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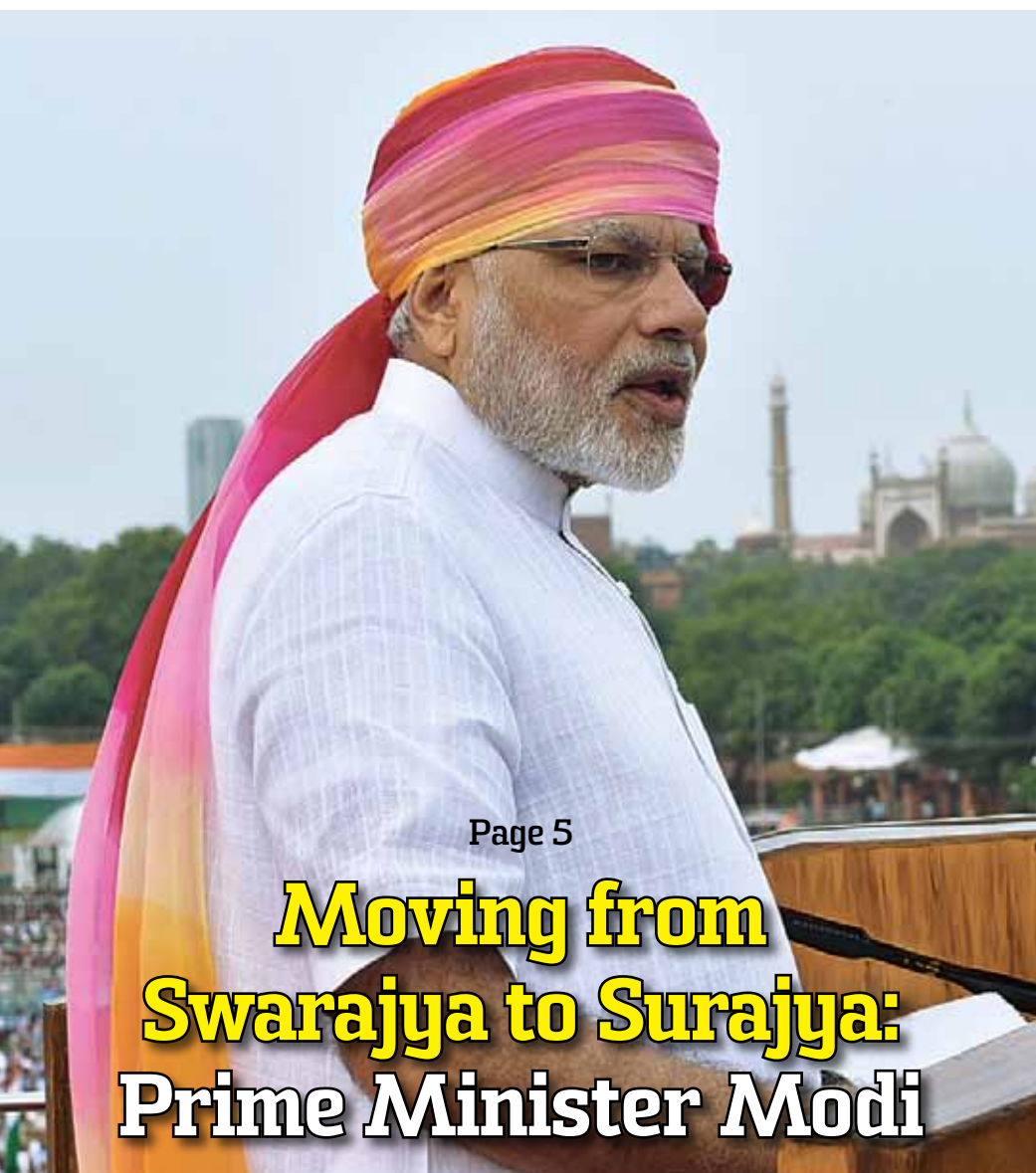


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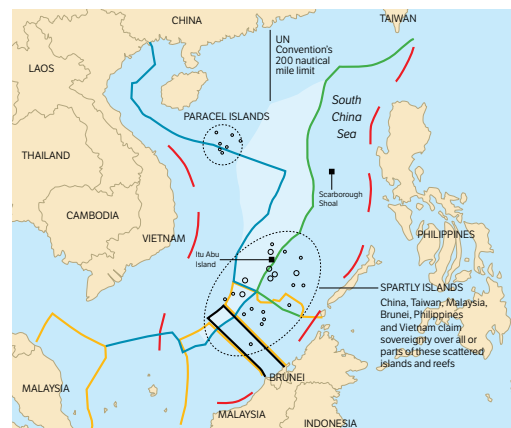
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“In a country like India with limited support from the industry and market, initiating 50 years ago (in 1964) publishing magazines relating to Army, Navy and Aviation sectors without any interruption is a commendable job on the part of SP Guide Publications.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

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



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OVER **5** DECADES SINCE 1964

Tata and Bell Helicopter to collaborate

Tata Advanced Systems Limited (TASL) and Bell Helicopter have signed an agreement to work together in support of India's aviation and defence modernisation initiatives with an emphasis on 'Make in India'.

Under this agreement TASL and Bell Helicopter will join forces to develop both commercial and government (including military) rotary-wing markets in India in the light utility and reconnaissance segments. The scope of this agreement is intended to include potential production and assembly capabilities, certain training and maintenance, repair and overhaul requirements, as well as research and development programmes and technology sharing that will grow industrial capabilities and result in innovative 'Make in India' solutions.

"TASL's alliance with Bell Helicopter is significant because of our shared synergies, our defence manu-



facturing capabilities and focus on innovation are well aligned with Bell Helicopter's core competence. This will build on the partnerships that TASL already has in the rotorcraft market allowing it to offer a full range of products to potential customers. The collaboration, which is in line with the government's 'Make in India' initiative, holds potential not only in the domestic market but will also strengthen India's position in the international market," said S. Ramadurai, Chairman of TASL.

"TASL has been a leader in driving industrial growth in India, and its organisation ideally complements Bell Helicopter both in terms of innovative thinking, manufacturing capability and a commitment to business ethics, integrity and customer satisfaction," said Mitch Snyder, President and CEO of Bell Helicopter. "We are honoured to build on our relationship with TASL to leverage its experience and knowledge to customise, integrate and manufacture specific local Bell Helicopter solutions for India." **SP**



Cover:

On the occasion of India's 70th Independence Day celebrations, the Prime Minister Narendra Modi's historic speech from the ramparts of Red Fort has got global attention, particularly for his mention of how Pakistan is creating a 'humanitarian crisis' in the name of counter-insurgency.

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Prime Minister's clarion call: From 'Swarajya' to 'Surajya'

On the historic occasion of 70th Indian Independence Day celebrations, Prime Minister Narendra Modi gave a clarion call to the nation from the ramparts of the Red Fort – to move from 'swarajya' (self-rule) to 'surajya' (good governance). Though as a nation we have made substantial progress, we are not where we should be as we have been saddled by 'poor governance' for these many years. Indeed, it is time to move away from this stupor.

Kudos to the Prime Minister who has been the moving force in this change that is taking place. The mantra, he has emphatically stated, is to 'reform, transform and perform'. There cannot be a better motivating slogan than this. The present government is not just about sloganeering as we have seen radical transformation happening across many verticals, including defence, aerospace and internal security.

On the geopolitical front, the nation has emerged stronger, thanks to the various engagements not just with the neighbours but many other countries. It is not an easy task getting the neighbours onboard, considering they have their own internal issues that tend to dictate their global postures. Cross-border terrorism is one which does not seem to go away and the Prime Minister castigated Pakistan for spawning terrorism within and across the border. Lt General P.C. Katoch (Retd) writes about how the Prime Minister's mention of human rights violation in Balochistan, Pakistan-occupied Kashmir (PoK) and Gilgit-Baltistan, is a shift in India's foreign policy, focusing on human rights. This was obvious quid pro quo to the situation that has been created in the Srinagar Valley with active assistance from Pakistan.

In this background, it was not at all surprising that there was turbulence at the recent 7th SAARC Home and Interior Ministers' Conference as Lt General Katoch points out that Pakistan, which is the crucible of terror, is not understanding the gravity of the situation in the region.

On the other front is a belligerent China, which is dominating the South China Sea, ignoring the verdict of the International Court

of Arbitration at The Hague. Analysing the situation is Bharat Karnad, Professor at the Centre for Policy Research, who has said that China was creating impediments designed to compel the navies of out-of-area powers and of the in-region disputant states, and, more generally, the \$5-trillion worth of annual ship-borne trade transiting this area through select waterways that the Chinese can more effectively police.

The Indian Navy is to get a boost as India has signed a \$1.1-billion deal to procure four more Poseidon-8I aircraft from the US and Lt General Katoch states that while this is good, we need to arm the 'foot soldier'. A P-8I is part of the search operations for the missing An-32 aircraft of the Indian Air Force. Reacting to the missing aircraft, he has asked policy makers to address issues – suitability of aircraft for paradropping and the vulnerability of large versus medium sized aircraft in the combat zone.

In another article on defence procurement policy, he argues that key domestic players in the defence sector want space for their foreign partners in the chapter on strategic partnerships, not just nominating Indian companies as strategic partners.

Happy reading!

Jayant Baranwal
Publisher & Editor-in-Chief

Prime Minister raises humanitarian concerns in Pak, unsettles neighbour



[By R. Chandrakanth]

On the occasion of India's 70th Independence Day celebrations, the Prime Minister Narendra Modi's historic speech from the ramparts of Red Fort has got global attention, particularly for his mention of how Pakistan is creating a 'humanitarian crisis' in Balochistan, Pakistan-occupied Kashmir, Gilgit and Baltistan in the name of counter-insurgency. Stating that the people of these regions are thanking him for taking up their cause, the Prime Minister, in a way, has responded to Pakistan's attempts to internationalise Kashmir, when in its own backyard it was committing heinous crimes in the name of counter-insurgency.

Taking on terrorism, including state-sponsored, Prime Minister Modi placed two perspectives in the address. One on how humanity is the driving factor for one set of people, while there is another kind who reward terrorism. Mentioning the brutal killing of innocent children in a school in Peshawar, the Prime Minister said the terror strike had moved him and Indians. "Innocent children became victims of the bloodbath; the temple of learning had blood strewn all around; innocent children were slaughtered." While the terror strike on innocent children ached the hearts of Indians, in Pakistan there were those who glorified terrorists, thus striking a contrast between good and evil.

