for 2008 and the Best Supplier Award for 2013, 2015 and 2016.

IMR. How has Dynamatic contributed to the Make in India initiative?

UM: Dynamatic Technologies has been contracted to manufacture the aft pylon assembly and cargo ramp assembly for the Boeing Chinook CH-47F helicopter, which is Boeing Defense Systems' largest programme out of India.

The Bell 407 helicopter is one of the world's largest selling helicopters. Dynamatic Technologies has been contracted as a single source supplier of major airframe assemblies for the helicopter.

Dynamatic partners Boeing for the

manufacture of cabinets to house critical power and mission equipment for Boeing's P8 Maritime Reconnaissance Aircraft.

Dynamatic will also be contributing to 'Make in India' in the immediate future, through transfer of technology, in the "Integrated Security Solutions" and "Armoured/ Multi Purpose Vehicles" domain. Towards this, Dynamatic has partnered two companies from Israel – Magal and Carmor. Nationalistic in nature, Dynamatic will work towards 'Comprehensive Integrated Border Management Solutions' as also 'Perimeter Detection Security System', especially in the defence field, for security of our airfields and sensitive posts & structures, on/close to the border as also the hinterland. In the civilian domain, the protection of airports, strategic installations, oil pipelines, refineries etc take priority. The list, of course, is endless and it will all depend on the prioritisation by the government and respective organisations. To my mind, a 'Pathankot or Uri' type incident must never take place again.

On the other hand, Carmor will provide us the technology to make armoured (wheeled) and special purpose vehicles, in India. The world over, professional armies are moving towards armoured wheeled vehicles, from the tracked ones, due to the obvious advantages of wheeled over tracked. Technology today permits wheeled vehicles to move over all types of terrain and gradients. In India, we can have a good mix of both types, as per operational and terrain priorities.

In yet another domain, for meeting the challenges, pertaining to our Mechanised Forces, and then converting these challenges, into the 'Make' procedure, we have an agreement in place with Armpol, a company from Poland, for transfer of technology, for various components and sub components of tanks and ICVs.

So you can see that a lot is happening in Dynamatic, towards Make in India. We would like to not only bring niche technology into our country but also co-create with these world class companies, to improve the military industrial ecosystem in India. It is a win-win situation towards 'indigenisation and sustenance'.

IMR. Has US President Donald Trump's 'America First' policy affected your company?



Udayant Malhoutra, CEO Dynamatic Technologies, on the shop floor

“We would like to not only bring niche technology into our country but also co-create with these world class companies, to improve the military industrial ecosystem in India. It is a win-win situation towards 'indigenisation and sustenance'.”

UM: Dynamatics owns and operates businesses in the United States, Germany and United Kingdom. When we get orders from the US, we also create jobs there and pay taxes, both in India and the US. Mr Trump represents the crest of a wave of workers who feel their jobs are at stake. India offers a whole new market and the global pie is growing because of our rapidly growing economy. I do not see Trump's policies affecting our operations negatively. Indeed his policies will probably grow our addressable markets.

IMR. What can we expect from your joint venture with IAI?

UM: We have responded to the RFI for the mini and medium-altitude long endurance (MALE) UAVs. The present agreement between IAI and Dynamatic is for tactical UAVs, which will be completely manufactured in India. The largest population of UAVs in India, presently, is from IAI (Heron). Our tactical UAVs will have the same communication and ground control system, so interoperability and standardization is assured.

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India Requires a Revised “Death Ground Strategy” Time to Cut the Charade

Maj Gen (Dr) GD Bakshi, SM, VSM

For far too long, sections of our political leadership and intelligence bureaucracy have been living in denial about the actual nature of the problem in the Kashmir Valley. There is no freedom struggle in Jammu & Kashmir (J&K). Zakir Musa of the Hizbul Mujahideen (HM) flung that in our face. What we are facing in the Valley is abject and rabid communalism that has seen the ethnic cleansing of 450,000 Kashmiri pandits. For decades, the Jamait-e-Islami and its subsequent incarnations (JKLF, Hurriyat) have been trying to Wahabise and radicalize the Valley and, in fact, turn it into a vast ghetto like that of Paris or Brussels, which have become no-go areas for the security forces. When, every Friday, the mosques and madrassas spew communal venom, it is actually quite easy to get the boys and girls out in the streets to pelt stones and do rioting and arson (especially if they are also paid daily wages for doing the same). We hear yards of rhetoric from the local Kashmiri politicians about how we must talk to the Hurriyat – the main self-appointed interlocutors and that J&K is a political problem. Not by any stretch of imagination. This is the most rabidly communal movement seen in the history of the sub-continent. Nowhere else have we seen the ethnic cleansing of so large a segment of humanity in recent times.

Historical Background

Going back in history, the Jamat had started this communalization programme way back in the 1980s. The Jamat chief in J&K had gone out on the pretext of Haj and had secretly been taken to meet Gen Zia ul Haq twice in Islamabad to work out the details of this communalization plan. The Sufi-syncretic culture of the Valley was systematically destroyed and replaced by a virulent new form of Wahabism. After some years of communal mobilization (before which the secular governments of that era simply caved in and went into overdrive to appease), the armed phase of the struggle began in 1989, when large batches of Jamat youths were sent into Pakistan Occupied Kashmir (POK) for arms and training. They came back as the Jammu & Kashmir Liberation Front (JKLF) and the proxy war began in earnest. In 1990, the JKLF and Jamat started the ethnic cleansing exercise of driving out all 450,000 Pandits from the Valley. Their houses were burnt, their temples destroyed and women raped. No orders were given to anyone to defend the Pandits. They were helped to escape with their pathetic bundles by a secular government that was far too politically correct to call this a communal pogrom. In 1993, there was a revolt in



Army and police vehicles at the site of an encounter with terrorists

“What we are facing in the Valley is abject and rabid communalism that has seen the ethnic cleansing of 450,000 Kashmiri pandits. For decades, the Jamait-e-Islami and its subsequent incarnations (JKLF, Hurriyat) have been trying to Wahabise and radicalize the Valley and, in fact, turn it into a vast ghetto like that of Paris or Brussels, which have become no-go areas for the security forces.”

the J&K police.

Over the next five years, however, the Indian Army decimated the JKLF. Most were killed. Many surrendered to become the Ikhwanis or the Hurriyat over-ground political arm of the terrorists. Pakistan's Inter-Services Intelligence (ISI) disowned this organisation that wanted Azadi and went in for the HM, who wanted merger with Pakistan. When the HM also began to flounder, the Pakistanis said in disgust that the Kashmiris were too flat footed to stand up to the Indian Army and sent in the Punjabis and Pathans of the Lashkar-e-Toiba (LET), Jaish-e-Mohammad (JeM) and Hizbul Jamat-e-Islami (HUJI), etc.

The Kargil War came and Pakistan was thoroughly chastised on the battlefield. It intensified the proxy war. The attack on Parliament led to a year-long military stand-off. That year J&K was super saturated with troops and a record number of over 2000 casualties were inflicted on the terror tanzems. It is noteworthy that in 2001 there were some 3500-4000 terrorists operating in J&K. The Pakistani endeavour was to replace all terrorists killed by infiltrating an equal number across the Line of Control (LC). In 2003 heavy artillery fire exchanges started across the LC and, in a few months, Pakistan cried uncle and asked for a ceasefire that lasted from 2003 to 2016. We took advantage of the ceasefire and started the

construction of the LC fence and completed it by 2005. Infiltration was now curtailed by some 70-80%. This broke the replenishment cycle. By 2008, the army brought the number of terrorists down to just 150-200. Pakistan had clearly lost the proxy war.

The Intifada Phase

The ISI now switched tactics and tried to replicate the Palestinian-style Intifada in J&K, in 2008. Internet and text messages from across the LC along with WhatsApp message groups were used to generate flash mobs to pelt stones. Money was carted in via the Hurriyat and Hawala channels. Stone-pelting calendars were issued by the Hurriyat to coincide with the start of every tourist season. This would economically ruin the poor Kashmiri underclass of boatmen, shikarwalas and fruit sellers, thereby producing widespread anger, which the Hurriyat could exploit. There was nothing political about this mobilization. It was organized from the mosques and madrasas and relied upon generating communal venom against the "Hindu state". It is so easy to mobilize flash mobs in communal riots anywhere across South Asia. That is what the Hurriyat did with great skill. Pakistan's Inter-Services Intelligence (ISI) paid it lavishly in real and fake currency to keep the pot boiling. India was now being pressurized by USA to come to a settlement with Pakistan over J&K. Our intelligence agencies were asked to deliver someone the government could negotiate with. The surprise solution was to treat the Hurriyat as a government-in-waiting and use it as interlocutors to initiate a dialogue. So, we came to the ridiculous formulation where both the ISI and Indian intelligence agencies were paying huge sums of money to the Hurriyat mafia, which became richer and richer. Its leaders built palatial mansions and sent their children abroad to study while they pushed the children of poor Kashmiris to pelt stones at the security forces in the fond hope that enough would get killed to keep the emotive Intifada going. 2008, 2010 and 2016 saw internet, WhatsApp and text messages being used to generate flash mobs for large scale stone pelting and arson.

Was there a contingency sell-out plan hatched earlier in the UPA-era that, if the going got too tough, a face saving compromise formula would be worked out to hand over power to the Hurriyat? Some political leaders would get noble peace prizes. After a decent interval of a few months, the Hurriyat would sell out the state to Pakistan. These leaders and agencies would then present it as a fiat accompli to the Indian people and say we hung on to Jammu, Ladakh and Kargil or accepted the Owen-Dixon Plan of a partition of J&K along the Chenab. Some quarters hint at such a dark conspiracy that had been hatched a few years ago but, as of now, there is no clear empirical evidence or smoking gun.

Cut the Hurriyat Charade

The primary component of the new Indian "Death Ground Strategy" would be to cut the Hurriyat charade and clap these traitors (who have been caught on tape), behind bars in Tihar jail and elsewhere in the mainland. This the NIA has already started with a massive crackdown on the Hurriyat Khwaja- trader combine, which are



Navy Marine commandos (MARCOS) at Tral in counter-insurgency operations

“Pakistan needs to understand that there is space for a Limited War in South Asia between the spectral ends of sub-conventional conflict and an all-out nuclear exchange. Our military preparations will clearly convey this message. We must clearly articulate our political resolve to escalate to a point that will inflict costs and consequences on Pakistan for its reckless adventurisms in J&K.”

the primary financial networks and conduits of this ISI-funded terror enterprise. A clear message needs to be sent to the people of J&K that we are here to stay. The Indian state is not about to cave in. It will fight to uphold its sovereignty. Pakistan has already crossed India's threshold of tolerance by destabilizing J&K in such a major way. It will now have to pay a price for such meddling. India's aim is to safeguard its vital national interests and not pander to any foisted solutions made in any foreign capital. A major power like India cannot

cave in to a bunch of stone-pelters.

Population Control Strategy

The main problem in J&K is not so much the terrorists. Frankly, where there were 4,000 earlier, today they are down to just 150-200. Even these are being relentlessly hunted and terror fashionistas like Burhan Wani and Sabzar Bhatt have very short shelf lives. These terrorists are mostly local and are using the population as a shield to survive. The radical change in J&K has been that earlier, once an encounter started, the civilians would clear out of that area. Now they are mobilized like flash dance mobs on the internet and via mass texting to generate flash stone pelting mobs that come to distract the security forces and try to help the terrorists escape. The unusual restraint exercised by the security forces under political prodding, has greatly emboldened these mobs, some of whom have taken to attacking the police and Central Police Organisation (CPO) columns. What was earlier treated as rank cowardice is now being touted on TV as exemplary restraint. Such shows of pusillanimity disgrace the uniform and make a mockery of our armed forces and CPOs. At the end of the day, these forces have to uphold the rule of law and not make a laughing stock of themselves. Population control is, therefore, the key to the current conundrum.

The Human Rights Fifth Columnists

Then there is this very strange aspect of recent operations in J&K. Over the last 2-3 years, the Human Rights lobby in the press and media has been exerting unusual degree of pressure through a concerted media campaign decrying that the troops density in the populated areas of South and Central Kashmir was far too high. These troops had no business being in the towns and villages and must be relocated on the borders. Bunkers must be removed from roads so

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Cdr Kulbhushan Jadhav Case

Albatross in Pak Army's Neck

Kashinath Pandit



Kashinath Pandit is the former Director of the Centre of Central Asian Studies, Kashmir University

Pakistan was overconfident of its safe passage at The Hague. Hence, the unanimous ruling that laid bare its Jadhav conspiracy came as a rude shock.

What had made Pakistan over-confident? Usually in a conflict between India and Pakistan, the Western community follows the roadmap chartered by the US. Therefore, anti-India stance comes handy. Besides that, Pakistan believes she has the new born big brother (China), too, on her side.

Pakistan's surprise is not only that International Court of Justice (ICJ) ruling went against her; it is more that her old friends let her down.

In the aftermath of ICJ verdict, Pakistani ruling circles tried to pass the buck. The crisis was that Islamabad failed in streamlining the fallacious structure of the Jadhav episode raised by the Army and its intelligence establishment.

Deepening divide in Pakistan's domestic politics is the natural outcome of falsehood exposed and lies laid bare. ICJ said in its verdict that the charges of espionage and subversion leveled against Jadhav were disputable.

The ICJ ruling produced immediate reaction from the Opposition in Pakistan National Assembly. Many freelancers and, especially, Pakistan Tahreek-i-Insaf led by Imran Khan, openly accused Nawaz Sharif of deliberately compromising country's security. Fissures deepened to the extent that Pakistan's shameful debacle at the ICJ was the result of a covert deal linked with the recent unpublicized visit of Indian steel tycoon Sajjan Jindal to Pakistan.

Jindal's earlier visits to Pakistan and his undisclosed meetings with Nawaz Sharif hit the headlines in many newspapers in Pakistan. However, nobody has been able to prove that these visits had anything to do with politics and more so Indo-Pak politics. What is known is that Jindal and Nawaz Sharif both are steel tycoons with widespread commercial interests.

Tahreek-i-Insaf (PTI) party Information Secretary Shafqat Mehmood demanded that the

prime minister disclose all details of his covert meetings with Indian businessmen Jindal. In a statement, he raised seven critical questions on the matter and sought explanation from the prime minister. He asked him to explain to the National Assembly

- Why Pakistan did not appoint an ad hoc judge because it had a right to do so?
- Why the Foreign Office did not take legal advice before initiating correspondence on the issue?
- Why the government had selected a lawyer who had not a single international law case reported from the UK Supreme Court?
- What was the reason to engage London Queen's Counsel (QC) who was based in Qatar?
- Why the government assigned the task to a lawyer who had never argued a case independently before the International Court of Justice?
- What compelled the government to send a first year associate from Attorney General's Office instead of AG himself to the ICJ?
- Why the government did not submit a written defence before May 15. He added that the decision was a clear outcome of the rendezvous of Mr. Sharif and his Indian friend Jindal?

Sharpening its attack on the Prime Minister, the PTI leader claimed that Pakistan did not focus fully on the crucial question about the jurisdiction of the ICJ. He drew the inference that the government deliberately adopted an irresolute and fragile strategy in this matter.

Dr Shirin Mazari, another PTI leader and an expert on international relations, said she was not surprised by the judgment at all and accused the PML-N government of deliberately playing the game to advance the interests of India. "They wanted the ICJ to give a stay. This was a game which started after Jindal's visit to Pakistan," she alleged.

She stated that not withdrawing acceptance of ICJ jurisdiction showed that an understanding had been arrived at with the Indians. She regretted that the Qatar lawyer engaged by Pakistan was nothing more than a novice at the ICJ where Indian legal veterans overshadowed the Bench.

