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Indian Air Force gearing up for disaster relief operation in Bihar



(Top to bottom) Relief equipment (rapid action medical team equipment) being off-loaded and personnel (including doctors from Safdurjung and RML Hospital) from C-17 Globemaster III heavy lift transport aircraft at air force station Purnea, Bihar; (above) Four IAF Mi-17 V5 medium lift helicopter on stand by at air force station Purnea.



Cover:

The hopes and expectations from Prime Minister Narendra Modi's India are growing very fast as Modi promises to transform the country very soon into an economically vibrant nation.

Cover images: PIB

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Nation First. Happy Independence Day!

As we celebrate the 67th Independence Day celebrations, there is a lot to ponder. To begin with the theory of 'Nation First', as enunciated by the Prime Minister Narendra Modi, has to be imbibed in all Indians. Despite all the progress, we see ourselves faltering at different levels as we side-step the 'Nation First' theory. Personal aggrandisement has overtaken national interests, hence we see ourselves falling short on many counts.

National security is of utmost importance. That can be assured only when we are rid of corrupt systems, efficient and forward thinking approach to development and above all a mindset of ethical practices. National security has partially suffered as appropriate decisions have not been taken as regards modernisation of armed forces, developmental work (for instance in naxalite infested areas) etc. However, we see a whiff of fresh air with the Narendra Modi government promising to put 'Nation First'.

In this issue, Lt. General (Retd) P.C. Katoch talks about 'reviving the spirit of nationalism' and states that any delays in overhauling the defence sector will seriously endanger India's security. He exhorts the Prime Minister to give all the focus he can to defence. In another article, he has spelt out the urgency for the Indian Army to have better and advanced vehicles to replace the upgraded BMP-2. The future infantry combat vehicle (FICV) project has to be put on fast-track. In the light of corruption scandals, Air Marshal (Retd) B.K. Pandey writes it would be in the interest of the nation, not to blacklist or ban outright the foreign companies as they are involved in various programmes in India.

The Prime Minister has shown early promise, not just on the domestic front, but also internationally. He has reenergised relationships with the neighbours and beyond. During the recent visit of the US Secretary of State John Kerry, it was amply clear that decks are getting cleared for deeper strategic partnerships between the world's oldest and the world's biggest democracies.

Air Marshal Pandey has specifically touched upon the interest of Indian defence in the context of Indo-US relations. This is an area in which while there has been significant interaction, there is the need

and scope for much more. India needs to leverage its strengths as the Modi government is enjoying a magnetic appeal from world powers. The hopes and expectations are growing rapidly as Modi promises to transform the country soon into an economically vibrant nation, as Ranjeet Kumar has analysed.

Modi has had his first stop at Nepal wherein there was amazingly high warm response and he stuck to the development plank even there, stating it was imperative to prioritising infrastructure development, key not just for economic prosperity but stability in the region.

As we celebrate Independence Day, we also salute some of the finest soldiers India has produced. Though there are countless soldiers who have sacrificed their lives for the nation, we have picked few of them who have led from the front and we believe that they not only represent the soldier community, but also enthuse the nation by their bravery, statesmanship and spirit of nationalism.

All this along with a slew of regular columns... Happy reading!

Jayant Baranwal
 Publisher & Editor-in-Chief



Why Independence Day of 2014 is special



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

Every year we celebrate Independence Day with the usual gusto but the fact is that nationalism – Nation First (the slogan of Prime Minister Modi) is yet to catch up in the nation. The picture in the defence sector including the defence-industrial complex is dismal, as well known. To this end, the Independence Day this year is actually special because after years, India has a majority government and a dynamic Prime Minister. Getting the derailed train of the country from misadministration and deep corruption is obviously the first priority and there are numerous hurdles as witnessed by the chaos in Parliament, the judiciary stonewalling the dire need to expedite cases of corruption against Members of Parliament (MPs), serious outstanding cases of corruption against former ministers and media involving thousands of crores of rupees, communal clashes being perpetuated routinely for political gains, support in Rajya Sabha apparently being traded for protection against initiation of criminal and corruption cases, the powerful arms mafia with its brains abroad dictating terms for status quo or change that benefits them most, and what have you. National progress will remain stunted without speedily proceeding against corrupt politicians, ministers and MPs. More significantly, any delays in overhauling our defence sector will seriously endanger India's security even further.

Yes, the defence budget of ₹2.29 lakh crore has been announced, as has been the hike in foreign direct investment (FDI) from 26 per cent to 49 per cent and expediting of border infrastructure has been

ordered. Of the ₹98,000 crore plus capital expenditure catered in the defence budget, projects for ₹32,000 crore plus have been cleared. Of course these are important steps but will require thorough follow up. For example, raising FDI by itself is not enough, procedures and policies need to be streamlined and defence sector made attractive to investors. The medium lift military aircraft will take years with no indigenous expertise in the field save the Hindustan Aeronautics Limited (HAL), which is not to participate. The border roads don't have the wherewithal to expedite border infrastructure unless augmented by private resources. We don't yet have a National Security Strategy (NSS) and never undertook a Comprehensive Defence Review (CDR), both being criminal voids that need to be immediately addressed. The Defence Minister's directive by no means can substitute these two documents and without these planning for defence procurement actually is like building castles in thin air. Not many would know that our Defence Minister is not charged with the defence of India. Government of India rules of business are a British legacy saying Defence Secretary is responsible for "defence of the country" and that Services Headquarters are "attached offices". It suited the British because their Defence Secretary indeed was also the Defence Minister. The Services Headquarters were kept as "attached headquarters" because of distrust of majority Indians in the army of British India. Now if we are to have the Defence Secretary responsible for defence of India then what pray is the Defence Minister supposed to do – check cleanliness of toilets of South Block? The Defence Secretary in any case is imported from sundry ministries and has to learn from scratch what military and

security is all about. By their own admission, bureaucrats of Ministry of Defence (MoD) admit that it is only in their second or third tenure in MoD that they come to grasp matters military. Then our armed forces are all Indian and patriotic to the core, so there is no reason for Services Headquarters to continue as “attached offices” just because the bureaucracy wants to keep control and the arms mafia wants status quo.

Defence of the country has suffered because MoD continues to be manned by generalist bureaucrats sans professional military knowledge, who remain cocooned in their offices without accountability. The state in which the country has come up to needs a major overhaul and patchwork is hardly the answer. Serving military professionals need to be injected into the MoD at all levels including decision-making. Indian Railways is almost as large as our Army and the former is managed by the Railway Board, which is manned exclusively by railway officials. This needs to be followed in reorganizing the MoD. The MoD should be exclusively manned by military officials with advisory civilian cells in defence production and defence finance only. Headquarters Integrated defence staff should be completely merged into MoD, providing wherewithal for institutionalised strategic planning, operations, etc. A CDS with full operational powers should be appointed without further delay. Military must be fully integrated into strategic policy planning and decisions related to all matters military. Organisations of DRDO-DPSUs-OF too must have fair share of users (military officers) at all levels including decision-making. Border defence must be solely the responsibility of the Defence Minister. It is criminal to have sensitive areas like Depsang and Chumar not directly under command the Army.

It would be appropriate for the Prime Minister to do the honour of initiating and steering the much needed RMA, akin to what Jiang Zemin did in China, and have this promulgated through an Act of Parliament. RMA should encompass all facets of modernisation including, restructuring, equipping, modernisation, synergising, R&D, leapfrogging technology etc. Finally, India has a strategic asymmetry in the sub-conventional; both China and Pakistan have advanced sub-conventional capabilities but India is lagging behind woefully. This needs to be corrected expeditiously. Asymmetric war is waged against a nation, not against the military alone. Therefore, the response too has to be at national level. Such threats are the order of the day with even powerful countries like the US and China are using proxy forces. What is happening in Syria, Iraq, Afghanistan and Middle East is the use of proxy and irregular forces to further own strategic interests. We have been subjected to proxy war over the past two decades, which may well be intensified going by indications. The response matrix therefore needs to be synergized together by Ministry of External Affairs (MEA), MoD and Ministry of Home Affairs (MHA), in concert with the National Security Adviser (NSA), military and national intelligence agencies. Our existing policy of conventional response has been utterly ineffective. Basing it on idealism as a standalone factor implies an inward looking policy that is not only more expensive in the long run but damaging to national security interests and in turn adverse to our economic prosperity. On the other hand, taking hard realism as standalone factor can land us into a situation like Pakistan; implosion. Special Forces should be central to asymmetric response but that does not imply physi-

cal action alone, physical action being the last resort. There is urgent need to evolve a national policy for responding to asymmetric threats and creating a credible deterrence against proxy war. Our considerable Special Forces capability must be optimized in creating such deterrent.

The NSA has rightfully given an unambiguous message of resolute action to the Maoists. We also have to fight out terrorism and insurgencies that have turned into industries and their use by politicians for political power.