Questioning on what type of 'terrorism-inspired' life they were leading and what type of 'terrorism-inspired governments' existed, the

Prime Minister was clearly pointing to state-sponsored terrorism. The world, he said, would understand these two differences. "For the past few days the people of Baluchistan, the people of Gilgit, the people of Pakistan-occupied Kashmir, have heartily thanked me and they have shown goodwill, a land which I have not seen, the people I have not met." He was highlighting the difference between humanity and terrorism to the world at large.

The Prime Minister also took up the issue of internal security and came down heavily upon Maoists and other extremists who indulged in killings. "Nowadays a game of killing innocents is being played out, on the pretext of Maoism in forests, on the pretext of extremism at border, on the pretext of terrorism in hilly areas by carrying guns on shoulders." Even after 40 years of bloodshed, these extremists had not realised that they have not achieved anything, they have not understood that violence is not the answer to development. Sternly warning those who strayed into such militancy, Prime Minister Modi said violence of any kind will not be tolerated and certainly not terrorism. "The

country will not bow down to terrorism, nor will it succumb to Maoism." Exhorting youth to give up such thoughts, he struck an emotional chord talking about dreams that parents would have for their wards. Appealing to the youth to return to mainstream life, Prime Minister Modi said: "Live a happy and peaceful life, for the path of violence never fetches benefit to anyone."

Praising the army personnel who 'live and die for the country', he said his government acknowledged their immense role and never delayed in resolving their issues, including the 'One Rank One Pension' imbroglio. Over 33,000 personnel had got martyrdom since Independence and India cannot forget their sacrifice. In a way the Prime Minister was saying that it was time to go beyond lip sympathy and get things done for those who protected our borders, those who maintained law and order, and those who ensured internal security, while dealing severely with those who indulged in extremism.

The government's mantra was to reform, transform and perform, he said and added that the image of the nation was more important than the image of the government or the party

Inclusive Growth

The underpinning of his speech was for citizens to take the nation from 'swarajya' to 'surajya' to bring about a qualitative and positive change in their lives. The government's mantra was to reform, transform and perform, he said and added that the image of the nation was more important than the image of the government or the party. And that the government was focused on substance over symbolism; integrated development over isolated development and empowerment over entitlement. The Prime Minister listed out the various achievements across a broad spectrum of life and said there was more to be done. **SP**

PM Modi's speech on 70th Independence Day

[By Lt General P.C. Katoch (Retd)]

Prime Minister Narendra Modi's Independence Day speech on August 15 was in the backdrop optimism wherein he said that if India was plagued by millions of problems it also had 1.25 billion minds to solve them. Earlier, Prime Minister Modi had asked for suggestions from the public as to what subjects he should speak on. His speech covered a vast array of issues mostly anchored on the achievements of his government, and the unmistakable focus on farmers, the poor, economy, technology and advancement.

Salient issues covered by the Modi were: independence earned by freedom fighters must be transformed into good administration; agriculture budget increased by 44 per cent (from ₹24,909 crore) in 2015-16 to ₹35,984 crore (in 2016-17) and several rural programmes launched like 'Pradhan Mantri Krishi Sinchayee Yojana' (₹50,000 crore being pumped into it) and 'Save Water, Save Energy, and Save Fertilisers'; government to foot the medical expenses of those below poverty line to the tune of ₹1,00,000; 17 crore people have opened their bank accounts under Pradhan Mantri Jan Dhan Yojana (24 per cent with zero balance) while 40 per cent of the population had no bank account till August 15, 2015; 100 per cent separate toilets for boys and girls have been built in all schools across the country (more than 4.25 lakh toilets in some 2,62,000 schools); 70,000 villages now have toilets; 20 lakh LPG consumers have given up the LPG subsidy and as many as 1.76 million connections have been given to BPL families under the 'Pradhan Mantri Ujjwala Yojana', aim of the project being to provide LPG connections to 50 million women from such families; today in one minute 15,000 railway tickets can be booked; big hospitals have online registration; IT refund is easy; passports can be made in two weeks; a company can be registered in 24 hours; postal network has been converted into payment banks to implement direct benefit transfer schemes; PSUs like Air India and BSNL are not running at loss now; solar energy has increased by 116 per cent; 100 km roads are being constructed daily; 50,000 km transmission lines have been laid; four crore gas connections were allotted in 60 weeks; 70 crore citizens have been given Aadhaar card; 1,700 old laws have been cancelled; and 77 core subsidised LED bulbs have been distributed saving 20,000 megawatt electricity; inflation has been restricted to 6 per cent; spectrum auction has been made transparent; Indian economy has reached third in the world; farmers can now sell their products online; One Rank One Pension (OROP) has been sanctioned; GST has put the country on one grid and the like.

On the foreign policy front, Prime Minister Modi signaled a shift by focusing attention on the human rights situation in Balochistan,

Pakistan-occupied Kashmir (PoK) and Gilgit-Baltistan. This was obvious quid pro quo to the situation that has been created in the Srinagar Valley by with active assistance from Pakistan, Pakistan passing anti-India resolution, eulogising Burhan Wani, observing black day and Pakistani Prime Minister Nawaz Sharif gloating Jammu and Kashmir (J&K) will become part of Pakistan and declaring to send support and medicines to protesters in J&K, etc.

At the fag end of his speech, Modi thanked the police and the soldiers for defending the country on land, sea and air. There has been considerable dissection of Modi's speech in the media. Television channels have been showing villages without electricity even though transmission lines have been laid in some and villagers saying repeated requests for electrification have been ignored. There are also clips on schools without toilets belying the claim that all schools have been provided toilets.

Earlier the CAG had pointed out that government claim of saving ₹20,000 from surrendered LPG subsidy was actually less than ₹2,000. The mention of police and soldiers at the fag end also has raised eyebrows not only because of the OROP controversy, non-addressal of anomalies of 6th Central Pay Commission (CPC) pointed out by the military, downgrading the military to police level in 7th CPC, acceptance of 7th CPC without addressing military's concern, and extending retirement age of doctors in civil and police forces, while denying the same to military doctors.

Modi's reference to Balochistan, PoK and Gilgit-Baltistan met the expected rhetoric from Pakistan that Modi was trying to divert attention from the situation in J&K, whereas it is Pakistan that has aggravated the situation in J&K to divert attention from the deteriorating situation within Pakistan - especially in Gilgit-Baltistan and Balochistan. Baloch separatists have

hailed Prime Minister Narendra Modi's Independence Day speech and termed it an "unprecedented" expression of "moral and political support". Representatives of the Free Balochistan Movement (FBM) based in Delhi and London say India should lead others in recognising Balochistan as a "historic nation" under the "illegal occupation of Pakistan". The opposition in India is decrying Modi for mentioning Balochistan, a Foreign Minister declaring Balochistan should not be India's concern, but he forgets it was Prime Minister Manmohan Singh who permitted the inclusion of Balochistan in the joint declaration at Sharm-el-Shaikh. Not that this makes any difference because Pakistan blames all such infirmities on R&AW anyway.

The bottom line however is that while Pakistan will continue to stoke the fires in India while she sits in the lap of China, will Modi translate his rhetoric about Balochistan and Gilgit-Baltistan into action? **SP**





BHARAT KARNAD

Narrowing the seas: Security ramifications of the SCS verdict



There's an aspect of China's seeking to acquire dominance in the South China Sea that the verdict on July 11, 2016, by the International Court of Arbitration at the Hague, did nothing to address and, which difficult military problem, curiously, has not so far been identified in international and regional strategic circles, nor have solutions been bruited about. The problem concerns China's narrowing this Sea by, quite literally, creating an obstacle course by forcibly annexing territory belonging to weak states, such as Philippines' Scarborough Shoal in the Spratly

Islands chain, and by creating 'artificial' islands. These are impediments designed to compel the navies of out-of-area powers and of the in-region disputant states, and, more generally, the \$5 trillion worth of annual ship-borne trade transiting this area through select waterways that the Chinese can more effectively police. It will strategically disadvantage adversary navies, allow Beijing to exercise a whip hand over global and Asian trade, and, otherwise obtain a mere closom (closed sea) that countries will be able to access only at Beijing's sufferance.

This article briefly examines the security ramifications of this development and proposes certain countermeasures that India, in particular, and other like-minded states, such as Japan, need to take. The most potent solution, it will be argued, is to respond by counter-narrowing the same sea for China. India can do this, it will be contended, by arming ASEAN (Association of South East Asian Nations) members, starting with Vietnam, with the BrahMos supersonic cruise missile, which will tilt the 'exchange ratio' hugely against Chinese warships, and to militarily exploit factors, such as the distance of the disputed islands, rocky outcroppings, and the 'artificial' islands from the Chinese mainland against China, and skewing the advantage towards defender states.

Context

But to first set the context: The Hague Court not only rejected outright China's expansive 'Nine-dash Line' claims in the South China Sea but declared illegal its occupation of rocky protuberances that at high tide disappear under water. It also declared illegal the artificial 'islands' China has created by pouring cement on coral reefs in order to bolster its spurious claims, saying these do not endow Beijing with any exclusive economic zone rights and privileges, and condemned such manifestations of 'land reclamation' on seven features just in the Spratly Islands area alone, and chided China for such construction it said were "incompatible with the obligations on a state during dispute resolution proceedings." Even if Beijing cannot claim the 12-mile exclusion zones around these newly built islands, it will feel free to consolidate its presence and use them for military purposes.

But the Tribunal did cut the ground from underneath Beijing's historical basis for its claims. Chinese junks plying the disputed waters in the distant past, it ruled, cannot constitute a foundation for China's extensive claims in the South China Sea, which the Court virtually dismissed as so much nonsense. "There was no legal basis", it said unambiguously, for China's "historic rights to resources within the sea areas falling within the 'Nine-dash Line'." It is an injunction that will hereafter apply to Chinese claims landward as well, including large parts of Arunachal Pradesh and Aksai Chin in Ladakh.

While the Philippines, which took China to Court, called for "restraint and sobriety" in the wake of the verdict, and was supported by India, Japan, and the United States, who called on all parties to respect it, China, predictably, rejected it. Foreign Minister Wang Yi described it as a prescription for "a dose of the wrong medicine, which will not help cure the disease." He went on to describe the malady as "fever" he accused external forces of "stirring up". In any case, by imposing an air defence identification zone (ADIZ) and conducting live fire naval drills in the disputed sea conjoined to some severe diplomatic pressure, Beijing succeeded in having the 10-member ASEAN remove references to the dispute or the Hague verdict in the communiqué issued by the group's 49th Foreign Ministers Meeting in Laos on July 20. China's strong-arm tactics fit in with its preferred mode of negotiating separately and on bilateral basis with each of the disputant states, something that Beijing believes will render them more amenable. But most legal experts agree that even if the regional states end up dealing singly, one-on-one, with China they will hereon insist on the new legal template established by the Hague Court.