Driving one more nail in Pakistan's coffin, Shirin said the Pakistani legal team supported India on the issue of urgency by saying that Jadhav would be executed in three months

instead of explaining the appeal process and review. She said Jadhav was a prized asset for the Indian government as he was not just a spy but a spymaster running his cells.

Sherry Rehman, PPP Vice President indirectly supported the theory of Nawaz Sharif government compromising Pakistan's stand. She questioned why Pak counsel completed his arguments in 50 minutes against the allocated time of 90 minutes. She added that Pakistan should have got appointed its ad hoc judge under the relevant rules.

PML-Q leader Senator Kamil Ali Agha described the ICJ decision as the biggest diplomatic defeat. He said the available options had not been used and asked the prime minister to explain why the case had been mishandled.

However, he conceded that the ICJ had jurisdiction over the cases where both the parties consented. He noted that Pakistan had the option to stay away from the proceedings. He alleged that the entire drama had been staged as a result of Nawaz Sharif's meeting with Jindal.

If Pakistan opposition feels that Nawaz Sharif government deliberately soft-peddled with Jhadav case to let down Pakistan Army, then the Army should act and avenge its humiliation in the eyes of world community by removing Nawaz Sharif government through a coup in which it is an adept. The verdict of ICJ is virtually a slap on the face of Pakistan army. How long will Pakistan army move around with albatross of humiliation hanging round its neck is what is to be seen in near future...

However, ICJ's ruling does not mean the case is resolved and Pakistan will set Jadhav free. Final verdict of ICJ is yet to come. Pakistan may approach the ICJ for re-opening the case for re-hearing.

A number of situations can develop. What if Pakistan defies ICJ's ruling and goes on to execute Jadhav. What options are there for India in such a situation?

Let us be clear on a few points. The death verdict of Jadhav has been endorsed by Pakistan's army chief. In no case will Pak Army submit to second stint of humiliation at the hands of India. Presuming Jadhav has not been executed, Pakistan will raise a host of connected issues to procrastinate the case for any number of years.

PAKISTAN

Pakistan Exploiting Balochistan's Resources and Subjugating the People

CPEC Will Worsen Plight of the Balochis

Siegfried O. Wolf



Dr Siegfried O Wolf is a Senior Researcher at the South Asia Institute, Heidelberg University

Islamabad is reaping all the benefits, depriving the locals from their legitimate share! In brief, this statement summarises much of the grievances of the Baloch people towards Pakistan's national government. But besides the fact that this testimony is in line with the core rational of the conflictual relations between the center and its regions, it only partially reflects the multi-dimensional and multi-layered conflict in Balochistan today.

Doubtless, Balochistan is a region of contradictory extremes: With more than 40 per cent of the country's land-mass (134,000 square miles), Balochistan is the largest of Pakistan's four provinces but also the least populated region. However, the region is still inhabited by more than 7 million Baloch people. It is extremely rich in energy and mineral resources. But Balochistan is at the same time Pakistan's most impoverished and least industrialised area. Additional, the region has the lowest level of literacy and income with over 70 percent of the population living beneath the poverty line. The poverty was more than doubling in the last 25 years. Furthermore, in Balochistan many children are not attending school, which is partly related to the fact that thousands of public schools in the region consist of nothing more than a single class room and one teacher. Furthermore, many of the educational centers and employees are 'ghost teachers' and 'ghost schools', meaning that they just exist on paper. The health indicators are equally bad. The maternal mortality is almost three times higher than in the rest of Pakistan. Almost 15 percent of the people of Balochistan suffer from Hepatitis B or C. Beside the fact that there are strong elements of secularism and anti-religious-extremism among the Baloch people, the region is troubled by a high level of sectarian clashes and growing Jihadism.

But how have these antagonistic trajectories developed over time? Did they only surface due to unfortunate historical legacies or political



Demonstration by Baluchistan House on 23rd September 2016 at Broken Chair, United Nations , Geneva

“The military and civilian authorities continue to rely on its excessive reliance on a coercive state apparatus. This is raising the question over the rationale behind the motives and behavior of the central government regarding Balochistan.”

misguidance of the post-colonial era, which was marked by decades of suppressive policies towards the Baloch aspirations for a better and self-determined life? Having this puzzle in mind,

the line of argumentation made here is that the Baloch point of view is a 'logical response' to the challenge of being a marginalised subordinated part in a highly-centralized governance system dominated by the all-powerful Punjab province after the forced integration into Pakistan.

Coercive State Apparatus

Despite the fact that Pakistan's rule over Balochistan has disastrous impacts on the area and its people, the military and civilian authorities continue to rely on its excessive reliance on a coercive state apparatus. This is raising the question over the rationale behind the motives and behavior of the central government regarding Balochistan. Basically one can identify following main reasons for Pakistan's approach towards Balochistan:

Firstly, Islamabad wants to maintain its direct political control and total military grip over Balochistan. Both are perceived by the country's conservative security circles as essential conditions to preserve the territorial integrity of



Chinese construction material being dumped at Gwadar, Balochistan

Pakistan as well as to keep in check any regional quests for more rights and decision-making power in other areas under Pakistani occupation, like Gilgit-Baltistan, or in regions feeling sidelined by Islamabad (for example Sindh).

Secondly, the central government wants to continue the exploitation of the Baloch natural resources by avoiding any establishment of fair mechanism for distribution of respective revenues. An extreme example are the natural gas fields at Sui. Despite the fact that the gas resources were discovered already in the early 1950s, yet major parts of the province are still deprived of natural gas. Only a few towns (14 in 2015) received gas from the Sui fields. Even the town of Sui, which is just four miles away from the Sui gas fields are cut off from supply. Instead the bulk of the gas are getting transferred to Punjab and Sindh.

This unfair, one-way of exploiting the Sui gas fields is gaining significance since any concessions towards the Baloch people in administering and commercializing its own resources would lead to demands in other regions for control over their own resources. The introduction of a fair mechanism of sharing of the country's wealth is not only challenging the unjustified economic prerogatives of the national elite. It would also threaten the complex feudal system based on patron-client relations which helps these elite families to keep the country under their control. As such, the economic exploitation of occupied territories is an essential element in maintaining Pakistan's internal power dynamics controlled by some mighty, the country leading families. More concrete, the revenues from the exploitation of the Baloch resources as well as the granting of economic domains in Balochistan helps the national elite (the patrons) to ensure the loyalty of certain sections of the society (clients), especially from Punjab. Of course, the personal enrichment of this 'national establishment' is another factor for maintaining the unfair system of resource exploitation.

State Strategies

“There are hundreds of cases of target killings by death squads, kill-and-dump incidents, forced disappearances, tortures, conducted by Pakistan's security forces and intelligence in order to silence critical, anti-government voices. In result, Islamabad is creating an atmosphere of fear among the people in Balochistan to such a high level that the locals are much afraid of expressing any anger and resentment about the state apparatus.”

To achieve these major goals, the national civilian and military elites are applying numerous strategies affecting all spheres of life of the Baloch people:

Firstly, the Punjabi dominated national establishment ousted the Baloch from local decision-making and implementation processes by appointing non-Baloch people to provincial institutions and authorities. In addition, Islamabad

does not shy away from dismissing 'inconvenient' provincial governments. In brief, they treated Balochistan like an 'internal colony', the same strategy which the Punjabi dominated government applied to its former East-Pakistan wing (today Bangladesh) until it fought successfully for its independence in 1971.

Secondly, the central government keeps the development of institutional and human resources in Balochistan on an extreme low level. This finds its expression in neglecting and underfunding of the educational sector. Instead, the government promotes the spread of ultra-conservative religious schools which hardly contributes to the improvement of the education of the Baloch people. In consequence, Islamabad claims that due to the lack of sufficient capacities it is obliged to take care of the development of the natural endowments of Balochistan. Furthermore, the high illiteracy rate serves the central government to create the artificial argument that the local people would lack the economic initiative. As such, to bridge this gap of the alleged entrepreneurial ability, Balochistan is in need of business people and skills from outside. This argumentation by the central government is an absurd distortion of facts and causalities between causes and consequences.

Thirdly, Islamabad undertakes action to change the social demography of Balochistan. To weaken the demands of the local people for political self-determination, Pakistan conducts a 'guided migration' of non-Baloch people from other provinces, foremost Punjab, into Balochistan. In consequence, the Baloch people are turning into a minority in their homeland.

The tremendous influx of Chinese companies and workers is enhancing this trend. Furthermore, the massive influx of foreign workers and settlers in Balochistan will lead to undermining the culture, norms and traditions of the Baloch. The existence of a strong Baloch national identity and feeling of collective belonging is not in the interest of the central government in Islamabad.

Fourthly, to justify the traditionally high military presence in Balochistan, the central government is pampering Jihadist groups in the area to enforce sectarian clashes (since 2009 more than 760 people have been killed in sectarian related violence). These terrorists are not only attacking religious minorities but also secular orientated Baloch people, especially their leaders and educated youth.

Fifthly, to push further the political marginalization of the Baloch people, the national elites carry out a systemic eradication of the Baloch democratic opposition. This finds its expression in curbing the freedom of press, opinion, and political association among others. There are hundreds of cases of target killings by death squads, kill-and-dump incidents, forced disappearances, tortures, conducted by Pakistan's security forces and intelligence in order to silence critical, anti-government voices. In result, Islamabad is creating an atmosphere of fear among the people in Balochistan to such a high level that the locals are much afraid of expressing any anger and resentment about the state apparatus.

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HOMELAND SECURITY

Anti-Naxal Strategy Tweaked

Strategy Hinges on Security & Development

Dr D Bhalla, IAS



Dr. D. Bhalla, is the Secretary, Lok Sabha Secretariat

Union Home Minister Rajnath Singh held a meeting of chief ministers of 10 Naxal-affected states on 8 May 2017. The ten states are Chhattisgarh, Madhya Pradesh, Odisha, Andhra Pradesh, Telangana, West Bengal, Jharkhand, Bihar, Maharashtra and Uttar Pradesh.

Secretaries of the Union ministries, besides chief secretaries and police chiefs of the 10 states, district magistrates and superintendents of police of 35 worst-hit Naxal-affected districts along with heads of paramilitary forces and intelligence agencies attended the high-level security meet.

West Bengal Chief Minister Mamata Banerjee, Telangana's KC Rao and Andhra Pradesh's N Chandrababu Naidu did not attend.

The meeting was divided into two segments – the first session focused on security aspects, while development issues were taken up during the second session.

The meeting helped firm up anti-Naxal strategy to fight the guerillas in their hideouts. It took a holistic review and covered a wide canvas of security and development issues, particularly infrastructure building.

Around 12,000 people have lost their lives to Maoist violence in last 20 years.

The meeting was held in the backdrop of killing of 37 Central Reserve Police Force (CRPF) men in ambushes on March 11 and April 24, in Sukma and its adjoining areas of Chhattisgarh.

Command and Control

Rajnath Singh advocated the formation of a strategic and unified command to achieve "unity of purpose" among all Naxal-affected states and foil attempts to "stall development and throttle democracy at gunpoint".

The command headquarters of the central zone, which was being run from Kolkata for all the anti-Naxal operations, has already started operating from Raipur. Newly appointed Director General of the CRPF, Rajeev Rai Bhatnagar, said on 8 May, that the idea behind moving the strategic anti-Naxal operations command



Cobra commandos of the CRPF parading on Republic Day in the capital New Delhi

“The home ministry has expressed its inability to deploy more battalions of the Central Armed Police Forces (CAPFs) as demanded by some Left Wing Extremism-hit states. The Centre wants that the quality of operations are improved without the forces taking casualties on their side.”

headquarters from Kolkata to Raipur was to have "better supervision and coordination with the state government, police and other agencies" in dealing with the Maoists, even as the force is working on augmenting its "human intelligence

network" in the region in Chhattisgarh.

Two more joint command and control centres will be set up in Gaya (Bihar) and East Singhbhum (Jharkhand). A similar control centre is functional in Chhattisgarh's Jagdalpur, where operations of troops on the ground, helicopter sorties and Unmanned Aerial Vehicles (UAV) recce missions are handled from one base.

Intelligence Setup

The CRPF plans to strengthen the human intelligence network through closer interactions with the locals in the areas where there is deployment of security forces. Presently, CRPF has unit intelligence cells in every battalion, which remain on the field gathering information about the movements of Maoists.

Employment of CoBRA Commandos

A proposal for effective employment of Commando Battalion for Resolute Action (CoBRA) commandos was also discussed during the meeting of chief ministers of Naxal-hit states that was chaired by Union Home Minister Rajnath Singh. At present, 44 CoBRA teams (of the total 154) are deployed in Chhattisgarh for these operations and all of them are in the Bastar region comprising the districts of Sukma, Dantewada

and others.

The home ministry has expressed its inability to deploy more battalions of the Central Armed Police Forces (CAPFs) as demanded by some Left Wing Extremism-hit states. The Centre wants that the quality of operations are improved without the forces taking casualties on their side.

The paramilitary force has prepared a blueprint to mobilise at least 20 to 25 companies of the CoBRA from their present locations in West Bengal, Bihar, Telangana and Madhya Pradesh to the Bastar region that has some of the worst Maoist violence-hit districts of the central state. A CoBRA company has about 100 personnel each.

The CoBRA Battalion was raised in 2009 by the central government under CRPF to act as a special guerrilla combat wing for tackling violence perpetrated by Naxalites as well as insurgents in the northeast.

CoBRA units carry out operations based only on intelligence inputs and has been raised as a team of highly-trained commandos who neutralise the enemy and destroy their hideouts with minimal collateral damage. The CoBRA teams will specifically be used to increase the kill ratio of the forces and deliver heavy blow to the Naxals Tactical Counter Offensive Campaign (TCOC) campaign.

The TCOC is launched by Maoists every year in summer to kill security forces personnel and loot their weapons by catching them off guard when they are either out on a long patrol in the blistering sun or are deployed in these hard terrain areas for protection tasks like road construction and others.

Counter-IED Tactics

Regular CRPF teams will be provided with more teams of expert troops who are adept at handling improvised explosive devices (IEDs), which have killed or maimed over 300 security forces personnel in the last one year.

159 IED blasts were reported in 2016 as against 131 in 2015, which is an increase of 21 per cent in the usage of these killing devices.

The leakage of explosives and detonators meant for legal mining has to be curbed as these are stolen by Naxals to create IEDs and the home ministry asked the states to ensure that.

Use of UAVs

Rajnath Singh suggested that mini-UAVs were extremely useful for anti-Maoist operations and should be procured and made available in more quantities to tackle the left-wing extremism (LWE). "We must try that there must be at least one UAV/mini UAV with every battalion," he said.

Force Protection

The home minister suggested that trackers must be embedded in weapons, shoes, bulletproof jackets, etc., and biometrics used in smart gun triggers to prevent the Maoists from using weapons looted from security force personnel.

Smart Leadership

"The most important thing is that the officers will have to lead from the front. Success in this regard cannot be achieved only by sitting in Delhi, Ranchi or Raipur," Rajnath Singh said in his

"Today, only Chhattisgarh, Jharkhand, Odisha and Bihar are considered to be severely affected while West Bengal, Maharashtra and Andhra Pradesh are partially affected and Uttar Pradesh and Madhya Pradesh are considered slightly affected. This is quite an improvement from 2009, when the government declared as many as 223 districts across 20 states to have been affected by Maoist violence."

inaugural address on 8 May.