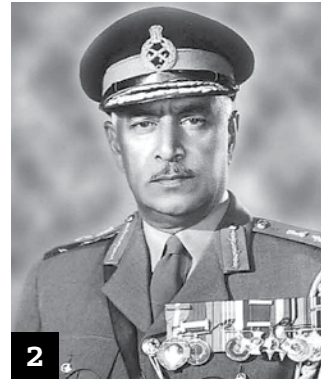
The NIA reported last year that some ₹600 crore have been pumped into Jammu and Kashmir (J&K) for terror by diverting collections and donations meant for other purposes over the last 10 years and that ₹95 crore were diverted from the J&K Affectees Fund in one single year. JKART has helped infiltrate over 1,000 terrorists into J&K over the years. Goods sent by trucks from J&K to Pakistan are overpriced three times and the incoming money is diverted to terrorist organisations. Then is the issue of criminalisation of politics and the creation of armed groups under political direction through intelligence agencies; Liberation Tigers of Tamil Eelam, Bhindranwale group, United Liberation Front of Assam, Bodos, etc. Incidentally, M.K. Dhar former Joint Director Intelligence Bureau (IB) writes that Zail Singh as Home Minister was entertaining and arming terrorists from Punjab in his residence, so the government promoted him President and kept his telephones tapped in Rashtrapati Bhavan. Assam has become Bangladeshi Muslim predominant because of the mischievous IMDT Act instituted in 1995 which the honourable Supreme Court scrapped 10 years later in 2005. There appears to be a conspiracy to subject more of our states to similar fate by facilitating rapid illegal Bangladeshi immigration. Significantly, Sheikh Mujibur Rehman authored a book prior to formation of Bangladesh, in which he wrote, “Because Eastern Pakistan must have sufficient land for expansion, Eastern Pakistan must include Assam to be financially and economically strong.” The perpetrators of the IMDT Act appear to have worked to realise the dream of Mujibur Rehman. Presently, the Kerala headquartered Popular Front of India (PFI) apparently has the blessings of the mafia because they are not banned despite having armed, uniformed, running terrorist camps, media citing Research and Analysis Wing (R&AW) and IB

the organisation has links with Al Qaeda and Lashkar-e-Taiba (LeT). Four of their cadres killed in Kupwara (north Kashmir) four years back exfiltrating into Pakistan occupied Kashmir. The recent expose of Inter-Services Intelligence (ISI) hub in Pakistani Embassy in Sri Lanka with plans to undertake terror attacks against the US Consulate in Chennai and Israeli Consulate in Bangalore are pointers South India is on the terror radar, what with Maldivians too having Al Qaeda and LeT links. What India should also be ready to face is the next level of terrorism in the near-term; a weapon of mass disturbance like a radiological device, the recovery of a 1.5 kg Uranium mine by Army in Assam during 2013 and theft of 15 Uranium isotopes from Steel Authority of India in 2011 being pointers. Presently, we have little response mechanism. The NDRF is sans any specialisation in this context with police personnel providing manpower on three-year deputation basis. The Prime Minister needs to give all the focus he can to defence. **SP**

MoD should be exclusively manned by military officials with advisory civilian cells in defence production and defence finance only. Headquarters Integrated defence staff should be completely merged into MoD, providing wherewithal for institutionalised strategic planning, operations, etc.



Remembering some of India's finest military leaders



1. Field Marshal K.M.Cariappa
2. General K.S. Thimayya
3. Field Marshal Sam Manekshaw
4. Marshal Arjan Singh

[By **R. Chandrakanth**]

Field Marshal K.M.Cariappa, the first Indian Commander-in-Chief of the Indian Army

Field Marshal Kodandera “Kipper” Madappa Cariappa was the first Indian Commander-in-Chief of the Indian Army and led the Indian forces on the Western Front during the Indo-Pakistan War of 1947.

He is among only two Indian Army officers to hold the highest rank of Field Marshal (the other being Field Marshal Sam Manekshaw). His distinguished military career spanned almost three decades, at the highest point of which, he was appointed as the Commander-in-Chief of the Indian Military in 1949.

After World War I concluded in 1918, Indian politicians at that time raised a demand to grant Indians the King's Commission. After strict screening, Cariappa was selected for the first batch that underwent rigorous pre-commission training. In 1919, he joined the first batch of KCIOs (King's Commissioned Indian Officers) at The Daly College at Indore and was commissioned into the Carnatic Infantry at Bombay as a Temporary Second Lieutenant.

Cariappa served in Iraq, Syria and Iran from 1941-1942 and then in Burma in 1943-1944. He spent many of his soldiering years in Waziristan. He was the first Indian Officer to be given command of a

unit in 1942. By 1944, Cariappa was a Temporary Lieutenant-Colonel. After command, he volunteered to serve in 26 Division engaged in clearing the Japanese from Burma, where he was appointed an Officer of the Order of the British Empire.

In 1947, Cariappa was the first Indian who was selected to undergo a training course at Imperial Defence College, Camberly, UK on the higher directions of war. During the traumatic period of partition, he handled the division of the Indian Army and sharing of its assets between Pakistan and India, in a most amicable, just and orderly manner. He was then the Indian officer in charge of overseeing the transition.

On outbreak of war with Pakistan in 1947, he was moved as General Officer Commanding-in-Chief, Western Command and directed operations for the recapture of Zojila, Drass and Kargil and re-established a linkup with Leh. In all this, he showed tremendous energy in moving troops, against considerable odds. This ensured his elevation to the supreme post of commander in chief.

On 15 January 1949 Cariappa was appointed as the first Indian Commander-in-Chief of the Indian Army, succeeding Lieutenant General Sir Roy Bucher, who had been in the post only a year. He was displaced owing to differences with the Indian government over the invasion of Hyderabad and the operations in Kashmir. Cariappa was

then instrumental in turning an imperial army into a national army.

During the 1965 war, his son K.C. Cariappa, an Indian Air Force pilot, was shot down over Pakistan by Army officer Major Zaidi. He was captured and imprisoned as a POW by him. On realising the identity of the wounded soldier at Dargil, Radio Pakistan immediately announced the safe capture of Flt Lt K.C. Cariappa. General Ayub Khan, himself contacted Field Marshal Cariappa, who was living a retired life at Mercara, his hometown, with information about his son's safety. When General Khan offered to release his son immediately, Field Marshal is reported to have scoffed at the idea and told him to give his son no better treatment than any other POW. "He is my son no longer," the Old Soldier is reported to have thundered. "He is the child of this country, a soldier fighting for his motherland like a true patriot. My many thanks for your kind gesture, but I request you to release all or release none. Give him no special treatment," the Field Marshal is reported to have said.

On May 15, 1993, Field Marshal Cariappa died in Bengaluru, aged 94.

General K.S. Thimayya, distinguished soldier

Kodendera Subayya Thimayya, was a distinguished soldier of the Indian Army who served as Chief of Army Staff from 1957 to 1961 in the crucial years leading up to the conflict with China in 1962. After the Korean War, Thimayya headed a United Nations unit dealing with the repatriation of prisoners of war. After his retirement from the Indian Army, he went on to command the United Nations peacekeeping force in Cyprus. While in Cyprus, he died of a heart attack, in 1965.

After completing school, Thimayya was sent to the Prince of Wales Royal Indian Military College, a necessary stepping stone for a commission in the Indian Army. Following his graduation from RIMC, "Timmy", as he was affectionately known, was one of only six Indian cadets selected for further training at the Royal Military Academy, Sandhurst. He was commissioned into the British Indian Army in 1926.

Thimayya represented the country during the surrender of the Japanese in Singapore, followed by the surrender of the Japanese in the Philippines. At the ceremony of Japanese surrender in Singapore, Timmy signed on behalf of India.

He returned to India in 1947, during the Partition as member of the committee to agree to the allotment of weapons, equipment and regiments that were to remain in India, or to be allotted to Pakistan. Soon after the commission was completed, he was promoted to the rank of Major General in September 1947 and was then assigned the command of the 4th Infantry Division and also to take over the Punjab Boundary Force, dealing with the exodus and intake of refugees fleeing to their respective countries. In 1948 he was one of the active officers in the actions against the forces of Pakistan in the conflict over Kashmir. His next appointment was command of the 19th Infantry Division in Jammu and Kashmir where he succeeded in driving the raiders and the Pakistan Army out of the Kashmir Valley. Personally leading the attack in the forward-most tank, the surprise attack on Zoji La on November 1, 1948, by a brigade with Stuart Light Tanks of the 7th Light Cavalry, succeeded in driving out the entrenched raiders and Pakistan Army regulars and the eventual capture of Dras, Kargil and Leh.

He assumed charge of the Indian Army, as the 6th Chief of the Army Staff, on May 7, 1957, and he retired in May 1961.

Sam Manekshaw, the first Field Marshal

Sam Hormusji Framji Jamshedji Manekshaw, also known as Sam Bahadur ("Sam the Brave"), was an Indian military leader who was the first Indian Army officer to be promoted to the rank of Field Marshal. His distinguished military career spanned four decades and

five wars, beginning with service in the British Indian Army in World War II. Manekshaw rose to become the eighth chief of staff of the Indian Army in 1969 and under his command, Indian forces conducted victorious campaigns against Pakistan in the Indo-Pakistani War of 1971 that led to the liberation of Bangladesh in December 1971.

Manekshaw was born in Amritsar to Parsi parents, Hormusji Manekshaw, a doctor, and his wife Heerabai, who moved to Punjab from the small town of Valsad on the Gujarat coast. After completing his schooling in Punjab and Sherwood College (Nainital) and achieving a distinction in the school certificate examination of the Cambridge Board, he asked his father to send him to London to study medicine. When his father refused to send him until he was older, in an act of rebellion Manekshaw sat the entrance examination for enrolment into the Indian Military Academy (IMA) at Dehradun. He was successful and as a result became part of the first intake of 40 cadets on October 1, 1932. He graduated from the IMA on February 4, 1934 and was commissioned as a second lieutenant in the British Indian Army (which later became the Indian Army after Independence).

After taking over as Chief of the Army Staff (COAS), at a function on June 8, 1969, to mark the centenary of Sherwood College, Manekshaw recalled that his years at the college had prepared him for war as they had taught him to live alone and independently, to fight without relent, tolerate hunger for long periods and to hate his enemy.