That regional countries are loath to cross China is understandable. They have profited from balancing economic cooperation with China and US' security assurances. In the weeks prior to the Hague

India has a burgeoning economic stake in the Vietnamese sea territory with the Indian energy major, ONGC Videsh, in 2014 formally joining PetroVietnam to exploit the energy resources in the Paracel Islands area claimed by China

ruling, three US missile destroyers and the nearby USS Ronald Reagan Carrier Strike Group, had taken to 'stalking' the artificial islands, such as those near the Scarborough Shoal the Chinese had forcefully annexed from the Philippines in 2013. These ships operated in the 14-20 nautical mile range of these islands ostensibly on freedom of navigation patrols (FONPs) permitted by the 1982 UN Convention on the Law of the Seas (UNCLOS). The US will continue with such operations in the future to assert its rights. And more frequent FONPs is also what New Delhi should dispatch to these waters to assert India's right of free and peaceable passage.

Except the United States has not ratified this Convention, and neither has China, even as the ASEAN have done so, as have India in June 1995 and Japan a year later. Hence, such naval and air actions as the US may undertake against Chinese forces under the 2014 Enhanced Defence Cooperation Agreement (EDCA) with Manila, which revives in a way the 1951 Mutual Defence Treaty that became defunct in 1992 with Philippines

refusing to extend it could, theoretically, come under a legal cloud, unless the US warships fly the Philippine flag providing Manila and Washington the cover of self-defence, which last will not happen.

Chinese Buildup and US Response

Speed of buildup being of the essence, China, according to satellite intelligence, had by February 2016, erected a high frequency radar on Cuarteron Island able to monitor on real time, 24x7, basis the air and surface traffic in the southern part of the South China Sea, i.e., the northern end of the Malacca Strait. It augmented the radars already on Fiery Cross, Gaven, Hughes and Johnson South Reefs in the Spratly's chain, with helipads, and possible gun and missile emplacement's too at some of these posts. Mapping the Chinese land reclamations in the South China Sea indicates a pattern. These are mostly grouped in the spread of the Spratly Islands right smack in the middle of the South China Sea—a quadrant that opens out to the East Sea in the north-east and the Malacca, Lumbok and Sunda Straits to the south-west encompassing most of the main oceanic trade-carrying highways.

To deter US carrier task forces from entering these disputed area, Beijing has deployed the Dong Feng DF-21D anti-ship ballistic missile system along with Hong H-K6 medium bombers (Chinese variant of the Soviet Tu-15) on the islands it has illegally occupied or constructed. The logic obviously is that if the US Navy can be made less confident in these waters, the other countries will offer no resistance at all. These artificial and natural islands bristling with radar/other sensors and weapons systems will constrict the passage ways, and all maritime traffic, including naval movements, through these waters will be subject to Chinese surveillance and effectively pass under Beijing's control.

While Washington says it will contest what the US Pacific Fleet commander Admiral Scott Swift said at an October 2015 conference in Sydney, is an 'egregious' tendency of countries, like China, to "view freedom of the seas as up for grabs, as something that can be taken down and redefined by domestic law or by reinterpreting international law" and to impose "superfluous warnings and restrictions on freedom of the seas in their exclusive economic zones and claim territorial water rights that are inconsistent with [UNCLOS]"; the US is unlikely to come to any ASEAN partner's aid, EDCA or no EDCA, if this interferes or diverts from the larger US aim of reaching a modus vivendi with Beijing. The US Naval Chief, Admiral John



The US Navy littoral combat ship USS Coronado and the People's Republic of China Chinese Navy guided-missile destroyer Xian during Rim of the Pacific 2016

Richardson, made this plain. "Cooperation [with China] would be great", he said at a Center for New American Security conference held in Washington in June 2016, "competition is fine [but] conflict is the thing that we really want to avoid." He was reflecting the views of President Barack Obama, who in early 2016 negated a muscular approach proposed by the head of the US Pacific Command, Admiral Harry Harris, per a news report, to "counter and reverse China's strategic gains" in this region.

What India Can and Should Do

Washington's willingness to compromise with China, and Beijing's desire to prevent militarily riling up America means these two countries will eventually work out a mutually acceptable solution that may not constitute rules-of-the-road for anybody else, or help the ASEAN disputants bolster their individual claims with respect to China. This is the main reason why it is in New Delhi's interest to be proactive and to coordinate its policies to beef up the dissuasive military capabilities of the ASEAN states with those of, say, Japan. India and Japan cannot anymore afford to fallback on their default position of free riding on America's security coattails in the hope their interests will be served, or to identify with the US military activity in the South China Sea not aimed at constraining China's freedom of action.

Which are the littoral and offshore states that have shown the most grit in opposing Beijing? These are Vietnam and Taiwan, followed by Indonesia and Malaysia. Except, Taiwan for political reasons claims exactly the same Nine dash-Line space as China, and will not array itself against Beijing in this dispute. Empowering Vietnam is the best bet and could have a telling demonstration effect. India has a burgeoning economic stake in the Vietnamese sea territory with the Indian energy major, ONGC Videsh, in 2014 formally joining PetroVietnam to exploit the energy resources in Blocks 102/10 and 106/10 in the Paracel Islands area claimed by China, where it has 40 per cent and 50 per cent share respectively. Assets, such as

giant rigs and the underway oil/gas exploration and drilling activity will have to be protected against adversarial actions in what Beijing calls "China administered waters".

The strategic gains from arming Vietnam with specially devastating armaments having finally dawned on the Indian Government, New Delhi agreed to sell/transfer to Hanoi the indefensible BrahMos supersonic cruise missile. Operationally deployed in coastal batteries and on Vietnamese warships and submarines, the BrahMos will have a chilling effect on the Chinese Navy's secret 'Fourth Fleet' tasked for the Indian Ocean and co-located with the South Sea Fleet on the Sanya naval base on Hainan Island. It could lead to Philippines, Indonesia, and Malaysia seeking similar armaments. With all these countries so armed, the same sea will be effectively narrowed and rendered equally dangerous for Chinese merchantmen and naval ships acting belligerently. When a cruise missile costing ₹10 crore can take out a destroyer costing ₹7,000 crore, Chinese commanders will soon face a huge operational dilemma. It will immediately inhibit Chinese commanders from casually ordering their vessels on provocative missions and combatant ship captains from courting risk. In this respect, China will also discover that the relatively long distance from the mainland to the disputed area can become a liability in terms of sustaining offensive naval or other military action. Scarborough Shoal, only 230 km west eastern most island of the Philippines, is some 990 km from the Chinese coast.

Thus, BrahMos versus Chinese warships, militarily exploiting the distance-differential from home areas, etc. are the sorts of asymmetries that countries within and without the South China Sea region need urgently to exacerbate. It is the only way to prevent China dominating the South China Sea. **SP**

Bharat Karnad is Professor in National Security Studies at the Centre for Policy Research. He is author of most recently published book Why India is Not a Great Power (Yet), and blogs at www.bharatkarnad.com.

India and Japan cannot anymore afford to fallback on their default position of free riding on America's security coattails in the hope their interests will be served



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The South China Sea imbroglio and its repercussions

The Chinese position of not recognising the verdict of the Permanent Court of Arbitration is a cause for serious worry, because it highlights total disregard to the international order

While the genesis of disputes in the South China Sea (SCS) dates back to 1946 when China laid claim to almost the entire sea area by drawing the famous 'Nine-dash Line', the real imbroglio erupted during the past couple of decades with frequent disputes flaring up between the littoral countries. SCS comprises the Spratly Islands, the Paracels Islands and the Scarborough Shoals, all of which are under contest by several nations. Among these the mostly contested are the Spratly Islands with China, Taiwan, Vietnam, Philippines, Malaysia and Brunei staking sovereign claims over these features. During 1974, China wrested control of the Paracels from Vietnam which sprouted the conflicts which simmers even now. In 2012, took aggressive stance by restricting access to the Scarborough Shoals to the Philippines. Although the Pratas Islands are under control of Taiwan, China continues to contest it. As an instrument for resolution of conflicting claims, during 2002 the Declaration on Code of Conduct (DOC) of Parties was signed. This DOC however has remained mostly ineffective.

The SCS is a busy international waterway, being one of the main arteries of the global economy and trade. More than \$5 trillion of world trade ships pass through the SCS every year. The SCS is also resource rich, with numerous offshore oil and gas reserves in the area.

The Conflict Zone

The main hub of the conflict zone is Spratly Islands which consist of a number of coral reefs, low tide elevations and rocks. These features have a total natural land area of about 2 sq km though they are spread over a sea area of more than 4,25,000 sq km. Over the couple of decade extensive surveys by different agencies of the area have been carried out. Consequently, estimates reveal oil and gas reserves to the tune of 70 billion tonnes of which 60 per cent to 70 per cent being natural gas within the area. These revelation, however, have resulted into intense competition among the claimant countries to consolidate their positions by undertaking land reclamation on occupied features to develop the islands to house a variety

of facilities. While Taiwan, Vietnam and the Philippines have been concentrating on island building, sheer magnitude of scale and volume of aggressive development activities of China in the recent past have attracted the maximum global attention. Estimates point to the reclamation of around 3,000 to 3,400 acres in the contested area.

The Case for Arbitration

In addition, from 2012 onwards China has resorted to a very aggressive stance in the SCS through regular and provocative manoeuvres by its maritime forces in the seas surrounding the Scarborough Shoals, which for a very long time claimed by the Philippines as part of its integral territory. The Philippines felt extremely disturbed by such unilateral and aggressive posturing by China without even employing the existing instrument of DOC for conflict resolution, if any. Deeply aggrieved by constant harassment by China, in 2013 the Philippines filed proceedings under Annex VII of the United Nations Convention of the Law of the Sea (UNCLOS) to settle its outstanding dispute with China. The main edifice of the Philippines bulwark stands on questioning the legal validity of 'Nine-dash Line' evolved by China to stake claims in the SCS. The main assertion of the Philippines in the petition was that China's maritime map of the SCS was of formulated with dubious intention and therefore, the claims arising from it were in total violation of the law.

Apart from determining the legal status of the features (islands, rocks, or low tide elevations), Philippines also challenged China's island reclamation activities by urging the Court to reiterate the lawful position that land added to submerged and above-water line features cannot alter their basic legal status. This again was a complaint aimed at invalidating China's massive reclamation activities in the South China Sea—a measure seen by many as a military tactic meant to shift the territorial status quo in the SCS by legitimatising China's illegal occupation of features.