Air Power

In order to assist them, the government plans to seek additional flying hours from the Air Force to undertake more sorties to aid CoBRA operations. At present, an IAF chopper flies a maximum of 120 hours per month, which is expected to be raised to 160 hours soon.

Army's Role Ruled Out

The government has ruled out an immediate deployment of the Army in anti-Maoist operations. Deployment of the army in anti-Maoist operations has been a contentious issue, often opposed by rights groups on grounds that army should not be used against country's own people who have taken to violence due to lack of development in the hinterland.

The Indian Army will be asked to provide training to the DRG, which is a wing of Chhattisgarh Police comprising mostly of villagers and surrendered Naxals, similar to the erstwhile Special Police Officers (SPOs).

India Reserve Battalions (IRBs) will be used instead of the CRPF for road-opening duties. IRBs are elite armed police units in each state, who are trained to deal with specific situations.

Security Related Expenditure

The governments of the 10 Naxal-affected states have placed the demand for extension of the Security Related Expenditure (SRE) Scheme, Special Infrastructure Scheme (SIS), Integrated Action Plan (IAP) and a few other schemes. The Home Ministry has approached the Finance Ministry for additional funds.

Under the SRE scheme, funds are provided for meeting the recurring expenditure relating to insurance, training and operational needs of the

security forces, rehabilitation of left wing extremist cadres who surrender in accordance with the surrender and rehabilitation policy, security related infrastructure for village defence committees.

The SIS in LWE-affected states discontinued from central assistance from 2015-16 as per recommendations of the 14th Finance Commission.

The IAP renamed as Additional Central Assistance (ACA) for LWE-affected districts from 2012-13, was extended to 88 districts. The major works/projects included under IAP/ACA relate to construction of school building, anganwadi centers, drinking water facilities, construction of rural roads, panchayat bhawans, livelihood activities, skill development, minor irrigation works, electric lighting, health centres, toilets, special coaching classes for students and development of play grounds, etc.

This scheme of ACA was under implementation up to 2014-15 and discontinued from the central assistance from the financial year 2015-16.

Up to January 7, 2016 an amount of Rs 9,059 crore has been released under IAP/ACA scheme of which Rs 8,711.90 crore has been incurred. Out of the total 1,64,859 projects taken up, 1,39,729 projects had been completed by January 7.

Development Plans

A committee chaired by Union Home Secretary Rajiv Mehrishi has been set up with chief secretaries and directors general of police of affected states to review security, coordination and development projects, including road constructions.

During the review, Civil Aviation Minister Ashok Gajapathi Raju said Jagdalpur airport will be ready by September this year and flights to Visakhapatnam will be operational soon, thereby helping the security forces to launch operations against Maoists.

New technologies for faster road construction such as prefabricated slabs and soil stabilisation are being examined. New and Renewable Energy Resources Ministry is undertaking several solar parks, solar lighting and solar pumps schemes to provide low-cost energy to LWE-affected states. Similarly, electrification of villages in Maoist-affected areas is being undertaken on a war-footing, with December 2018 as the target.

Comments

India's counter-insurgency campaigns in Punjab, Kashmir and the North-East though qualitatively different from each other, have resulted in the state being able to assert its control to a large extent.

The number of civilians and security personnel who have lost their lives to LWE has also been on a downward trajectory, even though in 2016 both figures did rise compared to the previous year. Concurrently, the number of militants killed or surrendered has risen.

Progress has not been uniform across the country. Today, only Chhattisgarh, Jharkhand, Odisha and Bihar are considered to be severely affected while West Bengal, Maharashtra and Andhra Pradesh are partially affected and Uttar Pradesh and Madhya Pradesh are considered

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Flaws in the Naxal Surrender Policy

An IMR Special Report

Much like the Salwa Judum, where the Chhattisgarh government claimed that villagers were voluntarily leaving their homes and coming to live in camps, the government is now claiming that hundreds of people are surrendering and coming to live with the police for their own protection. But just as Salwa Judum was found to be a State-sponsored movement, the surrenders are turning out to be custodial detention by another name. The only difference is that the courts, which declared the Judum illegal, have yet to take a call on the State's surrender policy.

According to Nandini Sundar, author of *The Burning Forest: India's War in Bastar* and professor of sociology, University of Delhi, one among cases that have come to light is of a 'Naxal' was picked up by the police on 3 May and shown as surrendered before the police on May 9. Produced before the court under a habeas corpus petition by his wife, he stated under fear that he would rather stay with the police than go with his wife and children.

While the Chhattisgarh's government's surrender policy helps the police keep people in detention indefinitely, it has two main advantages: Legal and psychological. Unlike an arrest, where a person has to be produced before a magistrate within 24 hours, law and policy are silent on any mechanism to test a surrender's voluntariness. Surrenders also ease the pressure of proving a person's involvement in any actual crime.

Surrenders can, therefore, be used to cast a wide and indiscriminate net. Many villagers are picked up from their homes and held for months, while the police decides what to do with them. Some are subsequently 'arrested', others kept in police camps, while the lucky ones get to go home. The police declare they have been given 'cash incentives' of Rs 10,000 to Rs 1 lakh for surrendering - investigations on the ground reveal that few have actually seen this money.

In 2015, a state screening committee found 75% of the surrenders forwarded by the police did not qualify as Maoist cadre, and were ineligible for rehabilitation; in 2016 that number went up to 97%.

Psychologically, the surrender myth has several benefits. It demoralises the Maoists, taints the 'surrenderee' in the eyes of their fellow-villagers, and counters the impression that the police are repressive.

The Government's Approach

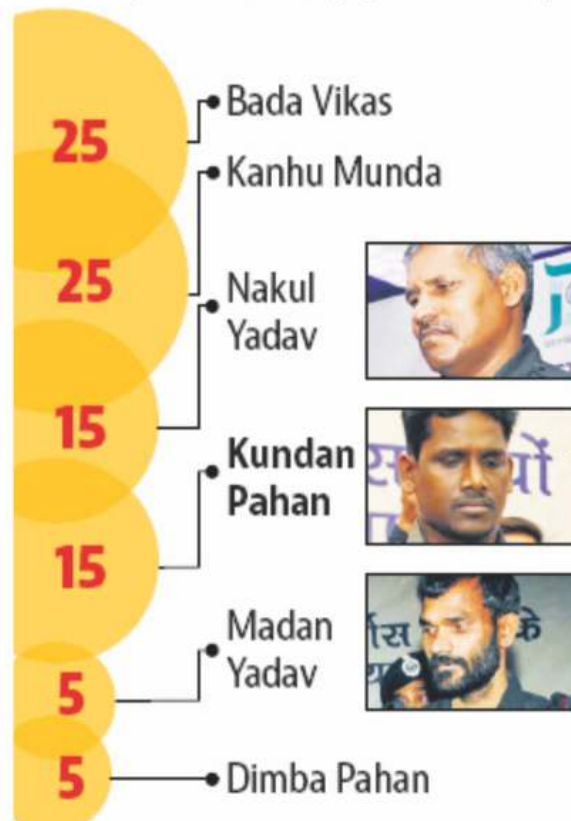
The Government's approach is to deal with Left Wing Extremism in a holistic manner, in the

Perks for giving up arms

Maoist leaders are lured back into the mainstream in Jharkhand with several financial and family benefits

Prominent Maoists who gave up arms since 2014

Bounty on their head (Figures in ₹ lakhs)



Cash rewards

₹1 crore

CPI (Maoists) central committee/politburo members

₹25 lakh

special committee members (SAC) members, Peoples' Liberation Front of India and Tiritiya Sammelan Prastuti Committee (TSPC) chiefs

₹15 lakh

regional committee members

₹10 lakh

zonal committee members

₹5 lakh

sub-zone members/commanders

₹2 lakh

area commanders

areas of security, development, ensuring rights and entitlements of local communities, improvement in governance and public perception management. A detailed analysis of the spread and trends in respect of Left Wing Extremist violence has been made and 106 districts in nine States have been taken up for

special attention with regard to planning, implementation and monitoring various interventions. However, 'Police' and 'Public Order' being State subjects, action on maintenance of law and order lies primarily in the domain of the State Governments. The Central Government closely monitors the situation and supplements



Twenty six ultras, mostly of the lower rung cadres, have given up their arms in Sukma district and surrendered to the Chattisgarh police on 8 Dec 2015

and coordinates their efforts in several ways. These include

- Providing Central Armed Police Forces (CAPFs) and Commando Battalions for Resolute Action (CoBRA)
- Sanction of India Reserve (IR) battalions
- Setting up of Counter Insurgency and Anti Terrorism (CIAT) schools
- Modernisation and upgradation of the State Police and their Intelligence apparatus under the Scheme for Modernization of State Police Forces (MPF scheme)
- Re-imbursement of security related expenditure under the Security Related Expenditure (SRE) Scheme
- Filling up critical infrastructure gaps under the Scheme for Special Infrastructure in Left Wing Extremism affected States
- Providing helicopters for anti-naxal operations
- Assistance in training of State Police through the Ministry of Defence, the Central Police Organisations and the Bureau of Police Research and Development
- Sharing of Intelligence
- Facilitating inter-State coordination
- Assistance in community policing and civic action programmes, etc.

Under the Security Related Expenditure (SRE) scheme, funds are provided for meeting the recurring expenditure relating to insurance, training and operational needs of the security forces, rehabilitation of Left Wing Extremist cadres who in accordance with the surrender and rehabilitation policy of the State Government concerned, community policing, security related infrastructure for village defence committees and publicity material.

Official Surrender Policy

The Surrender and Rehabilitation policy is part of a multi-pronged conflict management and resolution strategy and is required to be implemented along with firm legal action by the police. The Scheme aims at providing gainful employment and entrepreneurial Opportunities to the surrendered LWEs so that they are

encouraged to join the mainstream and do not return to the fold of the LWE movement.

Tactical surrenders by those elements attempting to utilise the benefits extended by the Government to further their vested interests are not to be permitted under the Scheme.

The scheme is applicable to those LWE cadres who surrender with or without arms. The eligibility is scrutinized by a Screening-cum-Rehabilitation Committee constituted by the State Government concerned. Repeated surrenders are not permitted even if done in different states.

Benefits under the Scheme are:

- An immediate grant of Rs. 2.5. lakh for higher ranked LWE cadres like
 - State Committee Members
 - Regional Committee Members
 - Central Committee Members
 - Politbureau Members,
- Rs. 1.5 lakh for middle/lower ranked LWE cadres like
 - Area Commanders
 - Sub-zonal Commanders
 - Zonal Commanders
 - Any hardcore LWE Cadre identified by the State Screening-cum-Rehabilitation Committee.
- Additional incentives are included for surrendered weapons and ammunition.

The surrenderees are initially lodged in a rehabilitation camp where they are imparted training in a trade/vocation of their liking or befitting their aptitude and paid a monthly stipend of Rs.4000/- each for a maximum period of 36 months.

Trial of heinous crimes committed by the surrenderee may continue in the courts. The States may also consider withdrawal of prosecution on a case to case basis depending upon the antecedents and merits of the individual surrenderee.

The Government of India will provide 100% reimbursement of expenditure incurred on rehabilitation of surrenderees under the Security Related Expenditure Scheme subject to a ceiling of Rs. 2.5 lakh for higher ranked LWE cadres and Rs. 1.50 lakh for lower rank LWE cadres and for

weapons & ammunition as stated at para 4 above or actual expenditure incurred by the State Government, whichever is less. In addition, the monthly stipend of Rs. 4000/- for a maximum period of 36 months to be paid to the surrenderee while undergoing training in the rehabilitation camp, will also be reimbursed by the Central Government under the SRE Scheme.

Chhattisgarh government has made significant additions to the "surrender and rehabilitation policy" for Maoists in the state. The additions range from housing for surrendered Naxals, compensation for ammunition apart from the weapons that they give up, as well as the possibility of all previous cases being removed from the record.

Maharashtra Surrender Policy

The Maharashtra government had launched a Naxal surrender policy on August 29, 2005 which has been extended time and again till date.

Maharashtra government's Naxal surrender policy has yielded positive results with 502 Maoists giving up arms in the last 10 years and being rehabilitated. Of these, 482 rebels have surrendered in Gadchiroli district alone, considered as a Naxal hotbed.

Among the ultras who have surrendered are one state zonal committee member, six divisional committee members, 16 commanders, 24 deputy commanders and 218 dalam members besides 110 gram rakshak, 127 Sangam members, they said.

Jharkhand Policy

Five hundred and fourteen tribal youths from Jharkhand, who were made to surrender as Naxalites in the period of 2012 to 2014, did not have any links with the ultras, the National Human Rights Commission (NHRC) had found.

These 514 people were picked up from different parts of Jharkhand in police vehicles and it was shown that these people had surrendered with arms, but later it was claimed that the arms along with the register that had details of who had surrendered, with what arms, had been 'misplaced'. Not a single weapon was recovered.

The incident came to light in March 2014 when one of the 514 youths who surrendered as "Naxals", filed a police complaint in Ranchi, accusing Dinesh Prajapati, the owner of a local coaching centre named Digdarshan Institute, of cheating him by promising to get him recruited into a paramilitary force.

Some senior Central Reserve Police Force (CRPF) officers connived with some Jharkhand police officers to organise these "fake" surrenders to take advantage of the attractive Naxalite surrender policy, which provides government jobs and monetary compensation to the surrendered Naxals. The youths, who were promised government jobs if they surrendered as Naxals, paid lakhs of rupees in the hope of getting a job, but did not get anything in return.

According to the surrender policy, apart from a government job, a surrendered Naxal is entitled to get an amount ranging from Rs 1.5 lakh to Rs 2.5 lakh. An extra incentive is given for weapons that are surrendered, which can go up to Rs 35,000 for a light machine gun.

Alleged Fake Encounter in Assam

An IMR Report

Central Reserve Police Force (CRPF) Inspector General (IG) (North East Sector) Rajnish Rai by a joint team of CRPF, the Army, Sashastra Seema Bal and the Assam Police, on 29-30 March, in Simlaguri in Assam's Chirang district, in which two militants belonging to National Democratic Front of Bodoland (NDFB) (Songbijit Faction) were shot dead and, as he claims, weapons planted on their bodies.

The report was prepared on 17 April following a "discreet inquiry" into the alleged extrajudicial killing. The Union Home Ministry has accepted Rai's report, though it has not outlined the next course of action.

Rai, in his 13-page report, alleged that information about the incident and FIR filed by the joint squad of forces present a "fictitious account" of the operation to "conceal pre-planned murder of two persons in custody and present it as some brave act of professional achievement".

The IG, deputy chief of the CRPF formations in the northeastern states after the additional DG,

has also sent the April 17 report to the chief secretary of Assam and chairperson of the Unified Command of security forces, the CRPF headquarters, the General Officer Commanding (GOC) of 4 Corps in Assam and the DG of SSB.

Rai's report, which stirred a hornet's nest, reveals in detail not only the version of the security forces, but also his own findings. While the security forces claimed that the two NDFB(S) militants, identified as Lucas Narzary and David Islary, were killed in a legitimate encounter, Rai's concluded that it was a case of "pre-planned murder" carried out in cold blood.

The home ministry and other security agencies have said that the allegations by a CRPF IG, based on the officer's "discreet inquiry" was "uncalled for". The IG had not informed the headquarters about the "discreet inquiry".

According to CRPF officials any senior officer, like the IG, does not have the mandate to conduct an inquiry into an operation conducted by all the forces jointly.

Officials said the inquiry has to be conducted

by the Assam government or the matter can be referred to CBI only by the state government. There could be, in fact, a probe into why and on what grounds Rai conducted the 'inquiry'.