Manekshaw's military career spanned four decades, from the British era and World War II, to the three wars against Pakistan and China after India's independence in 1947. He held several regimental, staff and command assignments. Manekshaw went on to become the eighth Chief of the Army Staff, led the Indian Army successfully in a war with Pakistan and become India's first Field Marshal.

While handling the issues relating to Partition in 1947 Manekshaw demonstrated his acumen for planning and administration, and later was able put his battle skills to use during operations in Jammu and Kashmir in 1947-48.

Marshal Arjan Singh, epitome of a military leader

Arjan Singh, is the only officer of the Indian Air Force to be promoted to five star rank, equal to a Field Marshal, to which he was promoted in 2002.

He was born in Lyallpur in Punjab into an Aulakh family. He was educated at Montgomery (now in Pakistan). He entered the RAF College Cranwell in 1938 and was commissioned as a pilot officer in December 1939. As a distinguished graduate of the RAF College, Singh's portrait is now to be found on the walls of the College's west staircase.

Arjan Singh led No. 1 Squadron, IAF into command during the Arakan campaign in 1944. He was awarded the Distinguished Flying Cross (DFC) in 1944, and commanded the IAF exhibition flight in 1945.

He was Chief of the Air Staff (CAS), from August 1, 1964, to July 15, 1969, and was awarded the Padma Vibhushan in 1965. He also became the first Air Chief Marshal of the Indian Air Force when, in recognition of the Air Force's contribution in the 1965 war, the rank of the Chief of Air Staff was upgraded to that of Air Chief Marshal. After he retired in 1969 at the age of 50, he was appointed the Indian Ambassador to Switzerland in 1971. He concurrently served as the Ambassador to the Vatican. He was appointed High Commissioner to Kenya in 1974. He was member of the Minorities Commission, Government of India from 1975-1981. He was Lt Governor of Delhi from December 1989 to December 1990 and was made Marshal of the Air Force in January, 2002.

Marshal Arjan Singh is the epitome of a military leader. SP



Modi's diplomacy – Out of the box approach

[By **Ranjeet Kumar**]

Narendra Modi has taken over the reigns of India at a time when global geopolitical situation is in a state of flux. But at the same time India's magnetic strength is also getting stronger with whom many big powers from both camps are eager to align with. The hopes and expectations from Modi's India are growing very fast as Modi promises to transform the country very soon into an economically vibrant nation. The huge middle class market, almost of the size of the European Union is once again resurgent and promising growth and employment to the developed economies who still are struggling to come out of recession.

Hence Modi is the international leader of the year as he offers economic opportunities to developed countries but he will have to make a tight rope walking, to balance relations in extreme delicate fashion, with a single aim of protecting and promoting India's national and strategic interests. Being an astute politician himself, Modi's diplomatic initiatives have proved to be of far reaching significance in international arena. Starting with his swearing in invite on May 26, 2014, to all the heads of States of South Asian Association for Regional Cooperation (SAARC), Modi has made forays in international diplomacy with great tact as his invite to SAARC leaders has indeed proved to be a master stroke, coming out from a political leader who till now was deeply engrossed in domestic affairs. The SAARC invite has reenergised and galvanised India's dormant relations with immediate neighbors, which has been bane of Indian foreign policy and proving to be extremely difficult. But the way Modi has won the heart and minds of the people of Bhutan and then of the people of Nepal speaks volumes of his political knack of engaging with the world leaders also.

These moves of Modi will lead to regaining the clout in India's strategic backyard, for which India will also have to make smart moves to strengthen intra-SAARC cooperation and removing mutual mistrust. Modi tells us that India's destinies are linked with its neighbors with whom he will walk extra mile to deepen relations. So, when from the very first day he startled the world by hosting India's neighboring leaders, he made his intent very clear and by making his first foreign visit to Bhutan, the tiny Himalayan kingdom, he reemphasised his priorities in no uncertain terms. Tells Rajeev Sharma, a columnist on diplomatic issues with China's *Global Times*, Modi has given an example of Out Of Box thinking by focusing on Near Abroad – Bhutan, Nepal and next Myanmar. All these share land boundaries with both China and India. Modi's neighborhood watch diplomacy will counter the China factor in these countries."

Modi's first multilateral diplomatic engagement was only one and half month after his taking over, during which he fared very well as he met world leaders like Vladimir Putin and Xi Jin Ping individually. In fact, Modi is no stranger to international leaders. As a Chief Minister of Gujarat he has been to China four times, to Japan three times and to Israel two times, where he was given access to all the top leaders, as they knew very well that Modi is the real business oriented politician with whom they can do business with. Knowing very well the state of relations between India and China Modi never hesitated to visit and seek investment from China in his home state and as Prime Minister when he met the Chinese President he did not mince words that he means business while dealing with China on bilateral issues and at the same time promised to expedite the Chinese wish and proposal to set up four Industrial parks in India especially for Chinese investors. Chinese businessmen wants to exploit not only Indian market but also use India based Industrial parks as business and production hub for their business activities in South Asia.



Prime Minister Narendra Modi addresses the Parliament of Nepal, in Kathmandu on August 3

Modi's slogan of Sabka Saath Sabka Vikas (all together, development for all) has even impressed the US Secretary of State John Kerry, who mentioned this in his speech delivered at a US think tank. This slogan can be reinterpreted in strategic sense also, as Modi in his very short tenure of two months has given a clear message that he will extend his one hand to China while at the same time shake the other hand with Shinzo Abe's. Modi has conveyed this through his actions. He would like to take along with him not only China but its bete noire Japan also. Though Chinese President Xi Jin Ping has announced his intention to make India his first bilateral foreign sojourn, Modi would be making

his first bilateral foreign visit to Japan outside South Asia.

But Modi's diplomacy has not been flawless. Says Rajeev Sharma, "Japan was badly handled by first announcing and later postponing his Japan visit. Modi should not have tried a meeting with Germany's Merkel in the first place as he had given word of honour to Abe that Japan will be the first destination of his bilateral overseas visit."

But It is indeed Modi's magnetic appeal of his strong personality that the world leaders came calling to pay obeisance to him on his landslide victory in Parliament elections and after assuming country's reigns. As the world leaders called Modi to congratulate him they dispatched their senior leaders no less than their foreign ministers among whom was the Chinese Foreign Minister Wang Yi who was sent by President Xi has his Special Envoy on June 8. This was followed by the French Foreign minister Laurent Fabius, Russian deputy prime minister Rozogin, British Foreign minister William Hague, etc. and ultimate of them all was the US Secretary of State John Kerry who was indeed given a snub publicly by Sushma Swaraj on the issue of

snooping and when Kerry met Modi, he was told bluntly of India's reasons for not signing the WTO Trade Facilitation Agreement.

Modi's knack of giving messages in abbreviations like the HIT (Highways, Iways, and Transways) and CCCC has impressed the common people and leaders alike. CCCC meaning cooperation, constitution, culture and connectivity sums up the entire crux of relationships between nations. His HIT has hit peoples sentiments, who has understood through his abbreviated slogan that he means business and his words are not empty rhetoric. In Nepal from anti India politics to development politics. Modi has indeed succeeded in making a dent in peoples views towards India while bringing the people and the governmental leaders closer to India for which the strongest critic of India the Maoist leader Prachanda also could not hide his warm feelings towards Modi and his credibility as a good and sincere friend of Nepal. Modi has been able to convince the people and the leaders of the neighboring countries that India is sincerely interested in helping the economic growth by focusing on development politics as he himself has proved in his own home state and the country which helped him register a resounding win over the ruling Congress led UPA. Being a grassroot leader himself his bid to develop emotional bonding with the people will indeed go a long way in erasing the anti-India mindsets which will help the leaders of those countries to plan and execute the joint strategies with India, the so called big brother which indeed can play a role of elder brother, which is a fact as shown by the geography and demography.

India's neighboring countries are culturally, historically and civilizational aligned with India who share common language and life style, food, clothes and way of thinking. It is interesting and intriguing why India's neighboring countries which are more culturally and historically aligned with India, yet, in recent decades China has made deeper forays in neighboring countries capturing not only the markets but also the strategic space, though Chinese culture and civilisation is alien to them. It would be a challenge before Modi, how to dissuade India's neighbors from getting threateningly close to China and cajole hem to tie their destiny with India. For this to happen India must give a hope of economic progress and must assure them that India would never interfere in their domestic politics. Perhaps during Nepal visit Modi has been able to convince the Nepali leaders that India was only interested in the well being of India's neighbors, because of the dictum that if neighbors does not sleep in peace we can also not have a sound sleep.

While Modi has unraveled his neighborhood strategy his tactics of balancing China vs Japan and US relations are yet to unfold but its indication can be sensed as he has decided to visit Japan first as his first bilateral engagement. Modi's biggest challenge would be to manage China's evolution but his image of a strong personality and an assertive leader would certainly help him achieve India's national goals. The assertive and aggressive behavior of China in South China Sea has been bothering India very much.

As India can not let China control the traffic movements in the South China Sea from where half of India's maritime trade traffic is conducted. This requires shrewd handling of issues for which Modi must be ably assisted by his chosen advisors. In fact Modi passed his first international test in diplomacy when he came under intense US led pressure to sign on the WTO accord on Trade Facilitation Agreement. Modi vouched for the country's poor rather than caring for employment growth in developed countries.