On the other hand, China's aggressive posturing in the recent times has caused consternation among the international community. China has used the facilities

Indian Navy stealth frigate INS Satpura during RIMPAC 2016



that it has created on these features for positioning a variety of civilian and military installations, the latest being anti-aircraft missile batteries on Woody Island in the Paracels. China has also been intimidating military aircraft flying in the vicinity of its occupied features and has even hinted at establishing an Air Defence Identification Zone (ADIZ). This attitude has prompted the United States to re-start the 'Freedom of navigation' patrols in October 2015 which continue till date. The US continues to maintain a strong naval presence with a Carrier Strike Group deployed in the area to deter such Chinese aggression.

The Philippines made two other submissions which were in direct clash with Chinese domestic interests. First plea was questioning Beijing's 'historic rights', including fishing rights beyond the limits of its entitlements under UNCLOS. The other plea claimed that China has violated the convention by its hazardous practices of harvesting of endangered species and destruction of coral reefs, including areas within the Philippines' EEZ, irreversibly damaging the regional marine environment.

The Verdict

The recent award of the Permanent Court of Arbitration (PCA), in the case of The Republic of Philippines vs The People's Republic of China, broadly, decided the following in response to the 15 submissions by the Philippines:

- There was no legal basis for China to claim 'historic' rights to resources within the sea areas falling within the 'Nine-dash Line.'
- None of the Spratly Islands is capable of generating extended maritime zones nor can they generate the same collectively as a unit since they are basically rocks.
- Certain sea areas are within the EEZ of Philippines and China had violated Philippines' sovereign rights in its EEZ.
- China's recent large scale land reclamation and construction of artificial islands in the Spratly Islands has caused severe harm to the coral reef environment.

Aftermath of the Verdict

China's stand towards the arbitration has been one of defiance against the existing international order wherein it has refused to recognize the Arbitration and its Award. In fact, even before the Verdict, China was found lobbying extensively to challenge it, if found contrary to its interests. Immediately after the verdict China declared the Award as null and void and reiterated it has no binding force. International reaction to the Award had been rather muted due to the existing tensions in the area and the necessity to avoid conflict. India has maintained its consistent position wherein it has called for all states to resolve respective disputes through peaceful means showing utmost respect for UNCLOS. However, the Chinese position of not recognising the Award is a cause for serious worry, because it highlights total disregard to the international order.

On the contrary, China warned its rivals not to turn the SCS into a "cradle of war". Conversely, the strong and sweeping ruling by a UN-backed Tribunal in The Hague provided powerful diplomatic ammunition to the Philippines. However, China continues to insist on its historical rights over SCS and reminded the United States and other critical nations that in 2013 in the East China Sea, China had

Indian Navy's Maritime Military strategy therefore enshrines the promotion of multilateral operational interaction to enhance mutual confidence, increased interoperability and development of common understanding of procedures for maritime security and sharing the best practices with other navies of the region

angered Japan, United States and its allies by establishing ADIZ. China also cautioned that depending upon the level of threat ADIZ could follow suit in SCS, as well.

In a classic diplomatic manoeuvre, soon after the Award, China extended an olive branch to the new Philippine Government, by assuring that bilateral cooperation will be in their interest and that China aims to turn SCS into a sea of peace, friendship and cooperation. At the same time, China hoped that the new Government would not use the arbitration results as a basis for future negotiations.

India's Stand on SCS

The SCS is an important area of maritime interest for India with her seaborne trade to the extent of 55 per cent by volume passes through its sea lanes. India is also engaged in oil exploration through ONGC Videsh in the EEZ off Vietnam and has signed an energy deal also with Brunei within the contested area. India has always advocated for the unimpeded commerce within the global commons on the principles of 'Freedom of Navigation' and over flights, guaranteed under UNCLOS. India has good relations with the ASEAN countries who are embroiled in these disputes, especially Vietnam and the Philippines. India has always maintained a holistic stand on the issue of sovereignty, championing that the disputes should be resolved peacefully without the threat of use of force.

The take away for India from the imbroglio is to avoid unnecessary entanglement with China over SCS in the interest of creating a good atmosphere for the economic cooperation. The policy makers will have a challenge on their hands to draw right balance between shifting the focus from the geostrategic competition towards the economic cooperation with China!!

What is in for Indian Navy

In consonance with the mandate of net security provider for the vital interests of the nation within the region, the Indian Navy's overseas deployment has increased exponentially. Besides, independent forays, the Indian Navy has regularly engaged in multilateral annual exercises called Malabar with US Navy and Japanese Self-Defense Forces, Australia, etc. Over the years, the arena of Malabar exercises has extended from the Bay of Bengal to SCS, East China Sea, Sea of Japan, etc.

Exercises in Rim of the Pacific (RIMPAC), the largest international maritime warfare exercises, are conducted under the aegis of the US Navy's Pacific Fleet. Indian Navy has been participating in RIMPAC from 2004 onwards as an 'Observer.' INS Sahyadri participated in RIMPAC 2014 for the first time. Likewise, INS Satpura participated in RIMPAC 2016 which were conducted from June 30 to August 4, 2016. Interestingly, in April 2016, China was also invited to participate in RIMPAC 2016, despite the tension in SCS.

India has commitment to peace and prosperity for all within the Indo-Pacific region and elsewhere. Indian Navy's Maritime Military strategy therefore, enshrines the promotion of multilateral operational interaction to enhance mutual confidence, increased interoperability and development of common understanding of procedures for maritime security and sharing the best practices with other navies of the region. SP



LT GENERAL
P.C. KATOCH (RETD)

Pakistan's prodigal bash

Turbulence at the recent 7th SAARC Home and Interior Ministers Conference was but expected simply because it was being hosted by Pakistan – notorious for being the crucible of terror and continuing to export terror as an institutionalised state policy. Home Minister Rajnath Singh represented India at the conference in Islamabad even though Bangladesh was represented by a junior minister because of deterioration of Bangladesh-Pakistan relations particularly after the recent terror attack in Dhaka. That India sent its Home Minister is creditable despite the continuing violence in the Kashmir Valley being orchestrated by Pakistan, including the Inter-Services Intelligence (ISI)-sponsored roles assigned to Hafiz Saeed, Salahuddin and Azhar Mehmood to replace the sufi culture and Kashmiriyat with the Wahabism that is the major cause of instability within Pakistan itself.

Pakistan has acted rogue through a series of actions post killing of Burhan Wani; anti-India resolution, declaring Burhan Wani a martyr, declaring July 19 as black day; Nawaz Sharif harping on Kashmir as the core issue, anti-India demonstrations at Wagah border, Nawaz Sharif announcing he will send medical aid to Kashmiris, anti-Rajnath demonstrations organised under Salahuddin, you name it. In his address during the conference, Home Minister Rajnath Singh had said there are no 'good' and 'bad' terrorist; terrorists should not be eulogised as martyrs under any circumstances and the strongest possible steps should be taken against countries that support terrorism. He also emphasised that terrorism remains the biggest challenge and threat to peace; South Asia is deeply affected by terror as witnessed recently through terrorist attacks in Pathankot, Dhaka, Kabul, etc; mere condemnation of terrorist attacks is not enough, and; it needs to be ensured that terrorism is not patronised by any country.

What Rajnath Singh stated was not new by any measure. Pakistan has heard it innumerable times and would be amused that in diplomatic parlance she would not be named directly at such forums. Rajnath Singh also called for implementation of the SAARC Regional Convention on Suppression of Terrorism and its Additional Protocol saying it was crucial in the common fight against terrorism, as well as immediate ratification of the SAARC Convention on Mutual Assistance in Criminal Matters since some members had yet not ratified it.

That Pakistan's Interior Minister Nisar Ali Khan is a military-ISI stooge is well known but he re-proved it most undiplomatically by not shaking hands with Home Minister Rajnath Singh while doing so with other home and interior ministers attending the conference—a deliberate snub. Nisar harped on the use of excessive force to suppress protests in Kashmir—without naming India. He further stated that issues between countries are not resolved through finger point-

ing or indulging in blame games, and countries need to sit down for dialogue to bring about real change and that no country should suppress freedom struggles while camouflaging them under the guise of terrorism. He pointedly said that the Kashmiri freedom struggle is sanctified by United Nations resolutions. Since he was speaking after Home Minister Rajnath Singh, Nisar did not expect to be countered. But then with reference to use of excessive force, the attending delegates are fully aware Pakistan has been consistently using aerial and artillery bombardment in Balochistan and FATA against her own population, in addition to the genocide in Gilgit-Baltistan and Balochistan. When Home Minister Rajnath Singh without naming Pakistan said that you cannot make distinction between 'good' and 'bad' terrorists, he was actually echoing what President Ashraf Ghani of Afghanistan has been saying with reference to Pakistan.

Nisar's reference of UN to Kashmir was also laughable because the UN resolution had asked Pakistan to withdraw from Pakistan-occupied Kashmir (PoK) before any plebiscite was to be held, and Pakistan killed the opportunity permanently by instead beefing up her forces and changing the demography of PoK. But more importantly, the 1972 Indo-Pak Shimla Agreement categorically stated that the all issues will only be discussed bilaterally, so the question of UN or international mediation does not arise. Addressing the concluding session of the three-day conference of Pakistani envoys in Islamabad (concurrent to SAARC Home Ministers Conference), Nawaz Sharif told the diplomatic corps, "Desire of freedom is running in the blood of Kashmiris" – little realising that the Pakistan influenced trouble makers of Jammu & Kashmir (J&K) are below 15 per cent of the population of J&K and if he is talking of Kashmir then it included PoK where the recent elections have been horribly rigged and protesters are burning Pakistani flags openly.

Nawaz Sharif was obviously under great pressure after being mired in corruption including through the Panama Leaks, and the desire to save his premiership while posters have appeared in Pakistan for the Army Chief to take over the country, not to talk of Imran Khan endorsing such move. Significantly, last year's envoys' conference in Islamabad focused on connectivity, regional issues and development. Pakistani media says that Home Minister Rajnath Singh was trying to divert attention from the unrest in Kashmir Valley whereas it is Pakistan that is creating unrest in Srinagar Valley to divert attention from her internal woes. The next SAARC summit is scheduled in Pakistan during coming November. One has to wait and watch developments in the days leading up to it and what transpires during the summit. Pakistan can be expected to go more rouge sitting in the lap of China with the latter orchestrating the region from the background adroitly – terrorism included. **SP**

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



INS Viraat sails on her own steam for one last time

The aircraft carrier, INS Viraat, set sail for Kochi on July 23 for essential repairs and dry docking (ERDD) at the Cochin Shipyard. This is the last sailing under her own propulsion as INS Viraat is slated for decommissioning later this year. Vice Admiral Girish Luthra, Flag Officer Commanding-in-Chief Western Naval Command, and other senior officers of the command, visited the ship and interacted with the crew prior to her departure.