Rai had arrested three top IPS officers of Gujarat - DG Vanzara, MN Dinesh and Rajkumar Pandiyan - in April 2007 in Sohrabuddin Sheikh fake encounter case.

There are categories of encounters. One is when the security forces go out in the field, and are fired at and they fire back. "Fake encounters" are killing a genuine militant, but not in a genuine encounter. The third category, many say, is "false encounter" or "staged encounter", which involves killing an outright innocent individual.

"Encounters", as is now commonly known, are staged to win medals and awards, among other benefits. In the army, the system of unit citations is based on points, which are earned by eliminating or apprehending militants, or having militants surrender in designated counter-insurgency areas.

Strategy Hinges on Security & Development

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slightly affected. This is quite an improvement from 2009, when the government declared as many as 223 districts across 20 states to have been affected by Maoist violence.

Different states have pursued different strategies with different levels of effectiveness.

The CRPF has better technology, better arms and protective equipment for its personnel and is evolving an intelligence setup. But Maoists have carried out some spectacular attacks, perhaps, because they have been cornered. Such attacks ensure the movement remains relevant and can attract new recruits. They also continue to innovate at the tactical level and improvised weapons.

The Maoist movement has a strong base among the landless, the poor peasantry and the adivasis (original inhabitants). The goals of the movement are political and must be addressed politically. Negotiation is the only political instrument available in a democracy. The coming to power of a new government in India in May 2014 provides an opportunity to start negotiations.

The Centre's focus on this as a structural

solution to LWE like rural roads projects, electrification and telecom services.

Recent Naxal attacks and consequent reverses faced by the CRPF can be blamed on operational failure. Much can and should be done to strengthen the security forces.

Highlights of the New Strategy

Operation 'SAMADHAN' is the Ministry of Home Affairs (MHA)'s answer to the Naxal problem. The acronym SAMADHAN stands for Smart leadership, Aggressive strategy, Motivation and training, Actionable intelligence, Dashboard Based KPIs (key performance indicators) and KRAs (key result areas), Harnessing technology, Action plan for each theater, and No access to financing.

- The MHA has suggested the use of trackers for weapons, and bio-metrics in smart guns.
- Unique Identification number (UID) for Gelatin sticks and explosives.
- At least one UAV or Mini UAV for each of the Central Armed Police Forces (CAPF) battalions

deployed in the Maoist hotbed.

- More helicopter support for operations. Helicopters to be used to rush in supplies and reinforcement. Increased number of flying hours.
- Joint Task Forces for operations along inter-State boundaries to be set up. Better inter-state coordination and intelligence sharing.
- 400 fortified police stations to be set up in Naxal belt.
- Resumption of Left Wing Extremism (LWE) – specific schemes such as SRE, SIS, IAP/ACA, CIAT schools.
- Prevention of Money Laundering Act (PMLA) to be reviewed to ensure effective choking of fund flow to LWE groups.
- Fast tracking building infrastructure, with a focus on solar lights, mobile towers with 3G connectivity, and road-rail connectivity.
- Indian Army or specialized forces – such as Greyhounds – to train forces to take on Naxals.
- Forces should be more proactive and aggressive in owning operations, rather than being reactive.

Review: Homeland Security 2017

Modernisation of India's Internal Security Mechanism



The ninth edition of the Homeland Security programme was organised by FICCI on May 24-25, 2017, in association with Vivekananda International Foundation on the theme 'Modernisation of India's Internal Security Mechanism'. The conference aimed at bringing together experts from the Government, Central Armed Police Forces (CAPFs), State Police Forces, foreign governments, industry, academia and think tanks to discuss solutions for numerous challenges for procurement by Internal security forces, in the areas of policies and regulations, processes, technological advancements and capacity building. On the occasion, the FICCI & EY Report, 'Roadmap for Public Procurement in Internal Security' was released.

In his Keynote Address, General NC Vij, Director, Vivekananda International Foundation (VIF), former Chief of the Army Staff and Founder Vice Chairman, National Disaster Management Authority (NDMA), raised pertinent issues related

"There is a need to create a cadre of specialized and expert police personnel who are skilled and well-equipped to cope up with specialized crimes such as accounting frauds, cyber-crime and homicide."

Anil Bajjal
Lt Governor of Delhi

Release of FICCI & EY Report – Roadmap for Public Procurement in Internal Security. (L-R): Sumeet Gupta, Director, FICCI; Rahul Rishi, Advisory Partner, IT & E-Governance, EY; Dr Sambit Patra, National Spokesperson, Bharatiya Janata Party; Harshavardhan Neotia, Immediate Past President, FICCI and Chairman, Ambuja Neotia Group; General N. C. Vij, Director, Vivekananda International Foundation (VIF), Former Chief of the Army Staff & Founder Vice Chairman, NDMA; and GK Pillai, Chair, FICCI Committee on Homeland Security & Former Union Home Secretary, Govt. of India.



Dr. VK Saraswat, Member NITI Aayog, delivering a Special Address.

to internal security of the country and highlighted the ground conditions in Jammu & Kashmir and North-East and the rising of Left Wing Extremism and the looming threat of radicalization. He added that India's maritime border and cyberspace were also in need of attention to beef-up the internal security.

Anil Bajjal, Lieutenant Governor of Delhi and former Union Home Secretary, Government of India, emphasized that to strengthen and modernize India's internal security mechanism and the police force it is essential to re-engineer and adopt processes and procedures and at the same time leverage technology and ICT to remain connected with the people. He also said that there is a need to create a cadre of specialized and expert police personnel who are skilled and well-equipped to cope up with specialized crimes such as accounting frauds, cyber-crime and homicide. It is also necessary to upgrade the skills of the law enforcers continuously to outwit the criminals who are making use new technologies at a fast pace.

Highlighting various initiatives of the Government of India undertaken to augment India's security, Dr Sambit Patra, National



“The government and police needed to trust business to create an environment of security and for business to flourish. Pillai said that this is a disruptive age and rapid advancements in technology demanded upgrading of skills of the police at a faster pace.”

Spokesperson, Bharatiya Janata Party said that the policy for national security clearance for certain sensitive sectors of the economy, which codifies all existing practices was one of the major steps of the government. The new policy aimed at bringing about a healthy balance between meeting the imperatives of national security and facilitating ease of doing business and promoting investment in the country.

Alok Joshi, Chairman, National Technical Research Organisation (NTRO), Government of India, outlined the evolution of homeland security in India from the baton days to the present high-tech contemporary era. Joshi deliberated upon the relevance of high end technologies and the challenges faced by the CAPFs and law enforcing agencies. He said that there was a need for clear articulation of problems to get a precise resolution. High-end technology demands



Winners of FICCI SMART Policing Awards 2017. From L-R: Praveen Jaiswal, Co-Founder & Director, Vehere Interactive; Satish Chandra Jha, IPS, Advisor, NTRO; Alok Joshi, IPS, Chairman, NTRO & Former Secretary @ Cabinet Secretariat, Govt. of India; Anurag Sharma, IPS, Director General of Police, Telangana State Police; and, Mr. Rajan Luthra, Co-Chair, FICCI Committee on Homeland Security and Chairman's Office, Head - Special Projects, Reliance Industries Ltd.

customised, speedy and handy technology which could be delivered as per the customised requirement of agencies working in their respective domains. Besides, the emerging challenges posed due to possible dual use of technology needs to be studied and analysed in greater depth for the readiness of the law enforcing agencies.

Praveen Jaiswal, Co-Founder & Director, Vehere Interactive, said that encryption was the new challenge facing law enforcement not just in India but around the world, which makes it

impossible to engage in legitimate monitoring of communications by terrorists and criminals. He added that traditional methods of TECHINT need to be overhauled with a combination of Meta Data Analysis, decryption, active and passive monitoring.

In his Closing Address, GK Pillai, Chair, FICCI Committee on Homeland Security & Former Union Home Secretary, Government of India, said that there was need for the government, police and industry to work in tandem for economic growth of the country. He added that the government and police needed to trust business to create an environment of security and for business to flourish. Pillai said that this is a disruptive age and rapid advancements in technology demanded upgrading of skills of the police at a faster pace. Earlier, the skills became obsolete in 15-20 years but now the time has come down to 3-5 years; thus there was a need to re-invent the processes continuously.

Meenakshi Lekhi, MP and National Spokesperson, Bharatiya Janata Party, felicitated the winners of FICCI SMART Policing Awards 2017 on the second day of Homeland Security conference. She also commended the jury members of FICCI SMART Policing Awards. Lekhi also unveiled the FICCI Compendium on Best Practices in SMART Policing 2017. This intervention brings together, in a single publication, different SMART Policing initiatives and practices undertaken by various security and law enforcement agencies across India. This compendium documents the entries felicitated with 'FICCI SMART Policing Awards 2017', and list the entries that were received in the course of the selection process. The best practices documented here could be replicated by other institutions across the country.

Release of FICCI Compendium on Best Practices in SMART Policing 2017. (L-R): Sumeet Gupta, Director, FICCI; Meenakshi Lekhi, MP and National Spokesperson, Bharatiya Janata Party; YK Modi, Past President, FICCI and Executive Chairman, Great Eastern Energy Corporation Ltd.; and, GK Pillai, Chairman, FICCI Committee on Homeland Security and Former Union Home Secretary, Govt. of India.



AFGHANISTAN

Attack Planned by Haqqani Network, ISI

90 Killed in Kabul Blast

At least 80 people were killed and more than 350 wounded when a massive bomb tore through Kabul's strongly fortified diplomatic quarter during the morning rush hour on 1 June.

Afghanistan's spy agency, National Directorate of Security, blamed the Pakistan-based Haqqani Network with the "direct help" of the Inter-Services Intelligence agency (ISI) for the massive bomb attack.

The powerful bomb had approx 1500 kgs of explosive hidden in a sewage tanker that exploded in the highly secure diplomatic quarter of Kabul, demonstrating that the holy month of Ramzan would provide little respite from the violence across Afghanistan.

The blast damaged the embassies of India, Bulgaria, France, Japan, Turkey and the UAE. It also destroyed or damaged more than 50 vehicles and shattered windows of buildings located hundreds of metres away.

The Taliban denied responsibility and said they condemned attacks that have no legitimate target and killed civilians.

The target of the explosion in Wazir Akbar Khan area was not immediately known.

Some reports said a suicide bomber detonated the explosives-packed vehicle in Zanaq Square around 8.30am. The NATO-led Resolute Support mission said Afghan security forces prevented the vehicle from entering the heavily protected Green Zone that houses many foreign embassies as well



as its headquarters, suggesting it may not have reached its intended target.

Germany, Japan and Pakistan said some of their embassy employees and staff were hurt in

the explosion.

The attack, which came as the resurgent Taliban are stepping up their annual "spring offensive", underscored spiralling insecurity in Afghanistan, where security forces beset by soaring casualties and desertions are struggling to beat back the insurgents. More than one-third of the country is outside government control.

The Islamic State, the other main terror group active in Afghanistan, also has carried out high profile attacks in Kabul, including a strike on a military hospital in March that killed more than 50 people.

Afghan troops are backed by US and NATO forces, and the Pentagon has reportedly asked the White House to send thousands more troops to the country to break the deadlocked fight against the Taliban.

US troops in Afghanistan currently number about 8,400, and there are another 5,000 from NATO allies, who mainly serve in an advisory capacity - a far cry from the US presence of more than 100,000 six years ago.

Pentagon chief Jim Mattis has warned of "another tough year" for both foreign troops and local forces in Afghanistan.

The blast was the latest in a long line of attacks in Kabul. The province surrounding the capital had the highest number of casualties in the first three months of 2017 thanks to multiple attacks in the city, with civilians bearing the brunt of the violence.



Site of Blast

MILITARY DIPLOMACY

Act East Policy and Defence Cooperation

Devsena Mishra



Devsena Mishra is an IT professional and director of DappsTech

India's Act East Policy focuses on the extended neighborhood in the Asia-Pacific region and it includes the security and strategic collaboration too. One of the main objectives of India's Act East Policy is to promote economic cooperation and strategic relationship with countries in the Asia-Pacific region at bilateral, regional and

multilateral levels.

North-East - The Gateway to South East Asia

The connectivity of North East India with the Association of Southeast Asian Nations (ASEAN) region through trade, culture, people-to-people contacts and physical infrastructure is one of the key priorities of our Act East Policy (AEP). On 26th May, Prime Minister Narendra Modi inaugurated India's longest river bridge – the Dhola-Sadiya Bridge. This 9.15 km-long bridge links Dhola in Assam to Sadiya in Arunachal Pradesh. This bridge will provide quick and easy accessibility for Indian Defence Forces in the region.

Inaugurating the bridge, Prime Minister Modi said enhanced connectivity between the North-East and other parts of the country is a priority for the Union Government and good connectivity in the North-East will also link the region with the economy of South-East Asia.

The recent spending on infrastructure and development projects in Northeast India is several times higher than the past. The government wants to drive the development of Northeast India with the help of the five elements called 'Panch-Tatva' - Railways, Highways, Airways, Waterways and I-ways. These five elements will play a crucial role to boost our defence capabilities in the Northeast region too.

Under the Act East Policy, India is working to strengthen the partnership with key regional and multilateral organizations such as ASEAN, ASEAN Regional Forum, East Asia Summit, Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Asia Cooperation Dialogue, Mekong-Ganga Cooperation and Indian Ocean Rim Association. According to the ASEAN-India Action Plan (2016-20), three main areas of cooperation between India and ASEAN region are political-security, economic and socio-cultural relations. India has upgraded its relations to the strategic partnership



Prime Minister Narendra Modi speaking at a banquet hosted by the Prime Minister of Japan, Shinzo Abe, at Akasaka Palace, in Tokyo, Japan on September 1, 2014.

with Indonesia, Vietnam, Malaysia, Japan, South Korea, Australia, Singapore and ASEAN.

Due to the recent changes in the security environment of Asia-Pacific, it has become necessary for India to increase the defence cooperation among all the responsible nations of the region.

Defence Cooperation

India-Japan. India and Japan both are making some serious moves toward deepening their military cooperation. Japan has been identified as a privileged partner in the Make in India initiative and both sides are interested in the joint development and production of defence equipment. In 2015, India and Japan signed two crucial agreements concerning the Transfer of Defence Equipment and Technology and concerning security measures for the protection of classified military information. In the same year, Japan has also become a permanent partner in Malabar naval exercises. Japanese defence technologies including communications, electronic warfare technologies, and surveillance radars offers great opportunities for cooperation. In the outer space, ISRO and Japan Aerospace Exploration Agency (JAXA) signed a memorandum of understanding (MoU) on cooperation in the field of satellite navigation, planetary exploration and space industry promotion, joint missions and studies, joint use of ground systems for mutual support, joint workshops and training and personnel exchange.

India-Vietnam. Defence and Security cooperation is a crucial pillar in the strategic

partnership between India and Vietnam. In May 2015, defence ministers of the two countries signed a "Joint Vision Statement on India-Vietnam Defence Relations (2015-2020)". An MoU on cooperation between the Coast Guards of the two countries was also signed for mutual crime prevention efforts and the development of transnational cooperation. India's National Security Advisor, Ajit Doval has affirmed that India would do all it can to assist Vietnam in defence and security, specifically defence industry, military technology, intelligence, personnel training, cyber crimes and cyber security.

Indian Armed forces are cooperating with Vietnamese Armed Forces particularly the Navy, in the process of capacity building. India has already been providing assistance to Vietnam's navy through training to operate the new Russian-built submarines. Vietnam wants to build up a strong deterrence against China's rise and its aggressive moves in the South China Sea and India's defence capabilities can provide a good support to Vietnam's defence needs. During Modi's visit to Vietnam in September 2016, India and Vietnam formally upgraded their relationship to 'Comprehensive Strategic Partnership.' The upgraded partnership is designed to provide a new direction to the bilateral cooperation. Both countries have signed another important agreement - the Inter-Governmental Framework for the Exploration of Outer Space for Peaceful Purposes.