Modi's China, Japan and US strategy will evolve with his Japan visit in the first week of September, the Chinese President's visit in the second week of September to New Delhi and then by the end of September to USA. So the month of September will prove to be most crucial for Modi and Indian diplomacy which will set the tone and direction for India's future engagements and proximity with the

leaders of three biggest powers on earth. The trilateral dialogue among the three India, Japan and USA is also an indication that something is cooking and China is wary of their possible moves. His cautious moves have aptly been described by Brahma Chellaney as prudent gradualism. On diplomatic front, says Chellaney, Modi is charting an assertive dynamic approach.

Since India cannot let China control the South China Sea and Japan cannot let China control the East China Sea and South China Sea, India's and Japan's strategic interests converge and the US side would be too glad to assist which matches with its Rebalancing Asia policy earlier known as Pivot to Asia policy under which Obama had announced relocation of 60 percent of US naval resources to the South and East China Sea.

But China has been a cause of worry for India not only in the South China Sea but also in India's neighborhood where China is engaged in an extreme discreet strategy of String of Pearls disguised in assistance in infrastructure development. In fact China has taken the space left unoccupied by India, which is evident from the fact that an Indian Prime Minister visited Nepal after 17 years. China has been using its money and muscle power to bring India's neighbors closer to them and India simply remained a mute spectator with expressions of concerns which further alienated the neighbors from India and they understood the game of playing China card vis a vis India and extract maximum benefit from both of them.

Thus the challenge before Modi is to bring India and neighboring countries relations back to track and start living like good neighbors. India cannot achieve the status of big power if it is not able to bring its neighbours in peace and cooperation with India and under its economic domain and integrate their economies with India by vastly improving connectivities of road, air and sea between all the neighbors. Not only infrastructure but reestablishing close social and cultural links of the peoples, as we have seen in the European Union.

The challenge for Modi is to show new template for the relationships with its neighbors is South Asia taking European Union as a model, but Pakistan will prove to be the biggest hurdle in achieving the ambition of taking breakfast in Amritsar, lunch in Lahore and dinner in Kabul as very well enunciated by the previous Prime Minister Manmohan Singh and Modi will have to carry this forward.

SAARC region remains the most uncooperative among all such economic groupings like ASEAN and European Union. Whereas SAARC conducts only five percent of trade of their world trade among the eight member countries, the ASEAN has achieved the 25 per cent trade exchanges and the EU has set an excellent example of over 52 per cent trade among all its 27 member countries. The EU has shown the workable concept of open borders unimaginable in South Asia especially between India and Pakistan and Afghanistan though EU type examples like India-Nepal and India-Bhutan does exist and India needs to at least open many trade entry and exit points to make each South Asian countries dependent among themselves.

This will make the SAARC region as attractive as ASEAN and will automatically empower India with the status of regional leader with a right to speak on their behalf in international arena. However, SAARC region cannot enjoy peace and prosperity as long as the area is infested with terrorists of various shades. Hence, fighting terrorism is another big challenge, for which Modi will have to deal with the terrible situation not only domestically but at the international level also. Only a socially peaceful, stable and terror free atmosphere domestically and around India's borders can ensure economic development and attract foreign investment, which is the ultimate strategic aim of modern day world. ■



Correcting myopia



Prime Minister Narendra Modi meeting the Prime Minister of Nepal, Sushil Koirala in Kathmandu, Nepal, on August 3, 2014

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

In his yet unpublished autobiography (excerpts of which are public) Natwar Singh has accused former Prime Minister Manmohan Singh (implying the then Government) of not having any foreign policy. The accusation needs to be taken with a pinch of salt as the author had gone underground for many years in backdrop of the oil scam and estrangement with hierarchy of the political party that he belonged too.

But examination of events of the last decade by scholars and media did indicate that while India was focused on its 'Look East' policy, the immediate neighbourhood was given short shrift – with direct consequences to our national security. Additionally, our unusually 'soft' response to Pakistan and China was also noticeably significant – with veteran R&AW officers stating that those in power who had used hawala channels to siphon off black money may well be under ISI blackmail since hawala in India is run by Dawood Ibrahim's 'D' Company, Dawood himself being an ISI protégé. It is obvious that Prime Minister Modi was cognizant of this myopic defect

and therefore, decided to address it straightaway – as was witnessed from the invitation to SAARC heads for his swearing in and that of his government. The Prime Minister's first visit abroad to Bhutan was the second shot to treat this myopia, even as our Foreign Minister visited Bangladesh.

Significant milestones were achieved during Prime Minister Modi's visit to Bhutan, the relationship described as "Special" by him right at the outset: both countries reiterated commitment to achieve the 10,000 MW target in hydropower cooperation; not allowing respective territories to be used for interests "inimical" to each other; inauguration of the building of Supreme Court of Bhutan built by India; laying foundation stone of the 600MW Kholongchu Hydroelectric joint India-Bhutan project; announcement of exempting Bhutan from any ban on export of milk powder, wheat, edible oil, pulses and non-basmati rice; commitment to expand FTA; Indian PM mooted idea of an annual hill sports festival with India's northeastern states along with Bhutan and Nepal; doubling of scholarships being provided to Bhutanese students in India; Indian promise to assist Bhutan set up a digital library providing access

to two million books and periodicals, and; mutual commitment to extensive development cooperation and enhancing economic ties.

Foreign Minister Sushma Swaraj's visit to Bangladesh too in her own words was an "excellent beginning" in addressing each others' concerns in the spirit of good neighbourliness. In Bangladesh, she had a series of meetings including with the President, Prime Minister and delegation level talks with her counterpart. She gave a commitment to address Bangladesh concerns over sharing of Teesta waters and implementation of the Land Boundary Agreement (LBA) in a manner that improves the welfare and well-being of people of both countries.

As for Nepal, Prime Minister Modi's recent visit to Nepal (17 years after an Indian PM visited that country) is another gigantic step in addressing the myopia in India's foreign outlook. That the PM's visit was preceded by the visit of the Foreign Minister is significant as well. India and Nepal have ancient and deep cultural and religious ties but intransigence coupled with China's pro-active application of soft power (not counting links with Maoists – application of hard proxy power?) had somehow permeated a feeling of distrust about India in the political class in Nepal. That distrust to a measure was addressed when the Nepalese PM attended the swearing in of Prime Minister Modi.

There are other issues like the suspicion within Nepal of the Indian origin Madheshi population of Nepal settled along the border with India, considered Indian agents. Of course there have been reports about severe restrictions on Tibetan refugees lodged in Nepal on insistence China, some even handed over to Chinese authorities, and some one lakh Bhuplaese that fled Bhutan along with an RBA rebel officer lodged in Nepal but these are internal issues of Nepal. What is relevant to us are that India and Nepal have extraordinary deep ties including with large number of Nepalese soldiers in Indian Army. Foreign Minister Sushma Swaraj was unambiguous in stating that "India was not the 'Big Brother' but just an elder brother", which was received well. The draft Power Trade Agreement (PTA) with 100 per cent FDI by India is still under examination by Nepal. Sushma Swaraj also clarified that India had no favorites in Nepal and that the federal structure of Nepal is its internal affair. The other vexed issues were the 1950 Treaty of Peace and Friendship that was proposed by Nepal at the time of signing the treaty but now viewed unequal by the Nepalese, border settlement, unequal bilateral trade, etc. Significantly, the third meeting of the Nepal-India Joint Commission held in July 2014 in Kathmandu (held after 23 years) has already reiterated the need for reviewing, adjusting and updating the Treaty of Peace and Friendship 1950, reflecting the current realities, also directing the Foreign Secretaries to make necessary recommendations to that end and for the Nepal-India Boundary Working Group to commence field work earliest.

Prior to leaving for Nepal, Prime Minister Modi had said, "My visit reflects our shared heritage of nature, history, culture, spiritualism and religion. It highlights the high priority that my Government attaches to our relations with Nepal and our determination to take our relationship to an entirely new level". In Nepal, Prime Minister Modi won the hearts of Nepalese. Amongst the various interactions, Prime Minister Modi met Prime Minister of Nepal, Sushil Koirala. Delegation-level talks were also held between the two sides. Asserting that India respects Nepal's sovereignty, the Prime Minister hoped that the process of Constitution-making would be completed soon. He stressed the need for prioritising infrastructure in the pace of development, Narendra Modi said that the bridge of trust between the two nations should be strengthened. Three agreements were signed between the two countries in presence of the Prime Ministers, namely: Letter of Exchange for establishing Pancheswar Development Authority; MoU in the health sector for Goiter Control

Program, and; Cooperation between Doordarshan and Nepal TV. Speaking to Nepal's Constituent Assembly, the Prime Minister gave a HIT formula for Nepal, saying India wants to help Nepal build highways (H), information highways (I) and transways - transmission lines (T). He also announced: keenness to double power supply to Nepal; ₹10,000 crore concessional line of credit to Nepal for development; promise to build pipelines to help transport oil to Nepal; increased Indian scholarships to students from Nepal; help to Nepal emerge as a major exporter of herbal medicines; help develop tourism potential of Nepal, both as a spiritual, and adventure tourism destination; bridge on the Mahakali river and the Pancheshwar multi-purpose project to be taken up at the earliest; making telephone calls between India and Nepal cheaper; making India-Nepal border a bridge which helps bring prosperity to both sides, and; assistance to Nepal in the fields of organic farming, and soil health.