The carrier was escorted out of harbour by fast interceptor craft and helicopters from the Western Naval Command. It was indeed an emotional moment for the Navy, as INS Viraat leaves Naval Dockyard Mumbai, for 'one last time' under own power. The

ship will be towed back to Mumbai on completion of ERDD, for the decommissioning ceremony later this year.

INS Viraat was commissioned into the Indian Navy on May 12, 1987. The ship operated Sea Harrier (White Tigers, fighter aircraft), Sea King 42B (Harpoons, anti-submarine helicopters) and Sea King 42C (commando carrier helicopters) and Chetak (Angles - SAR helicopter) as her main air elements. The Sea Harrier fleet was also recently decommissioned at Goa in May 16.

Under the Indian flag, various aircraft have flown more than 22,034 hours from the decks of INS Viraat. She has spent nearly 2,250 days at sea sailing 5,88,288 nm (10, 94,215 km). This implies that Viraat has been at sea for over six years covering the entire globe about 27 times. She played a major role in the Operation Jupiter in 1989 (Indian Peace Keeping operations in Sri Lanka) and Operation Vijay in the year 1999 (Kargil war). The ship has also participated in various international joint exercises like Malabar (with US Navy), Varuna (with French Navy), Naseem-Al-Bahar (with Oman Navy) and has been an integral element of all major naval exercises. The last operational deployment of the ship was for participation in the International Fleet Review (IFR-2016) at Visakhapatnam. Having served the country and the Navy for nearly three decades, INS Viraat handed over the mantle of carrier operations to INS Vikramaditya which was commissioned in the year 2013.

The second aircraft carrier of the country has spent 29 years under the Indian flag and 27 years with the Royal Navy (United Kingdom). The ship holds the Guinness record for being the oldest serving warship. INS Viraat is a Centaur class aircraft carrier and served in the Royal Navy as HMS Hermes, which was the flag ship of Royal Navy during the Falklands campaign of 1982. She is commonly referred to as the 'Grand Old Lady' among the naval community. **SP**

Royal Malaysian Navy Chief visits India

Admiral Tan Sri Ahmad Kamarulzaman bin Haji Ahmad Badaruddin, Chief of the Royal Malaysian Navy, visited India from July 25-28, 2016. His visit was intended to consolidate the bilateral naval relations between India and Malaysia and also to explore new avenues for naval cooperation.

Admiral Tan Sri Ahmad Kamarulzaman bin Haji Ahmad Badaruddin held bilateral discussions with Admiral Sunil Lanba, Chief of the Naval Staff. He also interacted with the Chairman COSC and Chief of Air Staff and Vice Chief of Army Staff. The Admiral was promoted to the rank of Admiral and assumed Command of the Royal Malaysian Navy on November 19, 2015, as the 19th Chief of Royal Malaysian Navy. Prior to taking over as the Chief of Royal Malaysian Navy, he was the Deputy Chief.

The Indian and the Royal Malaysian Navies cooperate with each other in terms of training, Passage Exercises, as well as interact at various multilateral forums like IONS, MILAN and ADMM Plus. Warships from both navies visit each other's ports to build 'bridges of friendship'. The ships of the Eastern Fleet recently visited Port Kelang as part of its Overseas Deployment to North West Pacific and held a first ever 'Table Top' Exercise on Humanitarian Assistance and Disaster Relief with the Royal Malaysian Navy.

Major issues that were discussed during the visit included training exchanges, improving Maritime Domain Awareness by shar-



ing of white shipping information and exploring opportunities for bilateral exercises. The Chief of the Royal Malaysian Navy also visited Kochi and Visakhapatnam, where he interacted with the Commanders-in-Chief besides visiting ships and naval dockyard. **SP**

Exercise Megh Prahar: Demonstration on river crossing



A demonstration on capabilities of Mathura-based Strike 1 to seamlessly effect crossings on river obstacle was conducted on the banks of Yamuna River on July 14, 2016, along the stretch of river adjoining the cantonment. The exercise code-named Megh Prahar was undertaken by formation of its spearhead Armoured Division and aptly showcased the variety of equipment, innovativeness of commanders, jointmanship, professional outlook and war-waging potential of the DOT Division.

Exercise Megh Prahar would help in testing the effectiveness of the ultra modern Tank T-90 & BMP-2 held with Indian Army in fighting across opposed river obstacle. This exercise also showcased the importance of incorporating the third dimension in bridging the gap of an obstacle and helping in capture of depth obstacle by a mechanised formation. The war preparation and effectiveness of Strike 1 was proved beyond doubt during the exercise.

The demonstration was witnessed by Lt General Shokin Chauhan, General Officer Commanding, Strike 1, and many other senior dignitaries of the Army. During interaction with media the General Officer dwelled upon the conduct of the exercise and reaffirmed the

highest degree of operational preparedness of Strike 1 in all facets of war-fighting. **SP**

Russia and India to develop new SPG

Moscow and New Delhi have concluded an agreement to develop a new self-propelled gun (SPG) intended for the Indian domestic market. The CEO of Uralvagonzavod, Oleg Siyenko, and the Executive Director of Bharat Forge (a subsidiary of Kalyani Group), Amit Kalyani signed the memorandum of understanding (MoU) in the presence of Russia's Minister for Industry and Trade, Denis Manturov and India's Minister of State for Commerce and Industry, Nirmala Sitharaman at the Innoprom 2016 industrial exhibition in Ekaterinburg. The MoU is aimed at the strengthening of technical cooperation between companies under the 'Make in India' programme and the promotion of the UVZ's production in India. According to the official notification, "the memorandum drives for the deepening of industrial ties between two countries".

As Siyenko pointed out, Russia and India were planning to develop a new SPG for Indian armed forces under the MoU. "The memorandum provides for the possibility of a new SPG joint development. The Uralvagonzavod Corporation is a traditional partner of New Delhi in the area of military-technical cooperation. India is the biggest foreign operator of military hardware produced by UVZ," Siyenko pointed out.

"Our Indian partners have been collaborating with Russia's Ministry of Defense (MoD) for a long period, while Uralvagonzavod is a leader in the area of SPG development. We are planning to transfer documentation under the 'Make in India' programme to produce the SPG on a joint basis," the UVZ's CEO said. He pointed out that the establishing of an assembly line in India would be the first stage of cooperation in the SPG production area. At present, Uraltransmash (a subsidiary of UVZ) is producing SPGs for Russia's armed forces and potential foreign customers.

According to official data provided by Uralvagonzavod, 2S19M1-155 has a combat weight of 43 t, a firing rate of 6-8 rds/min, a maximum firing range of 30 km using high-explosive fragmentation rounds, 41 km using rocket assisted projectiles and 25 km using guided projectiles, and an ammunition load of 45 rounds. The SPG can be based on either T-90 or T-72M1 main battle tanks (MBTs). **SP**

DRDO success in Advanced Artillery Gun System

The Defence Research and Development Organisation (DRDO) achieved yet another technological breakthrough by successfully conducting the proof firing of armament system for 155mm x 52-calibre Advanced Towed Artillery Gun System (ATAGS) during the technical trials conducted recently at Proof & Experimental Establishment (PXE), Balasore.

ATAGS is fully indigenous towed artillery gun system project undertaken in mission mode by DRDO as a part of artillery modernisation programme of the Indian Army. The Armament Research & Development Establishment (ARDE), Pune, is the nodal laboratory of DRDO for design & development of ATAGS along with other DRDO



laboratories. The armament system of ATAGS mainly comprise barrel, breech mechanism, muzzle brake and recoil mechanism to fire 155mm x 52-calibre ammunitions held by the Indian Army with a longer range, accuracy and precision and provides greater firepower.

ATAGS is configured with all electric drive to ensure maintenance free and reliable operation over a longer period of time. It will have a firing range of 40 km with advanced features in terms of high mobility, quick deployability, auxiliary power mode, advanced communication system, automatic command and control system with night firing capability in direct fire mode.

DRDO is committed to develop and field ATAGS in the shortest time frame with active participation by leading industries to meet the requirement of the Indian Army. The first fully integrated gun system will be ready for user trials by early 2017. **SP**



LT GENERAL
P.C. KATOCH (RETD)

DPP – Private sector awaits fair share

If anyone were to ask whether the Defence Procurement Policy (DPP) has been enunciated, the answer would be yes, but partially. When Defence Minister Manohar Parrikar first unveiled the DPP amid media blitz, it was discovered to be without the appendices and annexures, which were subsequently issued after lapse of some more weeks. However, the portion defining the 'strategic partners' has still not been finalised. There are reports of discussions being held on the issue of strategic partners but the final word from the government is still awaited. Key domestic players in the defence sector want space for their foreign partners also in the chapter on strategic partnerships, not just nominating Indian companies as strategic partners.

A ten-member committee under V.K. Aatre, former scientific advisor to Defence Minister, had been set up to address the issue. This committee had recommended that one or two strategic partners be nominated for each of the six different segments of: one, aircraft; two, warships; three, armoured vehicles; four, ammunitions; five, target acquisition and reconnaissance, and; six, critical materials. The dilemma that apparently prevailed was that: first, private indigenous firms have practically no experience in manufacturing aircraft, helicopters, warships, submarines; second, in absence of indigenous technical know-how, the only avenue is to import it – hence foreign partnership is imperative, and; third, not allowing foreign partners could lead to monopoly of the big players.

Already there have been reports of big players like L&T, Reliance Defence, Mahindra and Tata lobbying to get nominated as strategic partners especially in major segments like submarines, aircraft and helicopters. Therefore, limiting strategic partnership only to Indian firms meant leaving the balance indigenous industry players in the dock. Though the DPP has already spelt out the four categories of procurement (indigenously designed, Make-I, Make-II and Buy and Make Indian), it does not quite address the issue of strategic partnership. This is the reason, the chapter on strategic partners is yet to be issued despite the Aatre Committee presenting its report to the Ministry of Defence (MoD) in January 2016. Therefore, the DPP was issued without finalising the chapter on strategic partners. As per media reports, the Defence Minister has indicated that two strategic partners may be chosen for each segment. Hence, when the chapter on strategic partnerships will be issued remains an open-ended question.