The exchange of high-level visits, annual high-level dialogues, service-to-service cooperation, naval ship visits, extensive training,

and capacity building, defence equipment procurement and related transfer of technology are some of the major steps to boost this partnership. Some of the Indian Defence Public Sector Undertakings are also interested for defence export to countries like Vietnam and we are already in the process of finalizing the sale of warships to Vietnam.

India and South Korea. In 2015, India and South Korea have upgraded their ties to 'Special Strategic Partnership' to deepen defence cooperation. Both sides are working together to find complementarities between Northeast Asia Peace and Cooperation Initiative (NAPCI) and Act East Policy to achieve shared goals of peace and stability in the region. South Korea is the second country (after Japan) with which India has launched a diplomatic and security dialogue in the 2+2 format.

The national security councils of the both sides have agreed for regular cooperation on security, defence and cyber-related issues. Besides this, the National Defence College of India and the National Defence University of Korea have decided to work together to strengthen the partnerships between Indian and Korean institutions of defence education too. This year in April, India and South Korea inked a MoU to cooperate in shipbuilding for military use and companies of both sides are interested to cooperate in the shipbuilding sector. India's Hindustan Shipyard Ltd has teamed with Hyundai Heavy Industries of South Korea to build five fleet support ships costing about \$1.5 billion as well as two strategic operating vessels, or midjets, costing about \$448 million. In another major shipbuilding project, Kangnam Corporation of South Korea will help India's state-owned Goa Shipyard Limited to build 12 mine countermeasures vessels for more than \$5.5 billion. Besides this, the Larsen & Toubro and South Korean defence technology company Hanwha Techwin signed a contract worth about \$650 million to manufacture the K9 Vajra-T, a 155mm, 52-caliber self-propelled howitzer for the Indian Army. And Reliance Defence Limited has also entered into a strategic partnership agreement with South Korea's LG Nex1 for smart sensors that are used in weapons and ammunition systems of armed forces. Both companies are also exploring the opportunities in air defence and surveillance radar that can be



Indian and Vietnamese defence ministers sign Joint Vision Statement on Defence Cooperation

manufactured in India. India and South Korea both recognize the value of this bilateral partnership, which is crucial to bringing peace, stability and security in the Asia-Pacific Region.

India-Myanmar. Myanmar is one of the India's strategic neighbors and shares a 1,640-km-long border with a number of northeastern states. In 2016, during the visit of the President of Myanmar Mr. Htin Kyaw, India and Myanmar signed some key agreements for the construction of 69 bridges on the Tamu-Kalewa section of the trilateral highway connecting India, Myanmar, and Thailand and improvements on the Kalewa-Yargi section.

The major projects between India-Myanmar are Kaladan Multi-modal Transit Transport Project, the India-Myanmar-Thailand Trilateral Highway Project, Rhi-Tiddim Road Project, Border Haats etc. The Kaladan Multi Modal Transit Transport Project is meant for the shipment of cargo from the eastern ports of India to Myanmar as well as to the North-Eastern part of India through Myanmar. This project, which will connect Sittwe Port in Myanmar to the India-Myanmar border, will open up the sea route for movement of products. In the words of PM Modi Myanmar is a "land bridge that connects India with Southeast Asia".

The defence collaboration between both countries is growing, this year, India has agreed to

supply the lightweight torpedoes to Myanmar in a deal estimated to be worth US\$39.7 million. High level talks between the military of both sides are going on to broaden the security and defence engagements. In India-Myanmar's strategic partnership, Border Management, Maritime Security, Connectivity and Capacity Building cooperation are some of the key areas and this partnership will continue to grow at a good pace.

India-Singapore. The defence cooperation between both nations is considered as a key area under the India-Singapore Strategic Partnership declaration. In the 24th iteration of SIMBEX, the Republic of Singapore Navy deployed two frigates (RSS Formidable and RSS Supreme) and a missile corvette (RSS Victory), while the Indian Navy participated with two frigates (INS Sahyadri and INS Shivalik), a corvette (INS Kamorta), an oiler (INS Jyoti), and a P8-I maritime patrol aircraft. The SIMBEX has changed its approach from a serial based exercise to mission based exercise/scenario based exercise, which is quite necessary to cope with the current challenges. In 2016, Singapore-India Defence Ministers' Dialogue (DMD) was launched to take defence relations between both nations to new heights. Both sides have undertaken several joint research projects and are deepening cooperation in unmanned systems and soldier performance. Both countries are agreed to set up industry level working mechanisms to foster cooperation in aerospace, electronics and other areas of mutual interest.

Conclusion

ASEAN-India connectivity is a matter of strategic priority for India as also the ASEAN countries. India's Act East Policy has created a synergy among all these nations on the issues related to defence cooperation, maritime security, the safety of sea lines of communications and counter terrorism. Expanding military exercises, boosting defence industry collaboration, and deepening maritime cooperation are some of the common areas of interests. This is a right time for India to take a firm position on the political-military implications of China's One Belt One Road (OBOR).

Prime Minister Narendra Modi departs for Singapore from Bunga Raya Kuala Lumpur International Airport, Malaysia on November 23, 2015.



CYBER SECURITY

India Spared Full Impact of Ransomware Attack

A Wake Up Call For the World

Aayush Sinha



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The world was taken aback when 200,000 computers from 150 countries were hit by a massive ransomware attack on 12 May. It was the largest ransomware attack in history. The attack spread like wildfire in Europe, including companies like Deutsche Bahn, the German transport giant, and Telefónica, a Spanish telecommunications firm. Britain's National Health Service was one of the largest institutions worldwide affected in a big way. The attack crippled 45 of its hospitals, surgical procedures were cancelled and some hospital operations were shut down as government officials struggled to respond to the attack. The attack hit more than 200,000 victims, according to Europol. That number has grown rapidly after the attacks were first reported.

This was not the first ransomware attack. It is a decade old technique. Extortionate ransomware was prominent in May 2005.

The ransomware involved was named Wannacry – an advanced ransomware which uses a cryptoviral extortion technique. A cryptoviral extortion based ransomware is a denial-of-access attack which encrypts the victim's files making them inaccessible since it is intractable to decrypt the files without the decryption key and demands a ransom payment to decrypt them.

India Spared

There was no serious impact in India of the global ransomware cyber attack, except for a few isolated incidents in a few states, according to Information Technology Minister Ravi Shankar Prasad. India seems to have been spared but that could be because of the country's low standard of reporting such cyber crimes.

Railways. Computers of the Southern Railways' Palakkad division came under attack, but luckily damage was limited to those in the personnel department that dealt with staff matters such as appointments, transfers and promotions, etc. The Railways said 23 of the 500 systems located in various departments of the office were targeted.

Gujarat. In Gujarat, over 120 computers



“There was no serious impact in India of the global ransomware cyber attack, except for a few isolated incidents in a few states, according to IT Minister Ravi Shankar Prasad. India seems to have been spared but that could be because of the country's low standard of reporting such cyber crimes.”

connected with GSWAN (Gujarat State Wide Area Network) were affected by the WannaCry ransomware attack. However, no “crucial data” was lost, according to state government officials.

Odisha. A government-run hospital in Ganjam district, Odisha, was targeted by the WannaCry ransomware virus. The data and information management system at Berhampur City Hospital, 170 kms from Bhubaneswar, was infected by the virus, which in turn affected its e-medicine and data services.

West Bengal. At least 10 computers at customer care centres of West Bengal State Electricity Distribution Company Limited (WBSEDCL) were attacked in West Midnapore, South Dinajpur and East Midnapore districts.

Andhra Pradesh. According to the Ministry of Electronics and Information Technology (MeitY), few computers of the Police Department in Andhra Pradesh were disabled due to the attack.

Maharashtra. The Maharashtra Police department was also partially hit by the WannaCry ransomware. Other isolated incidents were reported in Mumbai and Pune as well.

Kerala. Computers in two panchayat offices in Wayanad and Pathanamthitta districts too were disabled in the cyberattack. Four computers at Thariyathodu panchayat in Wayanad and two computers at Aruvappulam panchayat in Pathanamthitta district were hit, but no major damage was caused.

Countries Affected

China. Internet security firm Qihoo360 issued a "red alert", saying a large number of colleges and students in China had been hit by the ransomware attack. Chinese state-run media reported that some gas stations saw their digital payment systems shut down, forcing customers to bring cash.

Germany. Deutsche Bahn, the German railway company said that due to the attack "passenger information displays in some stations were inoperative" as were "some ticket machines."

Russia. Russian Central Bank was attacked by bulk malware emails. Those monitoring the cyber attacks found "no incidents compromising data resources of banking institutions." A virus attacked the IT system of Russian Railways, but it did not affect operations due to a prompt response. The Russian Interior Ministry acknowledged a ransomware attack on its computers, but added that less than 1% of computers were affected.

Spain. Spanish telecom company Telefónica (TEF) was one of the targets, though the attack affected only some computers and did not compromise the security of clients' information.

United Kingdom. At least sixteen National Health Service (NHS) organizations were hit. The NHS has said hospitals had to cancel some outpatient appointments because of the attack.

Global Victim Companies

FedEx said it experienced interference with

some of its Windows-based systems caused by malware. Nissan, the Japanese carmaker said that "some Nissan entities were recently targeted" but "there has been no major impact on our business." Telefonica, the Spanish telecoms giant said there had been a problem with the company's IT systems but said that this had affected only the internal network and had not hit clients or the firm's service to customers.

About Ransomware WannaCry

Ransomware is one of the many forms of malware or malicious software that locks a device such as a computer, tablet or smartphone. Other malwares include computer viruses, worms, Trojan horses, spyware, adware, scareware, and other malicious programs. A ransomware blocks access to the victim's data or threatens to publish or delete it until a ransom is paid.

WannaCry exploits a flaw in the Microsoft Windows software, the code used to exploit the bug is called Eternal Blue. The hacking group Shadow Brokers was behind this global ransomware attack. The hacking group claimed to have stolen the bug from a repository of the United States National Security Agency's (NSA) hacking tools.

The software is normally contained within an attachment to an email that masquerades as something normal. Once opened it encrypts the hard drive, making it impossible to access or retrieve anything stored - such as photographs, documents, music and videos.

CERT's Response

Indian Computer Emergency Response Team (CERT-In), a nodal agency, which deals with cyber security threats had issued critical alerts in April 2017. The alert advised businesses to ramp up security and report instances of data breach. This was even made mandatory through a government

notification earlier in the year.

CERT issued a red-coloured 'critical alert' in connection with the WannaCry attack and warned users not to pay the ransom.

US Government Under Fire

Microsoft slammed the US government for developing the 'Eternal Blue' exploit that led to the hack. In March Microsoft had issued a security update that fixed the flaw after it was stolen from the NSA, meaning that many computers had not installed the patch by the time the NSA's 'Eternal Blue' exploit was dumped on the open internet in April.

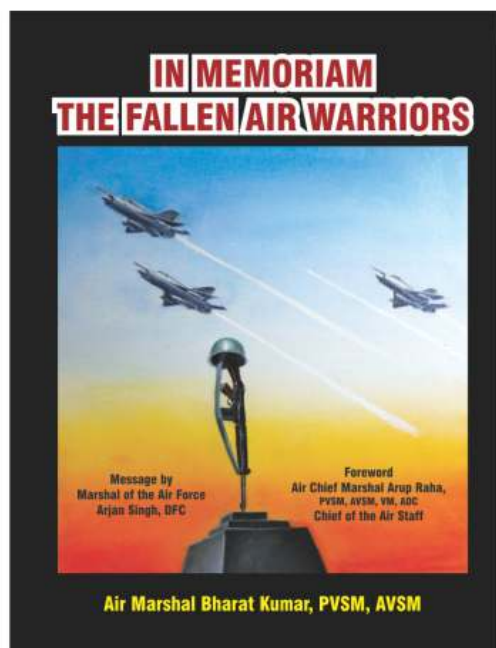
"This attack provides yet another example of why the stockpiling of vulnerabilities by governments is such a problem," said Brad Smith in a blog post and was retweeted by Microsoft's chief executive, Satya Nadella.

Vladimir Putin blamed the US for the global cyber attack that crippled computer systems around the world. Putin said Russia had "nothing to do" with the attack and blamed the US for creating the hacking software that affects Microsoft computers.

Malware created by intelligence agencies can backfire on its creators," said Putin. He added that global leaders needed to discuss cyber security at a "serious political level" and said the US has backed away from signing a cyber security agreement with Russia.

Potential Military Weapon

The Ransomware attack which crippled business all across the globe has the potential to become a military weapon. Malwares such as Ransomware may be used by nations or by non-state actors to cripple the adversary's cyber defences. Indian cyber security dispensation must take a note of changing threat in the cyber security arena and step up the cyber defences, both civil and military.



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Employment of Air in Counter-Insurgency Operations

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guided; command guided, Global Positioning System (GPS) guided or infra-red (IR) guided. Advantage of laser and command guided systems is that they are able to hit moving targets. The man-in-the-loop systems allow the weapon to be steered off the target if conditions for impact are not satisfied. Urban COIN operations targets are typically small and fleeting and create high risk of collateral damage and there is need for accurate weapons with lower yields.

Advantage Helicopter

Helicopters have the advantage of their ability to operate at low speed near the ground. This allows them to operate close to both friendly troops and potential targets. They have lesser chance of visual misidentification and therefore correct targeting is more assured. Helicopters normally carry direct fire low-yield weapons, which makes them well suited for operations in areas where collateral damage is a concern. The low-level and low-speed capabilities of helicopters are their source of strength and also their source of weakness. Operations at low level and low speed make helicopters vulnerable to attack from the ground. Insurgents are likely to have access to some form of low-technology tactical anti-air capability. IR SAMs, such as the US Stinger and the Soviet SA-7 series, are prevalent among many of the world's insurgent groups. Even when helicopters are equipped with the latest missile approach and warning systems (MAWS) and IR decoys, they are still susceptible to attack with heavy calibre machine guns and rocket-propelled grenades. Insurgents detect helicopters visually and aurally. In all COIN operations around the world there have been significant helicopter

losses. Their advantages need to be weighed against the risk of platform loss and the strategic effects this may have.

IAF against Naxalites – Options and Challenges

Currently NTRO and IAF Unmanned Aerial Vehicle (UAV) Searcher II and Heron are already being used for day and night reconnaissance and surveillance. A full unit of Mi-17s is deployed for day and night operations for troop insertion, extraction, casualty evacuation, and logistics support. The helicopters have armour plating. They carry armed gunmen to retaliate in self defence. The next level of escalation would be use of Mi-25/35 attack helicopters to target larger concentration of militants. The Rudra (Weapon System Integrated ALH) equipped with Forward Looking Infrared (FLIR) and Thermal Imaging Sights Interface could also be used. In due course IAF will get the indigenous LCH and the much more versatile Apache attack helicopters. These will also act as a deterrent for a mass scale attack by the militants. The third level of escalation could mean use of the BAE Hawk Mk 132 with guns or rockets. Jungles of Chhattisgarh provide protection for insurgents and restrict the ability of air power for interdiction operations but a large amassed force can be a good target from the air. Consequently, insurgents' freedom of movement and ability to concentrate firepower become more limited. This thinning of insurgents enables government control. Once this control is established the non-military functions critical to the ultimate success of the campaign, such as rebuilding the infrastructure, economy and standard of living, can be carried out. When

insurgents are dispersed and difficult to identify, precision offensive CAS could be employed. Defensive CAS can protect own ground forces through armed aerial patrol and search and destroy attack. The unique view of the battlespace from the air and the ability to provide an independent visual verification of the target provides advantage to ground forces. Air Power has also been used world-wide for targeted killing of individual leaders. Generally, ideological insurgencies normally revolve around a small number of leaders which means they are more likely to be affected by a leader's loss. Capturing of the key leaders may often be more useful though.