There is an apparent need to coordinate the approach in dealing with our neighbours at national level. India objected to the UN probe for human rights violations by Sri Lanka during the last seven years of the three decade long conflict and denied visa to UN investigation committee mandated by a resolution adopted



Prime Minister Narendra Modi with the Nepalese people in Kathmandu

at UNHCR in March 2013 but recently the U-19 cricket team of Sri Lanka was turned back immediately on arrival at Chennai – causing avoidable embarrassment. When Tamil Nadu politics had prevented Sri Lankan cricketers participate in the recently held IPL, where was the question of organising the U-19 international cricket tournament in Chennai? Also, while we address the aforesaid myopia, equally important is the need to address the hyperopia in our foreign outlook. For example, the reason why our age old strategic partner Russia has gone ahead with the sale of Mi-35 attack helicopters and other weapon platforms to Pakistan needs examination, same as cessation of provision of two metre satellite imagery by Russia to us that adversely affects targeting by our weapon systems. Questions have also been raised in many quarters that when a categorical statement had been made in Parliament that India has equally good relations with both Israel and Palestine, why did India not abstain while voting at the UNHCR? **SP**



Nuclear push to relations



[By **Ranjeet Kumar**]

Though the fifth round of strategic talks were held under the shadow of widespread resentment over snooping of Indian government and opposition leaders and India's conditional rejection of the Trade Facilitation Agreement under the WTO, the two countries seem to have given a big push to nuclear cooperation both at the ground and at the strategic levels, which are expected to reenergise the Indo-US relations, lying dormant since last few years. With the green signal to commence the commercial negotiations for the two Gujarat based reactors, the bilateral relations seems to be back on track.

The ground for reenergising the relations were prepared during the Kerry-Sushma fifth bilateral strategic dialogue. The six-year long logjam over the issue of nuclear liability law seem to have been removed, though, the two countries have not come out clean on this issue. However, the way the Indian government has surreptitiously announced the commencement of commercial negotiations for the two nuclear plants between US company Westinghouse and Indian NPCIL, has pleasantly surprised Indian strategic circles, as it has the potential of restoring the lost momentum in bilateral relations which were given a big push after the famous White House invite to

Manmohan in November, 2009 when President Obama hosted his first State reception for a Head of State.

The decision to award the two US nuclear reactors to Gujarat, Narendra Modi's home state is indeed significant, because of the fact that Modi's BJP as opposition group in Parliament had staunchly opposed the nuclear deal with US. Now Modi seems to have reversed his stand and wants to be the first beneficiary of the Indo-US Civil nuclear cooperation agreement. On July 28, the Minister of State in the MEA General (Retd) V.K. Singh announced in Lok Sabha, which has went unnoticed till now by the discerning strategic community and the media. General Singh had informed the lower house of Indian Parliament that Commercial negotiations between Indian NPCIL and the American WEC regarding the setting up of two reactors are taking place. Giving the background of the negotiation Gen Singh informed that "The 123 Agreement between India and the United States concerning Peaceful Uses of Nuclear Energy was signed on October 10, 2008. Subsequently an 'Arrangements and Procedures' agreement has been signed on July 30, 2010. A Pre-early Works Contract has been concluded between Nuclear Power Corporation of India Ltd (NPCIL) and Westinghouse Electric Company (WEC) of the US for construction of two nuclear power reactors at Mithi Virdi in Gujarat. A 'Revised and Restated Confiden-

tiality Agreement' between NPCIL and WEC has also been finalised to clarify information sharing mechanisms."

Later after the Kerry-Sushma talks the two countries issued a detailed joint statement, which did not refer to the Gujarat reactors by name but expressed firm commitment to execute the 2008 civil nuclear cooperation agreement. The Statement said, "The leaders reaffirmed their commitment to the full implementation of the India-US civil nuclear agreement. They welcomed the authorisation to proceed provided to Westinghouse to implement the pre-Early Works Agreement with NPCIL as of September 2013. Both sides urged NPCIL and US companies Westinghouse and General Electric-Hitachi to expedite the necessary work to conclude pricing and contractual details. They looked forward to advancing the government-to-government dialogue and facilitating the establishment of US-built nuclear power plants in India. Interestingly Kerry-Sushma talks also resulted in a firm commitment from the US side to support India's entry to restricted nuclear regimes of the developed countries. The joint statement affirmed that the two leaders reviewed efforts since November 2010 toward India's phased entry into the Nuclear Suppliers Group (NSG), the Missile Technology Control Regime (MTCR), the Wassenaar Arrangement and the Australia Group. Secretary Kerry reaffirmed the United States' support for India's membership in these groups and welcomed India's recent decision to ratify its Additional Protocol with the IAEA. The two leaders supported an early conclusion to these efforts. If the US takes a lead in promoting India's case for membership in these regimes, India can certainly raise its international stature.

Describing the strategic talks as positive Ambassador Surendra Kumar, Founding President of the Indo-American Friendship Association said that the meeting went on predictive lines. Big picture will emerge when the Obama-Modi September end summit will conclude with some big announcements. As far as commitment expressed in the joint statement on taking forward the Indo US Nuclear deal, Surendra Kumar opined that India will have to make its stand flexible on the Indian Nuclear Liability Law.

Probably, this has led to the two governments giving green signal to the nuclear power companies of the two nations the Westinghouse Electric Company and the Indian NPCIL go ahead with the commercial talks for setting up two reactors in Mithi Viridi in Gujrat. The site will have six to eight nuclear reactors of 1,000 MW each and will entail investment of over \$30 to \$40 billion in the coming decade if the deal is finalised during the Modi regime.

This will strongly tie the two nations for decades to come and will probably lead to the conclusion of the Indo-Japan bilateral nuclear cooperation agreement without which US and French nuclear reactors cannot be established in India as most of the nuclear equipments are supplied by the Japanese companies Hitachi and Mitsubishi. The Japanese government is also aware of the fact that if the nuclear agreement is signed with India, it will revive the dwindling Japanese economy, still suffering from Fukushima disaster.

The Mithi Viridi nuclear park allotted to the US Westinghouse

in Gujarat, will station six to eight nuclear reactors, depending on the experience, will attract a further investment of \$30 to \$40 billion for the Andhra Pradesh reactors. The another site in Andhra Pradesh has been allotted to the General Electric (GE) company, with which negotiations are yet to commence. Probably this will be initiated after the Westinghouse contract is finalised. The Mithi Viridi reactors agreement will act as template not only for the GE but also for the reactors from other countries. It is not clear how the Nuclear Liability Law will apply on the under negotiation nuclear reactors. When specifically asked, the spokesman of the External Affairs Ministry Sayed Akbaruddin said, "We already have our liability regime which is approved by the parliament. All that can be done is within the four corners of the legislation approved by the Parliament, the government of India can act. Our view has always been that our liability laws are not a hindrance to any investment in nuclear energy. And that is demonstrated by us

A file photograph Kudankulam Nuclear Power Plant under construction



already signing Kudankulam 3 and 4.

Thus decks seem to have been cleared for a deeper strategic partnerships between the world's oldest and world's biggest democracies who have common interests to safeguard from South China Sea to Afghanistan. An aggressive China requires the coming together of likeminded nations to protect their strategic, economic and national interests but India will have to formulate the contours of strategic partnership with US in a manner that does not give an impression that India has joined the anti-China alliance and has become a camp follower of the White House.

It is well understood by the strategic community that John Kerry visited India to revitalise ties as it sees India as a counterbalance to China's rising power but rapid progress seems difficult in view of India's confrontationalist stand in WTO and the suspicion US has created in Indian mindset through its NSA surveillance programme. **SP**



Rebooting Indo-US relations



The US Secretary of State, John Kerry and the US Secretary of Commerce Penny Pritzker calling on the Prime Minister, Narendra Modi, in New Delhi. The Union Minister for External Affairs and Overseas Indian Affairs Sushma Swaraj is also seen.

[By Air Marshal (Retd) B. K. Pandey]

Just a few months ago, Narendra Modi was a persona non grata in the US. It was indeed somewhat ironic and perhaps height of arrogance, that the most advanced democracy in the world was not prepared to grant a Visa to Narendra Modi, a high profile Chief Minister of a progressive state in the largest democracy in the world. However, things took a different turn suddenly when John Kerry, the US Secretary of State, arrived in Delhi end July for what is being widely perceived as an exercise to roll out the red carpet to welcome Narendra Modi, the Prime Minister of India, to the US in September this year for a meeting with President Obama. This volte face only reinforces the old adage that in politics, there are no permanent friends or enemies, only permanent interests!

John Kerry is the first high ranking functionary of the US government to visit India after the NDA government came into power. His visit was supposedly related to the fifth India-US Strategic Dialogue that began five years ago to strengthen bilateral relations between the two nations. Unfortunately, the initiatives in this direction that held considerable promise, have petered out and the relationship between India and the US has been on the wane since the historic and much touted Indo-US civil nuclear deal. Potentially a bonanza for US companies, the civil nuclear agreement seems to have run aground on account of the nuclear liability issues. But this is not the only impediment as Indo-US relations are plagued by a number of other problems namely the recently enacted immigration laws that have given rise to visa restrictions for professionals from India, inconvenient and inconvenient customs procedures in India, allegations of snooping by the US National Security Agency on prominent leaders of the Bharatiya Janata Party (BJP), relations with Pakistan especially with regard to the country's support to the terror outfits and India's stand against going along with the Trade Facilitation Agreement at the WTO so as not to jeopardise food security for a sizeable segment of the Indian population regarded as poor.