Media quoting an unnamed senior MoD official says this is part of a larger consultation process and no final decision can be taken so quickly as any proposal will have to go to other ministries for approval. Apparently, the Defence Minister has told the media that even after finalising strategic partnerships it might take a "couple of more months" to finish the process. A central presentation by MoD to concerned ministries with request to respond in a time frame

could resolve such vital issues speedily, but it is going to be usual file pushing. Meanwhile, the industry has been instructed to follow the strategic partnership guidelines from the old DPP till the new chapter is issued. The fact remains that indigenous private sector lacks technical expertise for big projects and while talks on future strategy have been ongoing for months and years, execution on ground has been little notwithstanding big-ticket imports signed and reports of decisions in principal about big-ticket joint ventures, which are yet to be signed.

Ironically, big-ticket exports do not bridge critical voids holistically in backdrop of the changed nature of conflict. The private industry at large, including foreign firms, therefore have little reason to trust what the government proposal for strategic partnerships will be, and more importantly how it would be executed. Big-ticket imports appear to be more an exercise in balancing our relations with US and Russia. There is no concern whatsoever about the excruciatingly long delays both in direct imports and joint ventures, the FGFA, Rafale and M777 howitzers being just few examples.

As per the Defence Acquisition Council's (DAC) review reported in media, the present government since coming to power had approved proposals for defence procurement worth ₹1,50,000 crore, and proposals for another ₹1,50,000 crore were in the final stages of approval—approvals of more than ₹2,00,000 crore been given so far. But according to data provided by MoD, it has actually signed only five deals of more than ₹2,500 crore since May 2014; one, ₹45,021 crore for construction of 7 x seven Shivalik class frigates signed with public sector Mazagon Dock Limited and the Garden Reach Shipbuilders and Engineers Ltd, two, ₹7,910-crore for additional Integrated Air Command and Control System (IACCS) for IAF signed with public sector BEL; three, ₹13,970-crore for Apache helicopters signed with Boeing; four, ₹8,047-crore deal for Chinook helicopters also signed with Boeing, and; five, ₹2,625-crore deal for Smerch multi-rocket launcher system signed with Russian firm Rosoboronexport. All, these major deals have either been signed with PSUs or foreign firms.

It is also important to note that FDI in defence received since 2013 was: \$36.046 million in FY 2013-14; \$45.148 million in FY 2014-15; \$56.457 million in FY 2015-16, and: \$7,456 million up to May 2016 wherein proposals by M/s Tata Sikorsky Aerospace Limited, Singapore and by M/s Quantum Technologies LLC, United Kingdom, have been approved. This is good improvement in FDI though we have long way to go. The Department of Industrial Policy and Promotion (DIPP) has also reportedly issued 342 licences to 205 Indian private companies for manufacturing of defence equipment such as artillery guns, tanks/ combat vehicles, UAVs, helicopters, radars, etc, but what the indigenous private sector at large is waiting for is signing of contracts. **SP**



LT GENERAL
P.C. KATOCH (RETD)

Adding military muscle – Address foot soldier too

In a boost to the Indian Navy comes the news that India has signed a \$1.1-billion deal to procure four more Poseidon-81 long-range maritime patrol aircraft from the US, with the first to be delivered in 50 months.

The Indian Navy already has eight P-8I aircraft that were signed for in a \$2.1-billion deal during 2009 and inducted between May 2013 and October 2015. Two P-8I aircraft are presently deployed as part of the search and rescue operation for the An-32 that went missing over the Bay of Bengal on July 22. P-8I aircraft have a range of 1,200 nautical miles and are armed with Harpoon Block-II missiles, MK-54 lightweight torpedoes, rockets and depth charges. The US Navy has been using the P-8I for anti-submarine warfare (ASW), anti-surface warfare (ASUW) and ship interdiction, electronic signals intelligence (ELINT), and is designed to operate with the MQ-4C Triton Broad Area Maritime Surveillance UAV developed by Northrop Grumman.

Navies of UK and Australia are also acquiring the P-8I aircraft. ASW, ASUW and long-range surveillance aircraft vital to the Indian Navy in the light of the Indian Ocean fast emerging as the centre of gravity of conflict, Chinese strategic designs on the Indian Ocean region (IOR), Chinese nuclear submarines already prowling the India Ocean, Gwadar being developed as a Chinese SSBN base and Pakistani plans to deploy her nuclear deterrent at her surface vessels and underwater on Chinese submarines. The combined China-Pakistan threat at sea increases the significance of the P-8I aircraft.

The good news for the Indian Air Force (IAF) is that the Ministry of Defence (MoD) is looking at procuring 4 x Tu-22M3 bombers from Russia. The Tu-22M3 has an operational range of 7,000 km with cruise speed of 900 km per hour and maximum speed of 2,300 km per hour, and climb at the rate of 15 metres per second. The operational range can be enhanced with in-flight refuelling, and India is considering direct purchase of six flight refuelling aircraft (FRA) to enhance the reach of fighter, bomber and surveillance aircraft.

Tu-22M3 has hard points to carry Kh-22 stand-off missiles, Kh-15 nuclear or Kh-15P anti-radar missiles and FAB-250 or FAB-1500 free fall bombs. The wing and fuselage pylons and internal weapons bay are provided with a capacity to carry 24,000 kg weapons payload. The aircraft is also armed with a double-barrel GSH-23 (23mm) gun in the remotely controlled tail turret. Acquisition of the Tu-22M3 strategic bombers will be big boost to the IAF's air defence capability,

especially when India is also keen to procure 12 x S-400 'Triumph' anti-aircraft missile systems, also from Russia.

In addition to the Tu-22M3 supersonic bombers, the IAF is also keen to purchase 80 Mi-17 helicopters and six Il-76 aircraft that can be fitted with Israeli 'Falcon' radars. Presently, the IAF has four squadrons of Mi-17IV (balance squadrons having been converted to Mi-17V), most of which are grounded being due for overhaul. The IAF expects to strike a deal with the manufacturer to establish overhaul facilities in India. The Mi-17V too would have to be phased out in due course unless overhaul facilities are established in India, provided it is cost effective. Procurement of 80 Mi-17 helicopters would therefore boost our helicopter-borne assault capability.

As for AWACS, in January 2004, India and Israel signed a \$1.1-billion contract for three Phalcon airborne warning and control system (AWACS) aircraft, as part of a \$1.5-billion tripartite agreement with Russia. With the arrival of its first IL-76 Phalcon, India joined the global ranks of AWACS operators. The aircraft has to monitor huge swathes of Indian airspace, intercept communications and log radar frequencies, add some ground surveillance, and help command IAF responses. Presently the IAF hold only these three AWACS and the IAF is looking to procure another six IL-76 to augment this capability. AWACS are major force-multipliers in providing early warning about hostile threats at ranges over 400 km in all-weather conditions, also acting as autonomous command and control



Boeing P-8I aircraft

centres. There has also been talk in the past of an indigenous project to develop AWACS but this has reportedly not gone beyond the drawing board stage.

India is also looking at leasing two nuclear submarines of the Akula-2 class from Russia, with the option to purchase them after completion of the lease term. This is over and above Russia soon delivering a second Shchuka-B nuclear submarine under Project 971 to India after the contract is signed; follow up to the first such submarine 'Chakra' delivered to the Indian Navy under lease in 2012. India also plans to produce over 1,000 x T-90S tanks and 200 Ka-226 helicopters in collaboration with Russia under the 'Make in India' programme.

All this will give a big boost to our military but the million-dollar question still remains unaddressed – why are we so complacent about arming the foot soldier? **SP**

Mirage 2000 upgraded to FOC

Continuing its success on various recent projects, the Hindustan Aeronautics Limited (HAL) has now flown the first FOC (final operational configuration) upgraded Mirage 2000 aircraft on July 28, 2016 adhering to the scheduled date. "We have done it again on time. What it proves is HAL's capability of midlife upgrade of platforms to overcome obsolescence issues, enhance the reliability and maintainability of these aircraft. The introduction of state-of-the-art facility created for this project ensures the timely upgradation of the Mirage fleet", said T. Suvarna Raju, Chairman and Managing Director of HAL.

The FOC design was implemented on an initial operational configured (IOC) aircraft which was received at HAL only about eight months ago. "This significant milestone could be achieved by the dedicated efforts of the HAL's team of designers and engineers with active support from IAF, RCMA and DGAQA", added Raju.



The initial operation configuration was designed by the Dassault and Thales of France. HAL took up the FOC design and development activities. The FOC configuration covers the integration of Indian specific weapons, sensors and EW system. This FOC upgrade on Mirage 2000 gives additional capability of air-to-ground weapon, training, helmet mounted display, etc. The system having a unique feature of integrating different types of database for IOC and FOC configuration is achieved without

any degradation. The total design and development was done by HAL which includes mission computer hardware, OFP software, system design, aircraft modification, etc. The company is responsible for the IOC and FOC upgrade of the Mirage fleet of IAF.

The first flight of 45 minutes was piloted by Group Captain C. Subramaniam (Retd), Chief Test Pilot of HAL from the front cockpit, and Wg. Cdr Haldikar of ASTE, IAF, in the rear cockpit. Group Captain A. Mishra of IAF was the test director. **SP**

Mahindra to make parts for Airbus Helicopters



Airbus Helicopters has awarded a contract to Mahindra Aerostructures to make airframe parts for the AS565 MBe Panther. These parts will be produced at the Mahindra facility in Bengaluru. They will be shipped directly to the Airbus Helicopter production line in Marignane, France, where they will be integrated with the rest of the airframe assembly and will form a critical part of the Panthers sold worldwide.

The contract positions Mahindra Aerostructures as the first Indian company to receive a direct manufacturing contract from Airbus Helicopters as a Tier-I supplier. Mahindra Aerostructures will gradually emerge as the global single source supplier to Airbus Helicopters for these parts. This work package is the first amongst a series of work packages which would embed Mahindra Group firmly in the Airbus Helicopters' global supply chain

and bind the two companies in a long-term 'Make in India' partnership.

"We are playing an active role in the development of a helicopter-focused Indian industrial ecosystem, and are embedding Indian suppliers into our global supply chain," said Fabrice Cagnat, Director - Make in India, Airbus Helicopters. "The contract will allow us to qualify Mahindra Aerostructures as a Tier-I supplier, establish a manufacturing relationship with them on the Panther, and also lay the ground work for a rapid acceleration in terms of industrialising production in India, in case we are selected for the Naval Utility Helicopter programme," he added.