IAF's heavy lift Mil Mi-26 helicopters can move large reinforcements and critical large equipments in special contingencies. These will one day be replaced by the Boeing CH-47F Chinook helicopters. The UAV fleet will one day be augmented by Rustam, AURA and other combat UAVs.

Air power offers advantage of quick deployment of overwhelming force. The most effective roles for offensive air power are interdiction and CAS. Interdiction restricts insurgent movements. Collateral damage and fratricide risk must be minimised or eliminated. The platforms must have inbuilt survivability. Man portable threats are making the operating environment more dangerous. A risk of a platform loss could be big dampener. Non-lethal means of achieving battlefield effects could be mere presence of a fighter aircraft or an armed helicopter and it will act as a deterrent. India has used offensive air power against insurgents in the past. Political assessment and will power are required.

CPEC Will Worsen Plight of the Balochis

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Continuing Injustice

By having said this, there is an urgent need to assess all major, so called 'national' development projects, by the central government in Balochistan. Especially the current ongoing establishment of the China-Pakistan Economic Corridor, or in brief CPEC, must be monitored and evaluated. This economic corridor is part of a major development initiative led by China, known as 'One Belt, One Road' (OBOR), to connect Asia with Europe and the Middle East with Africa via land (belt) and sea (road). Praised as a new economic lifeline, CPEC is an essential link between the 'belt and road'. In order to provide this connection, the multi-billion dollar infrastructure project CPEC should connect Kashgar in China's Western Xinjiang with the Gwadar port in Balochistan. Pakistan's national elites are heralding CPEC as a 'game changer' for the country's economy.

However, by looking at the way how the

corridor gets implemented it becomes clear that CPEC is not only continuing injustice but it is also entrenching it further. In other words, CPEC marks the current peak of the repressive policy of the Pakistan government in Balochistan. Regarding Human Rights activists, more than 2,500 families got forcefully displaced in order to make way for CPEC. Furthermore, more than 600 people were killed in Balochistan only in 2016 because of their opposition to CPEC. Many of them were tortured, including women. There are estimations that alone in Gwadar, one million of new settlers are expected during the next couple of years. This will lead to a total outnumbering of the local Baloch people. Furthermore, the establishment of new businesses by non-Baloch encouraged by the central government will lead to severe distortion of fair and free economic competition, disadvantaging indigenous entrepreneurs. In order to undermine any opposition and guarantee

the safety of CPEC related projects, Pakistan will continue the militarization of Balochistan. As such, one must expect a further increase in military facilities and personnel as well as the presence of the armed forces in the public sphere. This is gaining significance since the respect for law and human rights of Pakistan's security forces and intelligence is hardly existent. In this context, there are clear indication that we should also expect an increase in Chinese security personnel. Last but not least one must keep in mind that CPEC lags legal cover since it runs through disputed territory and breaking international agreements. As a result, the whole CPEC implementation is featured by a lack of communication and transparency as well as accountability of the central government. To sum up, CPEC will not lead to an improvement of the economic and social conditions of the local people but it will strengthen the grip of the central government over Balochistan.

New Policy Promotes Private Sector Partnership With Global OEMs

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A pool of six defence firms is likely to be formed under the model, allowing them to bid for big-ticket military projects. The firms are L&T, Tata Advanced Systems Ltd., Tata Motors, Mahindra Defence, Reliance Defence, Bharat Forge and Adani Group. From the public sector, only Mazagon Docks Ltd. will compete as it is currently building the French Scorpene submarines.

Shortlisting Process

The short listing of the OEMs will also be an elaborate process. The process of short listing of OEMs will be done simultaneously with the process of identifying potential SPs. According to the MoD document, it will involve several steps:

- Issue of (Request for Information (RFI) to potential OEMs;
- Formulation of Staff Qualitative Requirements (SQRs); the SQRs will cover aspects of the platform as well as weapons required, wherever feasible;
- Based on SQRs and information already available/collected, an (Expression of Interest (Eoi) will be issued to OEMs in each segment;
- Eoi shall define the technologies to be acquired, including the details of the weapons and associated sensors along with the range and depth of transfer of technology (ToT) to achieve the stipulated level of indigenisation and development of industrial eco-system in India;
- OEMs shall provide response to the Eoi within two months;
- Based on the responses TEC will be carried out;
- OEMs that meet TEC requirements will be shortlisted for each segment, with the approval of DAC;
- Even if only one OEM is shortlisted, the process will be taken forward.
- Finally, short listed OEMs will have to provide an undertaking confirming their willingness to cooperate with the SP to manufacture the platform in India including handholding and support, transfer of technology and indigenisation. The OEM will also have to comply with the condition of providing life cycle support for the platform in collaboration with the SP.

Similarly, based on the AON approved by the DAC, segment-wise RFPs shall be issued to the shortlisted Indian Companies. RFP shall broadly seek following details:

- Commercial offer for the identified platform and 10 years Performance based logistics (PBL)/other maintenance arrangements specified.
- Mandatory requirements related to indigenisation roadmap, transfer of technology, creation of R&D capabilities and skilling provisions etc.

The list of shortlisted OEMs shall also be annexed to the RFP so that the shortlisted Indian companies can freely engage with such OEMs and finalise their techno-commercial offer in agreement with any of these OEMs. One Indian company can engage with any or all OEMs, but can finally submit only one offer in agreement with any one of the OEMs. As an exception, in segments with diverse platforms such as helicopters, potential SPs may submit response with more than one OEM to have best technology solution.

Future Roadmap

Interestingly, the MoD document lays out a future roadmap for subsequent acquisitions. It says, in parts: "To achieve self-reliance, within the country, subsequent acquisitions in the identified segments/platforms should ideally be carried out from Indian Companies under Buy (IDDM), Buy(Indian), Buy and Make (Indian) and Make categories of acquisition under DPP. This can be accomplished only when Indian companies make considerable long-term investments in capacity creation and capability development including infrastructure, tiered eco-system of vendors, skilled human resources, futuristic R&D etc."

In order to motivate the Indian companies to achieve these objectives, the process for evaluation of bids for subsequent acquisitions shall apart from commercial offer, provide adequate weightage for the following factors pertaining to their experience and track record in the respective segment:

- Investments by Indian companies to construct and improve segment specific infrastructure like workshops and production lines

as well as availability of skilled manpower

- The nature of R&D investments made by the companies including tests and evaluation facilities and infrastructure;
- Development and acquisition of relevant technologies and execution of advanced and state-of-the-art manufacturing processes;
- The extent of the eco-system created such as the number of vendors developed and the value of orders placed on these vendors.

Comments

The Strategic Partners model proposes partnerships between the defence ministry and private companies. The private companies will create a three-tier defence ecosystem. Tier 1 will consist of the big companies and tier-2 and tier-3 will comprise smaller vendors and suppliers. The components made by tier-2 and tier-3 will be integrated by tier-1.

It is expected that the Strategic Partners Policy will open up and also speed up the production of fighter jets, submarines, helicopters, tanks of the future and armoured vehicles for the Indian armed forces. India is running short on fighter jets as some 300 are needed in the next decade while submarines are held up even as China is racing ahead with some 68 vessels compared to India's 15. Some 800 helicopters of various types are needed by the Air Force, Army and the Navy.

'Make in India' policy in the defence sector is expected to get a boost while the Indian industry will acquire cutting-edge capabilities to be self-reliant in the vital sector of national security requirements. At present, India is the world's largest importer of weapons and military equipment, accounting for 13 per cent of all such international imports, this was revealed in a report released by the Sweden-based think tank Stockholm International Peace Research Institute (SIPRI) in February this year.

The SP is expected to play the role of a system integrator by building an extensive eco-system comprising development partners, specialised vendors and suppliers, in particular, those from the MSME sector.

Will Astra Missile Live Up To Expectations?

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Additionally, under the Make in India initiative, such JVs will help improve the overall research quality in the associated fields but also give the Indian companies an opportunity to contribute towards such projects in the future.

Importance of BVR missiles can never be overstated in today's battlefield. Air power and superiority of a combat aircraft can be expressed as it's ability to have high kill probability at beyond visual ranges.

Hurdles in Development of Seeker Technology

There are many technological aspects to

build a seeker such materials, signal processing, data fusion techniques, computation.

To develop a fully capable active radar seeker for a missile India must focus on improving the materials research and to select the optimum performing such as Gallium Nitride and explore other semiconductors to fabricate the power devices on board the missile.

Another field is that of computation. Updating the targets location seamlessly and ensuring that the on board processors are able to generate a shortest possible distance to intercept. In case of highly manoeuvrable

targets the missile should be able to sustain loads greater than 40G. The guidance computer should update the path to intercept with every change in position of the target so that the missile bleeds less energy and is able to have enough energy for terminal phase.

The use of software programmable loads for missile seekers will greatly enhance their capability. With such seeker technology, missiles can be updated at depot or flightline level with new software fixes to overcome vulnerabilities observed in combat operations.

MILITARY LOGISTICS

An IMR Investigation

ECHS Looted by Private Hospitals

Empanelled hospitals and diagnostic centres have been overpaid by the ECHS to the tune of Rs. 94.42 crores. As of March 2017, an amount of Rs.66.85 crores was outstanding to be recovered. The fact that Rs. 27.57 crores have been returned by the hospitals shows that the hospitals have accepted the irregularities in the payment.

Severe irregularities have been unearthed in the functioning of Bill Processing Agency (BPA) i.e., UTI (ITSL) under the Ex-Servicemen Contributory Health Scheme (ECHS) by the auditing authorities. ECHS authorities has cannot be fully absolved since they have failed to safeguard the financial interest of the Government and the contributors of the scheme.

Some of these irregularities are listed below. There could be many more since the audit by the principal controllers of defence accounts is carried out only on a small percentage of the bills and vouchers.

Bill Processing Agency in the Dock

From the nature of the overpayment, it can be seen that, the overpayment could have been avoided by incorporating necessary checks in the rate integration module stated above, which the BPA failed to implement.

The UTI (ITSL) was engaged as BPA in April 2012 and on pan-India basis from April 2015. A Memorandum of Agreement (MoA) was with ECHS on 29 September that year for three years. As per the MoA, the BPA was required to incorporate checks and measures to check for correctness of the rates of various procedures, medicines and investigations in reference to a master data to be fed in by Regional Centres and Central Organization of ECHS and an online post-audit module with facilities for managing various aspects of the information system, which was not done in time.

Payment on account of services rendered by hospitals is released by ECHS to the empanelled facilities like hospitals based on the online processing and pre-audit conducted by the BPA. ECHS payments are thereafter subjected to post audit by various Principal Controllers/ Controllers.

Since the BPA failed to incorporate the checks in the software, hospitals managed to get away with fraudulent claims.

The MoA makes the BPA liable for the excessive amounts approved and requires it to pay liquidated damages and forfeiture of service fees. The MoA includes this liability based on

irregularities detected during the course of audit by the principal controllers/ CAG. In case of persistent defaults, the BPA is liable to be penalized with penalty of five times the service fees. No such penalty has been imposed by ECHS.

CAG's Study

C&AG has conducted a sample study of 10 regional centres of ECHS for the period of 2012-13 to 2014-15 and reported its findings vide Report 51 of 2015. The C&AG has brought out glaring fraud being committed by the hospitals. Even personnel declared dead in earlier claim have again been shown as beneficiaries in subsequent claims.

- 123 duplicate bills in respect of the patients where name, referral number, period of treatment, amount of claim, etc, were same and payment has been made by ECHS. BPA failed to identify the same. Total value of such bills was Rs. 23.18 lakhs.
- Same bills have been paid repeatedly. 22 bills with value of Rs 8.20 lakhs were paid twice by ECHS. BPA failed to point out that the bills were paid during submission of soft bills and again on submission of hard copies. BPA earned service charges on both the occasions.
- Inflated Bills with rates in excess of package rates to the tune of Rs 1.92 crores were found.
- 10% reduction was not given for general ward. Total amount affected was Rs 11.96 lakhs.
- Rs 26.78 lakhs worth of higher rates were charged for accommodation.
- Room rent claimed at rates higher than entitlements - Rs 90.43 lakhs.
- 10% reduction was not given for cancer medicine. Amount involved Rs 20.55 lakhs.
- Processing delay was observed in 90 of cases on the part of BPA. In case timely payment had been affected, ECHS would have earned two per cent discount, ie, Rs. 34.10 crores, as per the MOU with hospitals. Inefficiency of the BPA caused a loss of Rs 34.10 crores.
- 27 claims were made by hospitals, where the beneficiaries were already declared dead in their earlier claims. The claims costed Rs. 5.86 lakhs.
- Hospitals raised inflated bills in 37 cases.

Two different hospitals raised bills for same patient during similar or overlapping period.

Accountability

11. UTI (ITSL) has failed to implement the approved modules through which the



overpayment could have been stopped. Further despite detecting huge overpayments by the post audit, and intimating to the ECHS for effecting recovery, the ECHS/BPA have failed to effect recovery of Crores of rupees. There is clear provision in the MoA directing the BPA / ECHS to recover the overpayment from the 'very next bill.

Major Deficiency in Contract

13. One of the major deficiencies in the contract is that, the service charges paid to the BPA is directly proportional to the amount reflected in the bills claimed by the hospitals. Thus the inflated hospitals bills have led to inflated service charges being paid to the BPA.

Suo-Motto irregular step by ECHS

14. Further it may be seen that the MD, ECHS has revised the service charges of two slabs in which maximum number of the bills are received. The service charges have been revised without assigning any reason to it. There are no financial power delegated to ECHS to revise the service charges, since these have been fixed as per the CGHS norms. CGHS has not revised the charges.

There is provision in the MOA to impose liquidated damage by forfeiting the Performance Bank Guarantee (PBG) by hospitals. In case of initial violation 15 of the PBGs as agreed could have been imposed. Where financial irregularities have been repeatedly observed, hospitals can be removed from the list. No action was taken by the ECHS.



If the audit parameters adopted by the C&AG are implemented in the post audit of bills, the overpayment detected may see many fold increase.

Recommendation

service charges to be paid to the BP A is

directly proportional to the amount of the bills. Higher the amounts of the bills, higher are the service charges paid to the UTI-ITSL.

Falsely claiming treatment charges for dead beneficiaries shows gross insensitivity on the part of the hospitals and attempt to defraud the Govt.

The agency has failed to provide an efficient

and transparent forum for processing the claims. Rather the functioning has de-generated. The role of watch-dog, which should have been performed by UTI-ITSL is now being performed by PCsDA/CsDA through post audit of the claims. The watch-dog (UTI-ITSL) has, thus failed to full-fill its responsibility.

5. There is an immediate need to restore the faith in the system for Which, it is essential that the contract with UTI-ITSL be scrapped by invoking the provisions of Para 5.1, 7.2 and 7.6 and other relevant Para of the MoA. As per Para 5.1, 7.2 and 7.6 of the MoA, the contract can be scrapped for not implementing the modules of contract. The UTI has failed to implement the provisions of the Contract, despite involved in the processing of bills since 2012.