The US government has obviously reconciled to the election of the

BJP-led government in India and especially Narendra Modi being at the helm of affairs. The signals emanating from the US government clearly reflect their desire to shed the baggage of the past and move forward. This spirit is encapsulated in the words of Assistant Secretary of State for South and Central Asia Nisha Desai Biswal who stated, "We will focus on shared prosperity and strategic convergence – more specifically, how partnership between the US and India can make our countries and the entire global order more prosperous and more secure."

While John Kerry generated the right political vibes, what was totally absent in the interaction at different levels was the need to foster the relationship between the two nations in the regime of defence. This is an area in which while there has been significant interaction, there is the need and scope for much more. In the last few years, the Indian Air Force (IAF) has been able to acquire through the Foreign Military Sales (FMS) Programme of the US government, three Boeing Business Jets for VVIP travel, six C-130J Super Hercules military transport aircraft and ten C-17 Globemaster III strategic airlift aircraft. Orders for six more C-130J Super Hercules aircraft have already been placed and in due course, the IAF may place orders for another six of the C-17 Globemaster III aircraft. Meanwhile, the Indian Navy is in the process of inducting eight P8I long range maritime patrol aircraft that have begun arriving and may place orders for another four such platforms. All the procurements listed above have been executed in record time.

Apart from the procurements listed above, there are a number of other procurements in the pipeline. These include 22 AH-64D Apache Attack Helicopters and 15 CH-47F Chinook heavy-lift helicopters, both from Boeing. The Indian Army too is looking forward to inducting the M-777 artillery and a fleet of Apache helicopters. And of course the IAF would welcome the opportunity to graduate to technology of fifth generation and beyond through strategic partnership with the US, a privilege not available so far.

While the representatives of the Indian government negotiate with their counterparts from the US to put bilateral relations between the two nations on even keel, they need to bear in mind that the stake of the Indian Armed Forces in the achievement of this objective is very high. **SP**


 AIR MARSHAL (RETD)
 B.K. PANDEY

Blacklisting is not the answer

The Attorney General has advised the government that a ban on the Italian conglomerate Finmeccanica, whose UK-based subsidiary AgustaWestland is enmeshed in the VVIP helicopter scam, would jeopardise the battle-readiness of the armed forces and impinge on national security. Blacklisting Finmeccanica along with its several subsidiaries that supply weapon systems, radars and ammunition to the Indian armed forces, is not advisable since the ongoing CBI investigation and the subsequent trial in the VVIP helicopter scam could take over a decade to be completed. The government has also decided against blacklisting Rolls-Royce currently under the CBI scanner for allegedly paying hefty commissions to Indian agents to secure contracts. The defence ministry will clear those projects with Rolls-Royce that are crucial for operational urgency and national security.

A.K. Antony can pat himself on the back for being the "longest serving Minister of Defence". But as far as the Indian Armed Forces and the nation at large are concerned, Antony's tenure as the Minister of Defence will be known more for scams in deals pertaining to procurement of military hardware, blacklisting of several leading aerospace and defence firms from South Africa, Singapore and even Israel with whom the nation had for long enjoyed a robust relationship, even during the cold war era. Antony's somewhat misplaced obsession for honesty, personal integrity, transparency and his penchant for ordering investigations at the slightest hint of misdemeanour in the processing of tenders, slowed down the procurement process that is already subject to intense scrutiny by a multi-layered bureaucracy.

Antony was also somewhat trigger-happy in ordering cancellation of contracts not only in the last minute but even half way through its execution. The tender for artillery guns for the Indian Army was cancelled five times leaving the Indian Army even today without a replacement of the obsolete Bofors guns. The most recent case was that of the contract for 12 AW-101 helicopters for VVIP travel. Cancellation of this contract after the delivery of three platforms to the Indian Air Force (IAF) and payment of 45 per cent of the contract value made in advance to the original equipment manufacturer (OEM), has been a source of considerable embarrassment for the IAF that is left with no rotary wing aircraft for VVIP travel. The IAF is left literally holding the baby with three AgustaWestland AW-101

helicopters on its inventory that it cannot use as the OEM is discredited and no product support would be available for the machines. The IAF has no option but to retrofit for VVIP travel, the newly inducted Mi-17 V5 drawn from the operational fleet.

The advice by the Attorney General to the NDA government not to impose a complete ban on the Italian conglomerate Finmeccanica, reflects a good understanding of ground realities. Finmeccanica and its subsidiaries are already involved in several ongoing defence projects in India including the \$20 billion tender for 126 medium multi-role combat aircraft (MMRCA) the Rafale aircraft from Dassault. Finmeccanica holds a 25 per cent share in MBDA, a joint venture with Airbus and BAE Systems, which is in the race to supply the Meteor air-to-air missile for the MMRCA fleet. Also, Finmeccanica is in the race for Indian military contracts worth over \$6 billion, ranging from helicopters and aircraft to missiles and guns. Projects that are currently on hold include the ₹1,800 crore deal for 98 "Black Shark" heavy-weight torpedoes for the Scorpene submarines being built in India. These torpedoes are manufactured by Whitehead Alenia Sistemi Subacquel (WASS), a Finmeccanica subsidiary. Finmeccanica also has a stake in the European NH-90 helicopter that is in the race for the multi-role helicopters contract for the Indian Navy. Imposing a complete ban on the company in question at this stage would undoubtedly be unwise as it would prove counterproductive.

In the case of the proposed blacklisting of Rolls-Royce, the Attorney General has maintained consistency in his assessment of the situation. The Indian Navy and the IAF are all heavily dependent on Rolls-Royce for the maintenance of aero-engines installed on fixed wing aircraft, helicopters and fast-patrol vessels. For the IAF, Rolls-Royce engines power the Jaguar, Avro, Embraer Legacy jets, C-130J Super Hercules, Hawk Advanced Jet Trainers and Kiran Mk II jet trainers. In the Indian Navy, Rolls-Royce engines are fitted on the Sea Harriers.

In cases of alleged corruption in defence deals, as a matter of policy, the Ministry of Defence must separate offence from the contract and deal with the former rather than cancel the contract itself and jeopardise national security. It is indeed fortunate that the NDA government has begun to shed the legacy of the past and the interest of national security, has adopted a far more pragmatic approach to dealing with allegations of corruption in defence deals. **SP**

In cases of alleged corruption in defence deals, as a matter of policy, the Ministry of Defence must separate offence from the contract and deal with the former rather than cancel the contract itself and jeopardise national security.



FICV and more



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

Indian Army's quest for indigenously developing the future infantry combat vehicle (FICV) began in 2007 when Project FICV 2017 was conceived on private-public partnership basis in the defence sector. This was been enabled by Defence Procurement Procedure of 2008 (DPP-2008), which laid down a "Make" procedure for developing "high-tech, complex systems" through Indian industry.

The decision for such partnership was based on the verdict of the Ministry of Defence (MoD) that Defence Research and Development Organisation (DRDO) would focus its research and development effort on projects of strategic value while Indian defence industry would be involved in high technology projects with two specific aims; one to develop required technology base in the defence industrial sector and two, allowing enmeshing of design and development by single agency, in this case private industry who were to be responsible for erecting production facilities locally for their systems, assemblies, and components, in addition to providing any requisite engineering support for integration. Foreign assistance, if required, was envisaged at systems and sub systems level through industry import that would also help further develop indig-

enous capabilities through technology transfer. Following the above procedure, MoD surveyed private and public industry to zero in on potential contractors. Based on the GSQR, the Expression of Intent (EOI) was eventually sent to Mahindra Defence Systems, Tata's, L&T and OFB, each of whom had submitted their technical and commercial bids. The Indian Army is presently using the Russian BMP-1 and BMP-2 vehicles, which are slotted for mid-life upgrades. However, in another decade, the Indian Army will need better and advanced vehicles to replace the upgraded BMP-2. Hence, the need to put the FICV project on fast track.

The Indian Army is looking at the production of 3,000 FICVs to replace the upgraded BMPs at a cost of \$10 billion. The MoD is considering restarting the FICV project lying in limbo, to include more indigenous defence companies as potential bidders. The project had got bogged down because Russia offered the BMP-3 but was not accepted since indigenous firms had invested heavily in the project. Finally, two developers are to be shortlisted who would be required to produce five prototypes in the laid down time frame for user trials. Attempt by OFB to partner DRDO as a design partner was not accepted under the plea that eventually DRDO will be the agency responsible for technology evaluation and approval and hence could not partner OFB.

Given the lack of design perspective actually implies that OFB will have to tie up with one of the other vendors for design and development if it wants to compete for the project but DRDO believes it will be approached for key technologies and the OFB which manufactures the BMP-II at Medak for production assistance. The EoI reportedly lays down that the FICV will be operated by three crew members, and carry seven additional soldiers with combat loads; it must provide protection from bullets fired by 14.5mm calibre weapons; it must be amphibious, i.e. capable of floating in water; it must be air-transportable, which would imply a maximum weight of 18-20 tonnes; and it must have a grenade launcher, co-axial machine gun, and be capable of firing anti-tank missiles (fire and forget type). MoD will fund 80 per cent of the cost of developing the FICV; the selected contractor will pay just 20 per cent. It has been mandated that the FICV must have an indigenous content of at least 50 per cent.

As per earlier reports, this was not to be a winner-take-all competition since MoD planned to retain two production lines, the winner given 65-70 per cent of the order; the runner-up to build 30-35 per cent of the Indian Army's requirement of FICVs, provided the latter company agreed to build the winning design at the same cost as the winner. With two assembly lines operating, India's private defence players expected that the FICV contract will create an eco-system of suppliers extending far beyond the winner of the contract. However, this appears to have undergone a change with the new government. Now reportedly only one developer who tops the prototype trials will be selected to produce the FICV. This makes much more sense vis-à-vis two production lines by two separate developers, considering the issue of spares, supplies, maintenance, repairs etc.