"We believe this manufacturing relationship will allow us to demonstrate the quality and competitiveness of Mahindra Aerostructures to Airbus Helicopters. We are already committed to become a trusted partner and supplier to the Airbus Group for airframe parts and assemblies. This contract with Airbus Helicopters signals our further commitment to work with them to develop a robust Indian ecosystem for both design and build capabilities in aerospace," said Arvind Mehra, Executive Director & CEO, Mahindra Aerospace. **SP**

Second squadron of Tejas by 2019

The first light combat aircraft (LCA) Tejas squadron has been formed on July 1, 2016, with two LCA initial operation configuration (IOC) series production

aircraft. Further, 18 more aircraft in IOC standard are planned for induction by 2018-19. This would be followed by 20 more aircraft in final operation configuration (FOC) standard, which are planned for induction from year 2019. **SP**

Test flight of indigenously developed scramjet engine

The testing of sub-scale demonstrator scramjet engine is envisaged as a part of technology demonstration, by mounting it on a two-stage solid rocket. This test intends to demonstrate supersonic combustion in flight and evaluate the integrated functioning of the engine. The preparations for carrying out the test are underway and the test is likely to be conducted in the third quarter of 2016.

Scramjet engine technology is a complex technology which is yet to be fully proven worldwide. It is envisaged for use in launch vehicle, once the technology attains sufficient maturity. The technology will be useful only during the atmospheric phase of the flight of launch vehicle and will benefit in bringing down the cost of access to space, by reducing the amount of the oxidizer to be carried along with the fuel.

This information was provided by the Union Minister of State (Independent Charge) Dr Jitendra Singh in a reply to an unstarred question in the Rajya Sabha recently. **SP**

Lockheed Martin looks at adaptable weapons kit for Black Hawk

Lockheed Martin is exploring options to bring its weapons integration expertise to bear on the European-built S-70 Black Hawk helicopters made by Sikorsky, a Lockheed Martin Company. The goal is to produce an armed kit scalable to the requirements of customers that procure International Black Hawk aircraft direct from Lockheed Martin.

Last year's acquisition of Sikorsky by Lockheed Martin has widened the aperture of possibilities for arming the Black Hawk helicopter," said Bill Gostic, Vice President, Sikorsky Global Military Systems & Services. "Lockheed Martin brings integration expertise that will allow us to customise an armed configuration – for defensive or offensive operations – to the specific preferences of current and future Black Hawk customers, and with weapons of their choice." **SP**



Embraer's KC-390 heads towards certification in 2017



The first prototype of the KC-390, next-generation multi-mission aircraft by Embraer, returned to Brazil after successfully completing its first international mission, lasting 23 days and flying more than 48 hours. Currently, two KC-390 prototypes accumulated more than 400 flight hours. Besides participating in the Farnborough Airshow in England, where the aircraft made its international debut, the first prototype also conducted demonstration flights with programme partners and potential customers.

Covering more than 16,300 nautical miles (about 30,200 kilometres) just in ferry flights, with operations in other international airports such as Sal (Cape Verde), Alverca (Portugal) Odolena Voda (Czech Republic), Cairo (Egypt), Abu Dhabi (United Arab Emirates) and Malta, the aircraft demonstrated its high level of maturity, with availability reaching 100 per cent during the 16 flights planned and carried out in locations where the temperature reached 45° Celsius.

"This was an excellent opportunity for some customers to take a closer look at the aircraft and its innovative features. The interest

around the KC-390 during the Farnborough Airshow was fantastic, with the aircraft being visited by more than 20 international delegations," said Jackson Schneider, President and CEO of Embraer Defense and Security.

The aircraft returned to the flight test campaign, whose focus from now on will be the certification, which is expected for the second half of 2017 with the first delivery scheduled for 2018. **SP**

QinetiQ and Thales select Scorpion Jet for ASDOT bid



QinetiQ, Thales and Textron AirLand have announced a collaboration that will bid for the UK Ministry of Defence's upcoming Air Support to Defence Operational Training (ASDOT) programme. The three companies' CEOs met at Farnborough International Airshow to announce the signing of the memorandum of understanding (MoU) setting the foundation for the bid.

The operational training activities that will comprise the ASDOT programme are currently fulfilled by a number of providers, both military and civilian. This team will propose an innovative, cost effective, technologically advanced reliable managed ser-

vice using the Textron AirLand Scorpion jet equipped with Thales and QinetiQ sensors to provide a broad spectrum of training for all three armed services.

The competitive contract, expected to be awarded in September 2018 with a service delivery start in January 2020, is anticipated to be worth up to £1.2 billion over 15 years. **SP**

Pratt & Whitney, Rolls-Royce team UK F-35Bs

Pratt & Whitney and Rolls-Royce will join forces to provide comprehensive technical support at the Royal Air Force Marham to support F135 engines and the LiftSystems on the UK's F-35B Lightning II aircraft. The two industry-leading engine companies will institute a performance-based logistics (PBL) approach to sustainment for the propulsion systems. A PBL contracting structure incentivises contractors to focus on outcomes such as propulsion system availability, leading to greater efficiencies, mutual cost reductions, and operator benefits. The companies formalised the new working relationship by signing a memorandum of understanding, agreeing to increase levels of cooperation and improve synergy as they join forces in support of the customer.

The agreement defines how the companies will collaborate and grow their sustainment capabilities. Pratt & Whitney, lead propulsion integrator for the F-35 programme, will focus primarily on system-level performance of its F135 engines. Rolls-Royce will lead on support for the LiftSystem technology the company developed and produced, while also undertaking some delegated support work on the main F135 engine. The two companies will also look to duplicate this support model for other F-35B customers. **SP**



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Missing An-32 medium-lift aircraft

Tragedy struck on July 22 when an Indian Air Force (IAF) An-32 on routine sortie from IAF Station Tambaram to Port Blair went missing. The aircraft had 29 personnel onboard; six-member IAF crew including two pilots, two Army personnel, eight civilians from the Naval Armament Depot at Vizag, five IAF non-combatants, four airmen, one Defence Security Corps soldier and a sailor each from Navy and Coast Guard. Massive search and rescue operations were launched to locate the aircraft which included P-8I long-range maritime patrol aircraft, C-130J Super Hercules, Dornier aircraft and over a dozen ships. The Indian Space Research Organisation (ISRO) put off its scramjet propulsion mission from Sriharikota while the IAF requested ISRO help locating the missing aircraft. India has reportedly sought help from the US to assist in the ongoing search.

It would need a miracle to locate the missing aircraft considering the Malaysian airliner MH170 has not yet been located despite months of international efforts. "Request weather deviation to the right", were the last words of the pilot heard by the air traffic controller (ATC), after which the aircraft took a right turn to avoid turbulence but then for some reason took a sharp left turn with rapid loss of height from its flying altitude of 23,000 feet. What exactly happened and why none of the pilots could give a 'May Day' call would only be known when the black box and the cockpit voice recorder (CVR) are recovered. However, the fact that pilots could not give an emergency call indicates something sudden that prevented them doing so. The An-32 can carry 60 passengers or 42 paratroopers with full battle loads. This aircraft had only 29 personnel on board. Whether the cargo included munitions is not known.

As per an IAF veteran, the An-32 due to its dynamic instability is difficult to fly by hand and is mostly flown on auto pilot in cruise conditions. At the same time the overall flight safety record of the An-32 has been reportedly good despite some accidents in the past. In one incident, one IAF's An-32 vanished over the Arabian Sea while being flown in from Russia in a group. In March 1999, an IAF's An-32 crashed close to the Indra Gandhi International Airport killing all 21 onboard, reportedly also having taken a sharp turn.

The IAF holds over a hundred An-32 aircraft which commenced induction into the IAF in 1984. Not many know that while these air-

craft were purchased from Russia for paratrooping personnel into combat, no country in the world including Russia uses this aircraft for paratrooping personnel. In fact, post the trials conducted in India then Commander of Parachute Brigade had certified the An-32 unfit for paratrooping personnel since the spread on ground of 42 paratroopers was over 1.2 km and getting together a battalion paratropped by night would be a nightmare. Nevertheless, political considerations and money making have always ignored military considerations has been the norm in our Ministry of Defence (MoD) that continues to be ruled by unaccountable bureaucrats.

As per media, there is a move now to fit 'older' An-32s with under-water emergency locator beacons (ELT), why not all An-32s is anybody's guess. Post the July 22 loss of the ill-fated An-32, there has been plenty of discussion in media of the vintage of our An-32 holdings. Sure the An-32 have been flying 32 years with the IAF but the previous avatar of the An-32, the An-26 has been soldiering on for 70 years – used by some 26 countries listed out in Wikipedia. The C-119 Packet aircraft were inducting into the IAF in 1954 for paratrooping and finally phased out in March 31, 1986. Incidentally a British military delegation to India in late 1970s were surprised that India was still using Packets for paratrooping and had added on the turbojet engines. So, it is not the vintage but the serviceability and compatibility to the assigned mission that is important, especially when IAF's An-32s have been going through refit and upgrades meant to increase their technical life to 40 years.

There has been speculation in the media about the serviceability of the ill-fated An-32 in the media, which is unwarranted as no IAF aircraft can take off unless certified fully fit. Even if there is a minor snag, the aircraft will not be certified fit for flying without rectifying the snag. This particular aircraft had been upgraded at Kanpur in September 2015 with assistance from Ukraine.

The policy makers need to however address two issues: first, suitability of aircraft for paratrooping particularly the pros and cons, particularly vulnerability of large versus medium sized aircraft in the combat zone, and; second, the stalled multi-role transport aircraft (MTA) in collaboration Russia to eventually replace the An-32s even having inked provisional agreement in 2007, perhaps on grounds whether it would be financially viable. **SP**



Boeing, Mahindra open C-17 training centre for Indian Air Force

Boeing and Mahindra Defence Systems formally opened a centre in Gurgaon to provide C-17 training services to the Indian Air Force (IAF). Once fully operational, the new centre will be capable of conducting local and multi-site simulations for added realism and more robust training.

"The centre, in partnership with Mahindra Defence, is another example of the steps we are taking to contribute to the building of a holistic aerospace ecosystem in support of 'Make in India,'" said Pratyush Kumar, President, Boeing India. "This demonstrates our commitment to provide reliable support and services for our customers throughout the lifecycle of a product."

"We are delighted to partner with Boeing in this venture," said S.P. Shukla, Group President, Aerospace & Defence Sector, and Chairman, Mahindra Defence Systems. "We have credible expertise in this specialised area of operations and training and we believe this joint endeavour will help deliver the objectives of the Government of India and the Indian Air Force of building capabilities indigenously."

The C-17 training facility, which is located at the Flight Simulation Technique Centre in Gurgaon, will be a full-service location offering instruction to aircrews that operate the 10 C-17 airlifters that Boeing delivered to India in 2014.

The centre features a complete training solution for C-17 pilots and loadmasters with advanced simulation, courseware and computer-based training to practise the complete range of tasks required for military airlift operations and humanitarian missions, along with other scenarios such as aerial refuelling and emergency procedures.