6. Any continuation of Contract with UTI-ITSL will further perpetuate the structural mechanism erected to defraud the Govt. There is no need to further wait for higher corruption activities to take place since both the internal and external audit has pointed out severe corruption practice. Accountability in terms of CVC circular no. 14/11/16 Dated 23/11/2016be undertaken for the lapses observed.

India Requires a Revised “Death Ground Strategy”

Contd from page 47

guided; command guided, Global Positioning System (GPS) guided or infra-red (IR) guided. Advantage of laser and command guided systems is that they are able to hit moving targets. The man-in-the-loop systems allow the weapon to be steered off the target if conditions for impact are not satisfied. Urban COIN operations targets are typically small and fleeting and create high risk of collateral damage and there is need for accurate weapons with lower yields.

Advantage Helicopter

Helicopters have the advantage of their ability to operate at low speed near the ground. This allows them to operate close to both friendly troops and potential targets. They have lesser chance of visual misidentification and therefore correct targeting is more assured. Helicopters normally carry direct fire low-yield weapons, which makes them well suited for operations in areas where collateral damage is a concern. The low-level and low-speed capabilities of helicopters are their source of strength and also their source of weakness. Operations at low level and low speed make helicopters vulnerable to attack from the ground. Insurgents are likely to have access to some form of low-technology tactical anti-air capability. IR SAMs, such as the US Stinger and the Soviet SA-7 series, are prevalent among many of the world's insurgent groups. Even when helicopters are equipped with the latest missile approach and warning systems (MAWS) and IR decoys, they are still susceptible to attack with heavy calibre machine guns and rocket-propelled grenades. Insurgents detect helicopters visually and aurally. In all COIN operations around the world there have been significant helicopter

losses. Their advantages need to be weighed against the risk of platform loss and the strategic effects this may have.

IAF against Naxalites – Options and Challenges

Currently NTRO and IAF Unmanned Aerial Vehicle (UAV) Searcher II and Heron are already being used for day and night reconnaissance and surveillance. A full unit of Mi-17s is deployed for day and night operations for troop insertion, extraction, casualty evacuation, and logistics support. The helicopters have armour plating. They carry armed gunmen to retaliate in self defence. The next level of escalation would be use of Mi-25/35 attack helicopters to target larger concentration of militants. The Rudra (Weapon System Integrated ALH) equipped with Forward Looking Infrared (FLIR) and Thermal Imaging Sights Interface could also be used. In due course IAF will get the indigenous LCH and the much more versatile Apache attack helicopters. These will also act as a deterrent for a mass scale attack by the militants. The third level of escalation could mean use of the BAE Hawk Mk 132 with guns or rockets. Jungles of Chhattisgarh provide protection for insurgents and restrict the ability of air power for interdiction operations but a large amassed force can be a good target form the air. Consequently, insurgents' freedom of movement and ability to concentrate firepower become more limited. This thinning of insurgents enables government control. Once this control is established the non-military functions critical to the ultimate success of the campaign, such as rebuilding the infrastructure, economy and standard of living, can be carried out. When

insurgents are dispersed and difficult to identify, precision offensive CAS could be employed. Defensive CAS can protect own ground forces through armed aerial patrol and search and destroy attack. The unique view of the battlespace from the air and the ability to provide an independent visual verification of the target provides advantage to ground forces. Air Power has also been used world-wide for targeted killing of individual leaders. Generally, ideological insurgencies normally revolve around a small number of leaders which means they are more likely to be affected by a leader's loss. Capturing of the key leaders may often be more useful though.

IAF's heavy lift Mil Mi-26 helicopters can move large reinforcements and critical large equipments in special contingencies. These will one day be replaced by the Boeing CH-47F Chinook helicopters. The UAV fleet will one day be augmented by Rustam, AURA and other combat UAVs.

Air power offers advantage of quick deployment of overwhelming force. The most effective roles for offensive air power are interdiction and CAS. Interdiction restricts insurgent movements. Collateral damage and fratricide risk must be minimised or eliminated. The platforms must have inbuilt survivability. Man portable threats are making the operating environment more dangerous. A risk of a platform loss could be big dampener. Non-lethal means of achieving battlefield effects could be mere presence of a fighter aircraft or an armed helicopter and it will act as a deterrent. India has used offensive air power against insurgents in the past. Political assessment and will power are required.

DEFENCE COMMUNICATIONS

KPS Gill - Terminator of Khalistani Terrorism

A controversial and celebrated police officer

A Tribute by IMR

Director General of Police, KPS Gill, IPS, could be loved or admired as well as hated with equal vehemence -but no one could ever be indifferent to him. A towering figure that strode Punjab's landscape during a trying and turbulent phase, he was confident that militancy would never return to Punjab.

Kanwar Pal Singh Gill, one of India's most celebrated cops, passed away in New Delhi on 26 May 2017. He was 82.

Popularly known as the 'Lion of Punjab' and 'Super Cop' for the determined and often controversial way in which he put down Sikh militancy, Gill had also been an advisor to the Gujarat and Chhattisgarh governments, a hockey administrator, and a prolific commentator on security issues.

He was honoured with Padma Shri in 1989 for his outstanding work as a civil servant.

Professional Career

Inducted into the Indian Police Service (IPS) batch of 1958, Gill began his career and achieved much of his initial fame in Assam, where his no-nonsense style of functioning and aggressive policing earned him both admirers and critics.

Gill returned to his home state Punjab in 1984. He was the Director General of Police for two tenures, from 1988 to 1990 and 1991 to 1995. During his stay in Punjab, Gill played a historic role in putting down Sikh militancy.

Gill stepped-up police encounters, increased rewards for policemen and informers for killing and spotting militants, which in turn resulted in several alleged atrocities and also endeared him to the police ranks.

Rights groups documented numerous instances of human rights violations by the Punjab police under Gill's watch.

It was in May 1988, during Operation Black Thunder, that Gill truly grabbed national and international attention. Without censoring out the media, Gill carried out the 1988 operation with very little damage to the Golden Temple while causing heavy casualties to the militants. Official



KPS Gill
1934-2017

“Gill stepped-up police encounters, increased rewards for policemen and informers for killing and spotting militants, which in turn resulted in several alleged atrocities and also endeared him to the police ranks.”

count said at least 43 Sikh militants were killed and 67 had surrendered.

When Punjab violence peaked in 1991, the government intervened to bring back Gill as the DGP in 1992. By 1993, the levels of violence had dramatically fallen. Gill's firm hand also resulted in Punjab emerging into a peaceful era. And in the process he created a template for anti-militancy operations in the country.

Over the years, Gill's advice has been sought out by various States, and even Sri Lanka.

Leadership Qualities

Very few police officers become legends in their own lifetime. KPS Gill was one such legend in a life filled with events critical for national security.

Possessing the dexterity of a chess player, Gill planned things meticulously, making him the tallest in stature among all Indian Police (pre-1947) and Indian Police Service cadres, surpassing many big names. Had he been given a chance, he would have made a difference to the situation in Kashmir.

He deftly handled the controversies on police tactics. He reasoned that some decisions in the field had to be taken on the spur of the moment.

He was a hard taskmaster, but gave his force the freedom of action. He always said a few decisions can go either way, but we should remain focused on

eliminating the terrorists.

Gill was an outstanding police officer and leader who embodied great secular and nationalist credentials and there was nothing petty that could be attributed to him.

The precision in Gill's approach made him a successful leader, as he exposed the criminal character of the pro-Khalistan leadership to deny them the local support, which they were getting. The Sikhs thought that they were not fighting for their cause. It was only Gill who proved a point that terrorism is not an ideology; rather, it is a tactic to defeat the state.

His unique methods made Gill a great police officer, as he was selfless and always believed in the noble cause to do good to society. But he often transgressed from the rule of law and

Constitution.

However, Mr Gill will always be remembered for bringing normalcy back in Punjab - though with harsh and ruthless policing without caring much for human rights and corrupt practices adopted by personnel.

He stood by his officers as a true leader would, encouraging and motivating officers and maintaining his calm even in the worst of crisis.

The lesson of responding and not reacting to situations, of thinking ahead and planning preventive measures instead of taking out the stress on already tense officers was a sterling quality.

In his fight against terrorism in Punjab in the 1980s, Gill led from the front and reached all encounter sights, guiding officers amidst heavy gunfire. His coordination with the Army, paramilitary forces, civil administration and political class was exceptional. He was an astute general, a macro-manager with an eye for detail and a leader who completely trusted his men.

His fight against terrorism and loyalty towards the force did not end with his retirement. He remained concerned about his officers facing cases relating to the period of the fight against militancy.

A thoroughly insightful man, KPS Gill was someone who always believed that if a person has a will, he can do anything. He was always of the view that Punjab can come out of the problem of drugs and all that the state needs is a strong iron hand to attain this. He shared his experiences with Rajiv Gandhi and how the latter gave him a free



“KPS Gill was a true secular figure - much above the delineations of being a Hindu, a Muslim or a Sikh. He used to say, ‘I am an Indian first’.”

hand to handle Punjab's insurgency. He held Rajiv Gandhi in very high regard and would often say that the Congress lost everything the day Rajiv died.

KPS Gill was a true secular figure - much above the delineations of being a Hindu, a Muslim or a Sikh. He used to say, "I am an Indian first".

He was someone with whom you could talk about anything in the world. A brilliant orator, his love for literature and command over the English language was worthy of admiration.

Gill was ruthless, innovative, focussed yet perceptive. As a genuine tribute to KPS, it is high time that in a focussed manner, Central Armed Police Forces (CAPFs) are empowered to take on internal security challenges like Punjab Police. The North-East with Assam Rifles in the lead with formidable state police forces like Nagaland and Manipur in support, is the best place to implement it, in a time-bound manner.

Despite his hard power-centric orientation, innovation was intrinsic to the Supercop, as displayed by him in Operation Black Thunder.

KPS Gill failed to get his due, no matter whether it was because of the charge of human rights' violations that he had to face, or any other incident. Little did anyone try to think that he was given Punjab at a time when there was no other choice for him to save his land from insurgency. The government remained unsuccessful in fully utilising the talent that this man was blessed with.

Operation Blue Star

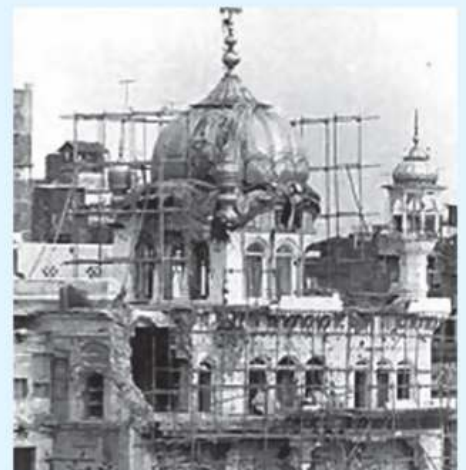
The roots of Operation Blue Star can be traced from the Khalistan Movement. The Khalistan Movement was a political Sikh nationalist movement that wanted to create an independent state for Sikh people, inside the current North-Western Republic of India.

The Khalistan Movement originally started in the early 1940's and 50's, but the movement was most popular in the 1970s and 1980s. Jarnail Singh Bhindranwale, who was the leader of the Damdami Taksal, was another important factor which led towards Operation Blue Star. Bhindranwale had a heavy influence on the Sikh youth in Punjab during this time as the leader of the Taksal. Bhindranwale propagated original values of Sikhism and persuaded people, both young and old to follow the rules and tenets of the religion. Bhindranwale is noted for his involvement in Operation Blue Star, in which he and Khalistan supporters occupied the Akal Takht complex, including the Golden Temple, in Amritsar. Bhindranwale was widely perceived to be a supporter for the creation of a proposed Sikhism-based theocratic state of Khalistan. The main motive of Operation Blue Star was to eliminate Sant Jarnail Singh Bhindranwale, along with other Sikh militants and regain control over the Harmandir Sahib in Amritsar.

Operation Blue Star which occurred between 3-8 June 1984 was an Indian military operation, ordered by Indira Gandhi, then Prime Minister of India, to eliminate Jarnail Singh Bhindranwale from the Golden Temple in Amritsar. Jarnail Singh Bhindranwale was accused of amassing weapons in the Sikh temple and starting a major armed uprising.

The government seemed unable to stop the violence in Punjab, Haryana, and Delhi. Indira Gandhi ordered the army to storm the temple complex in Punjab. Operation Blue Star was a mixed success.

A variety of army units along with paramilitary forces surrounded the temple complex on 3 June 1984. The army kept asking the militants to surrender, using the public address system. The militants were asked to send the pilgrims out of the temple premises to safety, before they start fighting the army. However, nothing happened till 7 PM. The attack also took place on a Sikh Holy Day, when there were an extra 150,000 -200,000 civilians. The army had grossly underestimated the firepower possessed by the militants. Thus, tanks and heavy artillery were used to forcefully suppress the anti-tank and machine-gun fire. After a 24-hour firefight, the army finally wrested control of the temple complex. According to the Indian Army, 136 army personnel were killed and 249



Also That after Operation Blue Star

injured, while insurgent casualties were 493 killed and 86 injured. Unofficial figures go well into the thousands. Along with insurgents, many innocent worshipers were caught in the crossfire. The estimates of innocent people killed in the operation range from a few hundred of people.

MILITARY HISTORY

The International Context of the Bangladesh Liberation War

Independence Never Happens in a Vacuum

Siegfried O. Wolf

In 1971, the world's witnessed the emergence of its 136th nation, Bangladesh. For most analysts of the South Asian region, this did not come by surprise. The matter why was quite apparent for the experts, but the when and how, especially with which consequences made the international security circles and leading politicians feel quite uncomfortable.

Tremendous Inequalities

After the formation of Pakistan, in 1947, an extraordinary rift existed between its two wings, East Pakistan and West Pakistan, which were separated by about 2,000 km of Indian territory. A major difference was language, with Urdu the main and state-supported language in West Pakistan and Bengali the suppressed language of its Eastern part. This disparity resulted in an ethno-linguistic movement in the early 1950s demanding that Bengali be made a state language too. The movement got further aggravated by the tremendous economic and political inequalities to the disadvantage of the Bengali people. In order to maintain superiority, West Pakistan, which treated its Eastern part as an internal colony, responded to notions of autonomy and a separate identity with violent repression. Consequently, the language movement gradually but persistently transformed into a struggle for independence that began with its declaration on 26 March 1971 and ended with the liberation of Bangladesh on 16 December 1971.

West Pakistan Military's Fears

The trigger for open conflict between East and West Pakistan were the 1970 general elections and the negligence of the results by the then ruling junta of General Yahya Khan. In the East, it was expected that Mujibur Rahman's Awami League, which won not only most of the seats in the East but also in the National Parliament, would lead the new national government in Islamabad. However, this was blocked by the West Pakistani military, which feared the loss of its own power and control over East Pakistan, if they handed over authority to Mujibur. The establishment in West Pakistan was aware that a federal administration under Mujibur Rahman would lead to a tectonic shift in the country's power structure with severe impacts in the country's domestic and international field. In other words, Operation Searchlight can be seen as a pre-emptive strike on political forces like the



“In the East, it was expected that Mujibur Rahman's Awami League, which won not only most of the seats in the East but also in the National Parliament, would lead the new national government in Islamabad. However, this was blocked by the West Pakistani military, which feared the loss of its own power and control.”

Awami League because they could assert their legitimate power. There is no doubt that the beginning of the violent suppression of the Bengali people through the West Pakistani armed forces marked one of the most significant and dramatic events on the subcontinent after its bloody Partition in 1947.