Project FICV is planned to be restarted to include indigenous firms like Bharat Forge, Punj Lloyd, Force Motors and Ashok Leyland. These additional indigenous firms will be included through a fresh "acceptance of necessity", as approved by the MoD. The foreign firms that are likely to go in for joint ventures (JVs) with Indian partners reportedly include Rosoboronexport (Russia), General Dynamics (USA), Rafael (Israel), Nexter and Thales (France), Krauss-Maffei Wegmann (Germany) and Doosan Group of Republic of Korea. After approval of the 'acceptance of necessity' and inclusion of more domestic companies, detailed reports are to be submitted to MoD by end 2014. The two development partners will then be shortlisted to build the prototypes. By the looks of it, selection of the single vendor producer will likely be made by 2018-19 or so. Considering the development and trials needed, induction of the FICV will likely commence only around 2024-25.

In another significant development, the Defence Acquisition Council (DAC) gave the go-ahead for purchase and tendering of military ware for all the three services amounting to ₹34,260 crore. This includes ₹15,000 crore for the purchase of 56 transport aircraft, ₹9,000 crore for five fleet support ships for the Navy, ₹7,000 crore for 33 Dhruv ALH for the Navy and Coast Guard, ₹2,000 crore and ₹360 crore for five patrol vessels and five fast patrol vessels for the Coast Guard, and ₹900 crore for search and rescue equipment for the three Services. The 56 transport aircraft are to replace the obsolete Avro planes of the Air Force. Under the tender clause, an original equipment manufacturer of foreign origin should bid for the contract after tying up with an Indian Production Agency, which should be an Indian private sector company. The first 16 planes would be manufactured abroad by the winning foreign vendor, but it has to pledge transfer technology (ToT) to its Indian partner for manufacturing the remaining 40 planes. This signals the end of the monopoly of HAL in the domestic aerospace arena. In the Defence Budget of 2014-15 amounting to ₹2.29 lakh crore, ₹94,588 crore had been allocated for capital expenditure. With above projects worth ₹34,260 crore cleared, that leaves ₹60,328 crore for capital expenditure for defence.

As regards production of defence equipment, a list of defence items requiring industrial license under Industries (Development & Regulation) Act, 1951 has been issued by the government vide Press Note No. 3 (2014 Series) dated 26.06.2014. Vide the same press note, it has been decided that the dual use items (having military as well as civilian applications) other than those specifically mentioned in the list would not require industrial license from defence angle. Further, the items which are not part of the list would not require industrial license for defence purposes. Some of the items, like parts/components of equipment, castings, forgings, test equipment etc. which earlier required license from defence angle, would not require industrial license any more. Further, as per the extant foreign direct investment (FDI) Policy, FDI is subject to industrial license under the Industries (Development & Regulation) Act, 1951 and other conditions as specified in the FDI Policy.

However, the FDI Policy is not applicable for manufacture of



items not covered under Defence Product List, which do not require Industrial License from defence angle. Under the Defence Production Policy, 2011, Government aims to create conditions conducive for the private industry to take an active role in production of defence equipment, to enhance potential of SMEs in indigenisation and to broaden defence R&D base of the country. So far, 214 Letters of Intent/Industrial Licenses have been issued till June 2014 for manufacture of a wide range of defence items to public/private companies. Further, Defence Procurement Procedure has been amended to accord 'Buy (Indian)', 'Buy & Make (Indian)' and 'Make' categories of capital acquisition higher priority over other categories to encourage indigenous defence production in public and private sector. In the Union Budget 2014-15, it has been announced that the composite cap of foreign exchange is being raised to 49 per cent with full Indian management and control through the FIPB route. **SP**

Success for Italian Eurofighter Storm Shadow trials

Italy's Alenia Aermacchi has confirmed that the first phase of tests for the integration of the Storm Shadow long-range missile onto the Eurofighter Typhoon has been completed.

Storm Shadow is a long range, all-weather, high precision, stand-off weapon already in service on Royal Air Force Tornados. It has been proven in operations to great effect in Iraq and Libya neutralising hardened command bunkers and other high value targets. The stealthy weapon design allows it to penetrate layered air defences whilst the long range of Storm Shadow allows it to be launched outside those defences increasing the launch aircraft survivability.

In the deep attack role Eurofighter Typhoon will carry two Storm Shadow missiles whilst maintaining the ability to carry 8 air-air missiles. This will enable Eurofighter Typhoon to fight its way in and out of the combat area.

Alenia Aermacchi, one of the three Eurofighter partner companies behind the Eurofighter Programme (August 4) confirmed details behind the tests confirming they first began in December 2013 with development aircraft IPA2.

The tests have already covered a number of aspects of aeromechanical missile integration onto the aircraft and further flight trials are planned as the programme moves through to full integration. The next step in the programme will be 'inert drop-tests' followed by environmental data gathering tests. Avionic flights will then be performed to test functional integration including dedicated missile release tests.

Alberto Gutierrez, Chief Executive Officer of Eurofighter, said: "After these flight tests and after the completion of the qualification

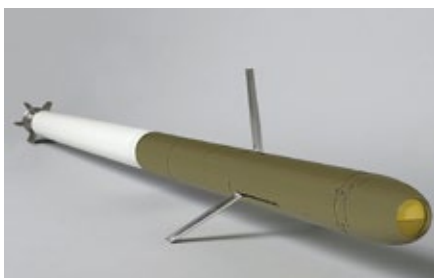


process Storm Shadow will enter into the list of available payloads. This will see the realisation of a further consolidation of the Eurofighter Typhoon's air-to-ground capabilities. It is another significant step on the capability enhancement routemap."

At the Farnborough International Air Show 2014, Eurofighter confirmed that NETMA, the NATO Eurofighter and Tornado Management Agency, had officially placed an order with it to integrate the Storm Shadow long range attack missile onto the aircraft.

Under the terms of what is known as a 'Contract 4' order from NETMA, Eurofighter will work with the three Eurofighter Partner Companies (Alenia Aermacchi, Airbus Space & Defence, and BAE Systems) and their supply base – including MBDA, the makers of the Storm Shadow missile on the integration programme. **SP**

Raytheon fires four TALON laser-guided rockets from MD 530G Helicopter



Raytheon Company and MD Helicopters, Inc. successfully fired four TALON laser guided rockets from the MD 530G armed aerial scout (AAS) helicopter during a series of tests at Yuma Proving Ground, Arizona.

"This test further demonstrates the maturity of the TALON Laser Guided Rocket weapon system as a complement to MD's

AAS platform," said Darryl Kreitman, Raytheon TALON, Programme Director. "These test shots included four firings showcasing TALON's versatility over the entire firing envelope with direct hits for all events."

TALON LGR is a low-cost, digital semi-active laser guidance and control kit co-developed with the United Arab Emirates. TALON's guidance section integrates directly to the front of the legacy 2.75-inch Hydra-70 unguided rockets while its unique tail kit replaces the legacy Hydra-70 wrap-around tail kit.

"In just a few months, Raytheon worked closely with MD to integrate TALON onto the MD 530G, subjecting the helicopter and rocket to number of realistic mission profiles," said Kreitman. "The successful testing once again demonstrated TALON's precision guidance capabilities."

During TALON's development programme and test programme, Raytheon completed more than 35 TALON firings from the AH-64D Apache, which has resulted in a solution that is ready for the international direct commercial sales customers today.

Raytheon's TALON requires no hardware or software modifications to the launcher or

aircraft platform for any aircraft that fires 2.75-inch Hydra-70 unguided rockets using the standard M260/261 launchers. **SP**

Exelis delivers electronic warfare technology for US Navy F/A-18 Aircraft

Exelis has successfully delivered to the US Navy the first nine full rate production, next-generation electronic self-protection systems for F/A-18 fighter aircraft. The ALQ-214(V)4/5 is the latest variant of the onboard jammer subsystem in the integrated defensive electronic countermeasures (IDECM) suite.

Through a series of enhancements, including miniaturisation and improved electronics packaging, the ALQ-214(V)4/5 can be installed on F/A-18E/F Super Hornets as well as – for the first time – on F/A-18C/D Hornets. This will help ensure that both types of aircraft and their crews are protected from modern, dynamic radio frequency threats. **SP**

Coastal Security Scheme in phases

The Government has been implementing the Coastal Security Scheme in phases. The Phase-I of the Scheme commenced from April 1, 2005 for a period of five years, which was extended by one year. The Phase-II of the Scheme, which commenced from April 1, 2011 is presently under implementation.

Under the Phase-I of the Coastal Security Scheme, eight Coastal Police Stations (CPSs) were set up in Kerala with an assistance of ₹10 lakh per CPS for the procurement of surveillance equipments, computer systems, furniture, etc., 16 boats of 12-tonnes, eight boats of five-tonnes, 16 four-wheelers and 24 two-wheelers, whereas under the



Phase-II, the State has been sanctioned 10 CPSs with an assistance of ₹15 lakh per CPS for the procurement of surveillance equipments, computer systems, furniture, etc., 20 boats of 12-tonnes, four jetties, 10 four-wheelers and 20 two-wheelers.