The facility includes weapons systems and loadmaster station trainers that can be employed individually or networked together to rehearse complete missions. The simulator's flight deck sup-



Air Marshal B.S. Dhanoa, Vice Chief of Air Staff, IAF, inaugurates the Boeing C-17 Simulation Training Center in Gurgaon on July 8 in the presence of Pratyush Kumar, President, Boeing India, S.P. Shukla, Group President, Aerospace & Defence Sector and Chairman, Mahindra Defence Systems; Gene Cunningham, Vice President, Global Sales, Boeing Defense, Space & Security; and Vinayak Rajagopal, Global Services & Support, Boeing Defense, Space & Security.

ports training with night vision goggles for comprehensive mission training.

"Boeing believes that in the coming future, support to aircraft and crews will be a critical element of our partnership to support the IAF's tactical and operational needs and to create a strong services infrastructure base in India," said Tim Noonan, Vice President of Training Systems and Government Services. "C-17 operators from the IAF will benefit immensely from the full motion state-of-the-art simulator and associated courseware and computer-based training and provides a real world replication of any possible training scenario." **SP**

HAL and Safran to form JV to support Indian helicopter operators

The Hindustan Aeronautics Ltd (HAL) and Safran Helicopter Engines have agreed to establish a support centre in India for national and international rotorcraft customers.

An agreement to this effect was signed on July 12, by D.K. Venkatesh, Director (Engg. and R&D), HAL, and Bruno Even, CEO of Turbomeca, at the ongoing Farnborough International Airshow in the presence of T. Suvarna Raju, CMD of HAL and Philippe Petitcolin, CEO of Safran.

This new centre will provide maintenance, repair and overhaul (MRO) services for Safran TM333 and HAL Shakti engines that powers HAL-built helicopters. Safran Helicopter Engines and HAL will provide their customers with a first-class service including optimised engine availability.

With over 1,000 engines, including 250 TM333 and 250 Shakti, India's armed forces are one of the largest operators of Safran-designed helicop-

ter engines. Shakti is the Indian designation for the Safran's Ardiden 1, co-developed with HAL and produced under licence.

Suvarna Raju said, "The JV reflects the close relationship established over many years between HAL and Safran Helicopter Engines. It places both partners on an ambitious path towards world-beating customer support in the field of engine MRO. The joint venture will provide the impetus for the 'Make in India' initiative since around 1,000 Shakti engines are likely to fly in the coming years."

Serge Maillé, Safran Helicopter Engines Executive Vice President for Strategy and Development, commented: "this joint venture marks a new step in the long-lasting and fruitful partnership between Safran Helicopter Engines and HAL. We are extremely proud of the continued confidence placed on us by HAL. Together we are committed to delivering world-class support to our customers, both in India and throughout the region."

Shakti is fitted to HAL's advanced light helicopter Dhruv and has been selected to power the HAL-designed light combat helicopter. The new light utility helicopter, a three-tonne single-engine chopper under development, is also fitted with a Turbomeca engine. **SP**



Embraer and Boeing to collaborate on KC-390 medium airlift

Embraer and Boeing have signed a teaming agreement to jointly market and support the KC-390, a multi-mission mobility and aerial refuelling aircraft. Under the agreement the companies will together pursue new business opportunities, both for the aircraft itself and for aircraft support and sustainment. Embraer will provide the aircraft while Boeing will be responsible for in-service support.

The agreement expands an existing collaboration between the two companies; in 2012, the two companies first announced their intention to jointly market the aircraft. "The expansion of our relationship makes the best medium-sized airlift product available to customers, bolstered by the best support available," said Jackson Schneider, President and CEO of Embraer Defense & Security. "Boeing has outstanding experience in the military mobility market and the KC-390 is the most effective aircraft in its category."

"The teaming agreement between Boeing and Embraer brings together two strong companies and underscores our commitment to branch out beyond the traditional OEM role into services for non-Boeing aircraft," said Ed Dolanski, President of Boeing Global Services and Support. "Our advantage is Boeing's global reach, which provides greater flexibility, enabling us to quickly respond



to customers, as well as take advantage of synergies that help lower costs—savings we can pass on to the customer." **SP**

Boeing names Hyslop Chief Technology Officer

Boeing has recently named Greg Hyslop its Chief Technology Officer (CTO), replacing John Tracy, a 35-year company veteran who served as CTO since 2006 and announced his retirement earlier this year.

In March, Hyslop, 57, was named Senior Vice President, Engineering, Test & Technology, assuming responsibility for the development and implementation of the company's enterprise technology investment strategy, as well as Boeing's research and technology, test and evaluation, and companywide engineering functions. He will continue in that role, reporting to Boeing Chairman, President and CEO Dennis Muilenburg and serving on the company's Executive Council, while taking on the CTO duties. The appointment is effective immediately.

"With a unique combination of advanced technology leadership and business acumen sharpened through many years as a programme manager, Greg has the right skills and experiences to help ensure Boeing remains a world-class technology company in its second century," Muilenburg said. "Greg recognises the most effective technological leaps are those that exceed customers' expectations for performance and innovation at a price they can afford."

Prior to his current assignment, Hyslop served as Vice President and General Manager of Boeing Research & Technology, the company's research and development organisation. From 2009 to 2013, he served as Vice President and General Manager of Boeing Strategic Missile & Defense Systems.



Hyslop joined Boeing in 1982 as a guidance and control systems engineer on missile programmes. A member of the Aeronautics Committee of the NASA Advisory Council, Hyslop holds a bachelor's degree in electrical engineering and a master's degree in mathematics from the University of Nebraska, and a doctor of science degree in systems science and mathematics from Washington University in St. Louis. **SP**

Thales and Elettronica strengthen their cooperation in the electronic warfare domain

Thales and Elettronica have signed a memorandum of understanding (MoU) to strengthen their industrial and commercial operations and relations in the aerospace and defence business. The aim of the agreement is to explore joint initiatives and pursue growth business opportunities in the electronic warfare (EW) segment.

"This MoU extends the area of our long-standing business relationship and both companies believe that it represents a fundamental step for growth in Europe and the international market," said Enzo Benigni, Chairman and CEO of Elettronica SpA.

The two companies are already leaders in aerospace and defence technology and this new collaboration will offer even more synergisms to customers worldwide, building the largest EW pole in Europe.

Under this MoU and the leadership of an Executive Steering Committee, Thales and Elettronica launch at Farnborough a new solution in airborne self-protection systems and will develop areas for larger cooperation in the EW segment.

The reinforcement of this already tight relationship may become one important success factor for the two companies in the next years leading to an increased market share based on competitive offers and wide portfolio solutions and technologies. **SP**



Christina Grimmie, singer, shot dead by fan

Florida authorities answered one of the major questions in the shooting death of Christina Grimmie, the 22-year-old singer who made her name on NBC's "The Voice."

The man who killed her was Kevin James Loibl, 27, of St. Petersburg, Florida, according to Orlando police. But they didn't give any background on Loibl or offer a possible motive.

Grimmie was signing autographs after a show at The Plaza Live theatre when a man approached and opened fire, police spokeswoman Wanda Miglio said. She was rushed to a hospital, where she died. **SP**

Pakistan-based hacker defaces Canara Bank site, tries to block e-payments

A Pakistani hacker has reportedly defaced the website of Canara Bank, one of India's largest lenders. On August 2, the hacker, who calls himself Faisal, defaced the bank's site by inserting a malicious page and tried to block some of the bank's e-payment services.

Within 24 hours of the attack, the Reserve Bank of India (RBI), in a letter marked 'confidential', advised bank chairman to review funds lying in their bank's (overseas) nostro accounts and carry out hourly reconciliation of payment e-mails by comparing outward messages with SWIFT confirmations.

SWIFT is the global financial messaging service banks use to move millions of dollars every day. "We have filed an FIR with the cyber crime department of the police. The bank immediately took note of the attack and isolated the server and diverted the traffic to a standby server," a senior Canara Bank official told *Economic Times*.

The hacker had used an URL to insert the page on bank's site but could not access data. "There was no loss. As of now we are seeing 20,000 online payment transactions," said the official. The hacker, who unsuccessfully tried to disrupt tax payments by Indians, left a message which read, "Government of India website stamped by Faisal 1337. We are a team of Pak Cyber Attackers. Go Home Kiddo. Need Security? Contact me: www.facebook.com/Pakistan1337. Pakistan Zindabad" The cyber strike, coming a fortnight before the Independence Day celebrations, is redolent of a similar attack last year.

According to an ethical hacker, many e-commerce firms with rudimentary cyber security checks are more vulnerable than banks. The August 3 Reserve Bank note to banks is also linked to the last month's cyber attack on Union Bank which narrowly escaped a \$160 million fraud. The hackers had infiltrated the bank to compromise the credentials of the bank employee which administers SWIFT service. Among other control measures, RBI in its letter told banks to

implement time restrictions for access to SWIFT and currency-wise message limits. **SP**

US swimmers robbed at gunpoint in Rio, Brazil

Ryan Lochte and three other American swimmers were robbed at gunpoint by thieves posing as police officers who stopped their taxi and took their money and belongings, the US Olympic Committee (USOC) said. In the latest security incident to hit the Rio Games, Lochte said that one of the robbers put a gun to his forehead before taking his wallet. No one was injured.

Lochte and his teammates were returning to the athletes village by taxi after a night out at the French Olympic team's hospitality house in the Rodrigo de Freitas area in the upscale south zone of the city. The outing was several hours after Olympic swimming ended Saturday night at the Rio Games. "Their taxi was stopped by individuals posing as armed police officers who demanded the athletes' money and other personal belongings," USOC spokesman Patrick Sandusky said in a statement. "All four athletes are safe and cooperating with authorities." Sandusky said the robbers took cash and credit cards only, and that no Olympic medals were lost.

Earlier, a bus carrying journalists at the Rio Games was hit by gunfire on a highway between Olympic venues, according to reports. No one was seriously injured in the incident. The bus was making its way from the Games basketball venue to the main Olympic park when, according to passengers, two shots were heard hitting the vehicle. Windows shattered and flying glass left two people with minor lacerations.

"We were shot at. I mean we could hear the report of the gun," said Sherryl 'Lee' Michaelson, a retired US Air Force Captain who is working for a basketball publication in Rio.

Violent street crime in Rio has left its mark on South America's first Olympic Games. On Saturday, a bullet hit the equestrian centre, missing journalists there by just a few feet. That bullet was suspected to have been fired by a gang member trying to shoot down a police blimp or drone, officials said. **SP**



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