The question that arises is why the international community was not willing or able to stop the military operations in Pakistan's Eastern wing right from the beginning? Of course, Yahya Khan explicitly denied any involvement of Pakistani soldiers in a 'Genocide' and condemned it as propaganda against West Pakistan. However, due to the presence of international media and diplomatic missions, there was credible and impartial reporting about the start of large-scale massacres and target-killings in Dhaka. Most remarkable in this context were the reports of US Consul General Archer Blood from March 27th, 1971 until he was recalled from his post in Dhaka – obviously for being too inconvenient. Most significant was his last cable on 6 April 1971, the so called 'Blood Telegram', in which he denounced the complicity of the US administration of then US President Richard Nixon



Bangladeshi women volunteers undergoing arms training

and his National Security Advisor Henry Kissinger in the genocide.

Changing International Political Equations

In this context one has to state that the whole process of Bangladeshi state formation did not happen in a 'South Asian vacuum'. The national liberation struggle of the Bengali people against the oppression of West Pakistan coincided with and became enmeshed in a major structural transformation of the international political system. The most characteristic feature of this phenomenon was that the rigid bipolarity determined by the rivalling two superpowers – US and Soviet Union – as well as their firm diametrical alignments following the World War II was loosening. A major provoker of this, was the Soviet-China split which became unbridgeable after the ideological differences between Maoist Beijing and Marxist-Leninist Moscow culminated at the border conflict between both countries in 1969. Not only was the myth of a monolithic communist camp publicly brought to an end, but also increasing strains within the 'anti-communist coalition' appeared. The rising conflicts over economic interests between the US, Western Europe and Japan marked the onset of a mutual alienation. As a result, the global order in the early 1970s shifted from bipolarity towards some kind of multi-polarity. Even though the 'old polar powers' US and USSR were still dominant, new emerging players were gaining more international leverage, most notably China with its growing economic power and India with respect to its large land mass and huge population. Nevertheless, the sharp Cold War antagonism as well as the

“None of these measures of the Nixon administration worked out as intended. First, the US proposal for ceasefire at the UNSC got vetoed by the Soviets. Second, the Chinese did not build-up much military pressure on its borders with India. Third, New Delhi was not impressed by the American 'gunboat diplomacy' and just ignored the presence of the 7th Fleet of the US in 'its waters'.”

omnipresent threat of a 'Third World War' remained.

This very context had severe implications for the Bangladeshi independence struggle. The political leadership of the most significant players at the global scene were aware that the newly

emerging international system was more politically volatile. Hence, it became more difficult to maintain control over areas, which were seen as part of their respective influence. Especially in Washington, after the failure of its 'Roll-Back policy' against Communism, as the Korea War and Bay of Pigs invasion demonstrated, a major redefinition of its foreign policy was getting off the ground, namely its 'Détente Policy'. At the core of this decision was the understanding that a relaxation in the Soviet-US relations was necessary. In order to 'thaw' the encrusted Cold War constellation, a rapprochement with China – which would also keep 'overambitious newcomers' like India at bay – was seen as one of the most eminent cornerstones of this strategy. The overall aim of this newly introduced Realpolitik – roughly characterised by doing away with ideology-based political decision making in favour of a pragmatic approach – was to normalize US-USSR relations, to balance Beijing and Moscow as well as to restrain the influence of the increasingly apparent alliance between New Delhi and Moscow. The Indo-Soviet Friendship Treaty signed in August 1971 further aggravated Nixon's personal antipathy against India and her Prime Minister Indira Gandhi.

However, regarding his new tilt towards Beijing, Nixon had a major problem. Despite the fact that China under Mao Zedong was also ready to open up towards Washington – because it was confronted with Soviet forces amassing at its borders, ostensibly in preparation for an invasion of China – the US had no direct access to the Chinese leadership at that time. This brought Pakistan in the picture. With the help of the government in Islamabad and the strong support of military top brass a secret liaison between Washington and Beijing was facilitated. China was increasingly seen as an 'ally of convenience' in order to secure US interests in South Asia, and Pakistan was identified as the only possible conduit for it. However, at the same time Washington was also aware of Islamabad's limited capacities, especially due to the tremendous asymmetric power relations, to compete militarily successfully with the Indian Union. More concrete, US were very sceptical regarding the prospects for West Pakistan to maintain control over its eastern wing in case of an armed confrontation. The chance for Islamabad to keep in check the Bengali aspirations of liberating themselves from the West Pakistani choke became even poorer with view on the Indian support for the freedom fighters and the unfavourable geographic conditions.

Nixon's Anti-India Bias

Basically the Nixon administration feared any foreign intervention into the Bangladesh Liberation War. The US were primarily concerned about an Indian intervention. Washington's rationale was that India would bandwagon with the struggle of the Bengali in order to finally settle its scores with Islamabad with dramatic consequences. It was expected that, if India helped to set East Pakistan free, it would be dragged in New Delhi's slipstream and, thereby, be turned into another client state of the Soviet Union. Furthermore, there were serious concerns among US security circles that India would use the

event to send its troops towards Islamabad to oust the pro-US military regime and, perhaps, even to dismember its neighbour. Given the fact that Washington saw the Pakistani military as the most suitable partner for accommodating US interests in the Pakistani rump-state and the extended region, an Indian intervention was perceived as an existential threat to US interests: it would lose its only ally on the subcontinent which also provided the key towards China. To prevent such a scenario from happening, Washington announced a policy of 'maximum intimidation' against India. Therefore, US naval forces were sent into the Bay of Bengal and China was asked to amass troops at the Indian frontier to increase pressure on the Indians. At the same time, the US attempted to enforce a ceasefire through the UN Security Council (UNSC) to protect Pakistan from a militarily enforced break-up.

However, none of these measures of the Nixon administration worked out as intended. First, the US proposal for ceasefire at the UNSC got vetoed by the Soviets. Second, the Chinese did not build-up much military pressure on its borders with India. Third, New Delhi was not impressed by the American 'gunboat diplomacy' and just ignored the presence of the 7th Fleet of the US in 'its waters'. Instead, it intervened and Bangladesh gained its independence. But the most fundamental mistake of Nixon and Kissinger were their fatal misperception of Indira Gandhi's intentions regarding Pakistan and the Soviet Union. In contrast to US fears, India was not at all interested 'to slice the West Pakistani pie'. The alliance with the Soviet Union was a logical consequence of the anti-Indian sentiments in Washington. In other words, it was based on pragmatism and not on friendship. Therefore, there was no threat that India or Bangladesh be turned into a Soviet client state. For the sake of completeness, it has to be pointed out that India did not intervene in East Pakistan because of humanitarian reasons or in order to defend democratic values. After being overwhelmed by millions of refugees from East Pakistan and having the chance to weaken Pakistan, New Delhi's actions in towards East Pakistan were as much guided by Realpolitik as the US's. For example, the taking away of all significant military equipment left in Bangladesh by Pakistan indicates that it was not all about the well-being of the Bengali people.

Common Goal Achieved

Nevertheless, in sum, it seemed that 'the world' accepted the potential separation of East Pakistan and the formation of a new independent state of Bangladesh as a fait accompli. The only remaining issue for the US, China, and partly also for the Soviet Union was, how to get West-Pakistan through the 'East-Pakistan crisis' with as little damage as possible. To be sure, all major players (besides India) had no interest to get deeply involved in the conflict, neither militarily nor diplomatically, by putting sufficient pressure on Islamabad to stop the genocide among Bengali people and the pogrom-like killings of Bengali political leaders and intellectuals. Moscow and Washington just wanted to be sure that their respective adversary would not gain too much influence in South Asia and that no regional player would gain too dominant a position. Therefore,



Indian PT76 tank in Bangladesh, 1971

maintaining the contentious triangle of India-Pakistan-China appeared the most appropriate strategy to maintain some kind of balance in South Asia. With the independence of Bangladesh and the preservation of territorial integrity of West Pakistan, this common goal was apparently achieved.

Leaving aside Pakistan, therefore, the governments of the major powers were officially satisfied with the outcomes of the war. The US was able to achieve its minimum goal to preserve an allied Pakistani rump-state and maintain its strength as much as possible. Furthermore, it was able to keep the Soviet Union out of the conflict. China was able to stand-up against the Soviet Union which had to accept the sovereignty and territorial integrity of China. Furthermore, the US approach to seek an alliance with Beijing undoubtedly bolstered China's international leverage and prestige. This found its most debatable expression in granting China a permanent seat in the UNSC to the detriment of Taiwan, in October 1971. This marked a move against India, which was not granted a permanent seat in the UN Security Council. Regardless, India had been able to substantially weaken its enemy Pakistan and to establish a hegemonic position in South Asia. Furthermore, it did not yield under US pressure. Achieving such an enormous success in foreign policy, the Indira Gandhi administration in New Delhi was able to keep the increasing opposition against the increasingly autocratic style of government at bay, at least until she had to proclaim state of emergency 1975 in order to stay in power. Finally, the Soviet Union was able to maintain its alliance with India to counterbalance China.

The Bangladesh Liberation War demonstrated that the US and other members of the United Nations were willing to fade out any esteem for democratic principles and human rights in order to achieve their goal in 1971. The

prevalence of inaction regarding the Genocide of the Bengali people committed by the Pakistan Armed Forces must be interpreted as a clear ignorance of the 1948 UN Convention on the Punishment and Prevention of the Crime of Genocide (Genocide Convention) by the respective national governments. To retrieve, at least partly, the 'democratic reputation' of the Western sphere, one might differentiate between the governments and societies in US and the bandwagoning Western Europe. There were deep sympathies towards the freedom struggle of the Bengali people among the civil societies and much activity was carried out to pressure their political leadership to change the policy direction in favour of the Bengali people. Here, the ground breaking article by Anthony Mascarenhas 'Genocide' (Sunday Times, June 13th, 1971) functioned as a final wake up call. This phenomenon found not only its expression that the US Congress was forced to pass an embargo of weapons against Pakistan (which was illegally undermined by Nixon) but also in some of the world's greatest charity events – concerts for Bangladesh – were organized in New York to raise funds and international awareness for the refugees following the Genocide. However, these efforts were made far too late to change the unfortunate course of trajectories of global politics. To conclude, the victims of the Bangladesh Liberation War were not only sacrifices of the Pakistani Army but also of the global Realpolitik at this time. Or in other words, they were a payoff for helping the US to open up China. However, the prize for this policy – three million Bengalis killed, 30 million internally displaced persons, the exodus of 10 million people, the rape of hundreds of thousands of women and the ravaging of wide parts of the country – was paid by the Bengali people.



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IFSEC International	UK	20 - 22 Jun 2017	www.ifsec.events/international
New Age Risks 2017	New Delhi, India	23 June 2017	www.ficci.com
International Fire Safety Exhibition	Guangzhou, China	27-29 June 2017	www.cfe.cn.com/Combat
Force Protection India 2017	New Delhi, India	29-30 June 2017	www.imrmedia.in
Vehicles India 2017	New Delhi, India	10-11 July 2017	www.imrmedia.in
Air Defence India 2017	New Delhi, India	26-27 July 2017	www.imrmedia.in
MAKS Airshow,	Russia	15 - 20 Aug 2017	www.aviasalon.com/en
Soldier Technology India 2017	New Delhi, India	21-22 Aug 2017	www.imrmedia.in
MSPO	Poland	5 - 8 Sep 2017	www.targikielce.pl/en/
DSEI	London, UK	12 - 15 Sep 2017	www.dsei.co.uk
UAV India 2017	New Delhi, India	25-26 Sep 2017	www.imrmedia.in
BIDEC	Bahrain	16 - 18 Oct 2017	www.bahraindefence.com
Military Communications India 2017	New Delhi, India	November 2017	www.imrmedia.in
Defence and Security	Bangkok, Thailand	6 - 9 Nov 2017	www.asiadefence.com
DUBAI Airshow	Dubai, UAE	12 - 16 Nov 2017	www.dubaiairshw.aero
INTERSEC	UAE	Jan 2018	www.intersecexpo.com
Singapore Airshow	Singapore	6 - 11 Feb 2018	www.singaporeairshow.com
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CEREMONIAL

Battle Honours and Raising Day Anniversaries

Best wishes from IMR for anniversaries in July 2017

1 July

41 Armoured Regiment
46 Armoured Regiment
50 Armoured Regiment
51 Armoured Regiment
72 Armoured Regiment
84 Armoured Regiment
87 Armoured Regiment
90 Armoured Regiment
7 Field Regiment
151 Air Defence Regiment (SP) (Chhamb)
6 Recce & Observation Flight
52 Engineer Regiment
16 Guards
9 Parachute (Special Forces)
10 Parachute (Special Forces)
26 Punjab
28 Madras
19 Grenadiers
24 Rajput
18 Sikh
12 Dogra
14 Dogra
19 Kumaon
17 Mahar
11 Madras
11 Maratha Light Infantry
2 Sikh Light Infantry
13 Sikh Light Infantry
14 Sikh Light Infantry
8 Garhwal Rifles
16 Rajputana Rifles
17 Jammu & Kashmir Rifles
7/8 Gorkha Rifles
5 Ladakh Scouts

7 July

12 GASL Platoon (Engineers)

9 July

3/9 Gorkha Rifles (Chindits Day)

12 July

866 Engineer Works Section
4 Sikh Light Infantry

13 July

862 Engineer Works Section
865 Engineer Works Section

15 July

Parachute Regiment Centre
17 Madras
15 Dogra
15 Assam

16 July

3 Mechanised Infantry (1/8 Gorkha Rifles)
(Chushul Day)
6 Rajputana Rifles (Darapari Day)

19 July

Madras Regimental Centre

20 July

20 Grenadiers
21 Bihar
18 Jammu & Kashmir Rifles

21 July

4/9 Gorkha Rifles



3/9 Gorkha Rifles (Chindits)

3/9 Gorkha Rifles (CHINDITS) was raised 5 Jun 1917 at Birpur, Dehradun. Soon after its raising, the Battalion participated in the Third Afghan War 1919 in the NWFP. The Battalion was de-mobilized on 28 Feb 1921. On re-raising on 1 Oct 1940 it participated in the Burma Campaign as part of 77 Infantry Brigade under Gen Wingate's legendary 'Chindit's Force'. For this operation, the Battalion was bestowed the battle honour 'CHINDITS'.

26 July

Kargil Vijay Diwas

28 July

4 Mechanised Infantry (1 Sikh)
6 Maratha Light Infantry (Tengnoupal Day)

Kargil Vijay Diwas 26 July

Kargil Vijay Diwas is named after the success of Operation Vijay. On this day, on 26 July 1999, India successfully took command of the high outposts which had been lost to Pakistani intruders. The Kargil war was fought for more than 60 days, ended on 26 July, and resulted in the loss of life on both sides, India and Pakistan. Pakistan retreated after international diplomatic pressure.

Kargil Vijay Diwas is celebrated on 26 July every year in honour of the Kargil War's Heroes. This day is celebrated in the Kargil - Dras sector and the national capital New Delhi, where the Prime Minister of India, pays homage to the soldiers at Amar Jawan Jyoti at India Gate every year. Functions are also organized all over the country to commemorate the contribution of the Armed forces.

Initially, with little knowledge of the nature or extent of the infiltration, the Indian troops in the area assumed that the infiltrators were jihadis and claimed that they would evict them within a few days. Subsequent discovery of infiltration elsewhere along the LOC, and the difference in tactics employed by the infiltrators, caused the Indian army to realize that the plan of attack was on a much bigger scale. The total area seized by the ingress is generally accepted to be between 130 km² – 200 km².

The Government of India responded with Operation Vijay, a mobilisation of 200,000 Indian troops. Finally war came to an official end on July 26, 1999, thus making it the Vijay Diwas.

527 soldiers from Indian Armed Forces sacrificed their lives during the war.



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