As the Phase-II of the Scheme has been finalised subsequent to the vulnerability/gap analysis and in consultation with all the coastal States/Union Territories, each and every component of the Scheme is fixed and frozen at the beginning of the Scheme itself, the Minister of State for Home, Kiren Rijiju said there no proposal or project to set up more Coastal Police Stations in Kerala. **SP**

12 SIMI operatives arrested

The Minister of State for Home, Kiren Rijiju has said in the Parliament that the Central Agencies had arrested 12 accused persons from Jharkhand during the year 2012-14. The Patna and Bodh Gaya blasts were carried out by a Students Islamic Movement of India (SIMI) module which developed in Ranchi, Jharkhand. Almost all the key SIMI operatives have been arrested. **SP**

Port security measures

The Central Government is responsible for the security of 12 Major Ports in the country, including Kandla Port in Gujarat. The security of 203 non-major (minor) ports lies with the state government/Union Territory Administration concerned. All the 12 major ports in the country are guarded by the Central Industrial Security Force (CISF).

The security arrangements of Ports including Kandla Port in Gujarat, where CISF is deployed, are reviewed from time to time with reference to requirement of manpower, gadgetry and other equipments to ensure highest standards of security. Ports guarded by CISF are sufficiently equipped with authorised weapons and equipments, stated the Minister of State for Home, Kiren Rijiju. **SP**

One Chinese violation in Ladakh

The Indian Government signed Border Defence Cooperation Agreement (BDCA) with China on October 23, 2013. As per article VI of BDCA, the two sides agree that they shall not follow or tail patrols of the other side in areas where there is no common understanding of the Line of Actual Control in the Indo-China border areas.

Since signing of BDCA, Chinese troops have, on one occasion, violated the provision by tailing our patrol in Eastern Ladakh on June 2, 2014. A protest was lodged against this violation in the flag meeting held on July 15, 2014, according to the Defence Minister Arun Jaitley who gave this information in a written reply to Anand Rao Adsul and Dharmendra Yadav in the Lok Sabha recently. **SP**

Anti-piracy patrols of Indian Navy

The Indian Navy commenced anti-piracy patrols in the Gulf of Aden from October 2008. Since then 43 Indian Naval Ship deployments have been undertaken in the Gulf of Aden. A total of 2906 ships, including 2568 foreign flagged vessels from different countries, have been escorted by Indian Naval ships and 40

piracy attempts have been thwarted since October 2008. No ship under Indian escort has been hijacked by pirates.

According to the Defence Minister Arun Jaitley, about 120 Pirates were apprehended by Indian Navy in East Arabian Sea in 2011. There have been no interceptions/arrests during the last three years and the current year.

At present Yellow Gate Police Station in Mumbai, Maharashtra and Kolkata Police Station in West Bengal have jurisdiction over all the crimes committed in International waters. Ministry of Home Affairs has written to all other Coastal States/Union Territories to notify one Coastal Police Station and one Trial Court each to deal with crimes committed in International waters.

Indian Navy is cooperating with several other Navies in countering piracy in Gulf of Aden and the Arabian Sea. **SP**

World Day against trafficking persons

On July 30, the United Nations marked the first ever World Day Against Trafficking in Persons to raise awareness around the global issue of human trafficking and to encourage the international community to take action against this heinous crime.

Established four years ago, the Department of Homeland Security (DHS) Blue Campaign coordinates the Department's ongoing efforts to work across our many missions to combat human trafficking. Fighting the hidden crime of human trafficking requires a collaborative effort, and the Blue Campaign works with DHS components to increase awareness, protect and support victims, investigate trafficking cases, and assist in the prosecution of traffickers.

DHS continues to focus an unprecedented level of resources and engagement to combat human trafficking through a victim-centered approach. The Blue Campaign offers training and educational resources, raises public awareness through a multi-format media campaign, and enters into diverse partnerships to carry the message forward, improve reporting of human trafficking, and assist our efforts to protect victims and bring traffickers to justice.

To date, more than 1,50,000 individuals – including government employees, law enforcement personnel, medical services providers, transportation workers, private sector employees, and many others – have been trained on the key indicators of human trafficking.

The public awareness posters highlight examples of forced labor, domestic servitude, and commercial sex trafficking – all types of human trafficking. They can be found at 325 truck stops nationwide and on display in 14 major airports as well as the facilities of partners such as Amtrak and Western Union. **SP**

Boeing delivers 25th C-17 Training Center to US Air Force

Boeing recently delivered a comprehensive training center for the C-17 Globemaster III airlifter to the Memphis Air National Guard base in Tennessee, improving the service's training capabilities while reducing travel, maintenance and other operating expenses.

The highly realistic training system prepares C-17 pilots and loadmasters for a host of scenarios, including sophisticated mission operations and emergency procedures. Having that capability on site means the 155th Airlift Squadron no longer needs to send personnel elsewhere for training.

"The Boeing team enabled us to increase training efficiency while reducing travel time, aircraft fuel and operating costs, which is an extremely important factor during this era of increased fiscal restraints and tightened budgets," said Maj. Joel Taylor, chief of air-crew training for the 155th Airlift Squadron.

The Memphis training center is the Air Force's 25th C-17 trainer and the fourth of five ordered under a 2010 contract from



the service. The fifth of those training centers will be delivered to Shepherd Field Air National Guard Base in Martinsburg, West Virginia, later this year. **SP**

Krauss-Maffei Wegmann and Nexter alliance

Krauss-Maffei Wegmann (KMW) and Nexter Systems (Nexter), two leading European providers of land defence systems, intend to share their future road ahead. On July 1, 2014, in Paris, the owners of the French and German companies signed a Heads of Agreement to this effect.

The alliance of the two groups under the umbrella of a joint holding company creates a Franco-German defence technology group with a current annual turnover nearing 2 billion euro, an order book of around 6.5 billion euro, and more than 6,000 employees.

KMW, Nexter and their owners view this step as decisive for the consolidation of the defence technology industry in Europe. Their new strategic alignment makes it possible to retain jobs and skills in the heart of the European Union. The product portfolios of the two companies and their regional presences on the world market complement each other. **SP**

Lockheed Martin to acquire Zeta Associates

Lockheed Martin has entered into a definitive agreement to acquire Zeta Associates, Inc., a leader in the systems that enable efficient collection, processing, safeguarding and dissemination of critical information for intelligence and defense communities.

The transaction is expected to close in the third quarter of 2014. Upon closing, Zeta Associates will be a wholly-owned subsidiary of Lockheed Martin reporting through the corporation's Space Systems business area.

"Zeta Associates' expertise in cross-platform information collection, analysis and dissemination is an ideal complement to our national security capabilities," said Marilyn Hewson, Lockheed Martin Chairman, President and CEO. "Adding Zeta to our diverse portfolio strengthens our ability to deliver vital ground, air and space-based intelligence in support of our customers' most essential missions." **SP**

Boeing names Ryan Hartman President and CEO of Insitu

Boeing and subsidiary Insitu Inc. named Ryan Hartman President and CEO of Insitu, effective immediately. Hartman most recently served as senior Vice President, Insitu Programs. He succeeds CEO Steve Morrow, who is retiring.

"Insitu invented the agile small tactical unmanned intelligence, surveillance and reconnaissance category and continues to be a leader in the industry," said Steve Nordlund, Vice President for unmanned airborne systems programs. "As Insitu enters its third decade of operation, Ryan is ideally suited to push technologies and processes to continue Insitu's strong, global growth trajectory."

As Insitu president and CEO, Hartman is responsible for executing the Insitu business plan and building on its extensive portfolio, which today includes the ScanEagle and Integrator unmanned aircraft. He leads more than 800 employees, based primarily in the Columbia River Gorge area in Washington state and Oregon.

"I'm honored and humbled to be named CEO of Insitu," said Hartman. "I'm proud and excited to continue our tradition of technical excellence and to support the Columbia Gorge community."

In his previous position, Hartman led the company's Integrator, ScanEagle, Advanced Programs and Business Development program offices, where he advanced the company's research, development and product engineering and the Insitu Common Open-mission Management Command and Control (ICOMC2) ground control station.

"Our people and innovation are our competitive advantages in the region, and Ryan's selection reinforces Boeing's and Insitu's commitment to its continued growth," said Nordlund.

Hartman is a veteran of the US Air Force and US Navy and a graduate of Embry-Riddle Aeronautical University. **SP**



Beyond GPS: 5 next-gen technologies

Penny-sized inertial sensors, pulsed lasers and tracked lightning strikes are among novel approaches to provide precise location-based insights in GPS-denied areas

It is difficult to imagine the modern world without the Global Positioning System (GPS), which provides real-time positioning, navigation and timing (PNT) data for countless military and civilian uses. Thanks in part to early investments that DARPA made to miniaturise GPS technology, GPS today is ubiquitous. It's in cars, boats, planes, trains, smartphones and wristwatches, and has enabled advances as wide-ranging as driverless cars, precision munitions, and automated supply chain management.

As revolutionary as GPS has been, however, it has its limitations. GPS signals cannot be received underground or underwater and can be significantly degraded or unavailable during solar storms. More worrisome is that adversaries can jam signals. GPS continues to be vital, but its limitations in some environments could make it an Achilles' heel if warfighters rely on it as their sole source of PNT information. To address this problem, several DARPA programmes are exploring innovative technologies and approaches that could eventually provide reliable, highly accurate PNT capabilities when GPS capabilities are degraded or unavailable.

"Position, navigation, and timing are as essential as oxygen for our military operators," said Darpa Director Arati Prabhakar. "Now we are putting new physics, new devices, and new algorithms on the job so our people and our systems can break free of their reliance on GPS."

Darpa's current PNT portfolio includes five programs, focused wholly or in part on PNT-related technology:

Adaptable Navigation Systems (ANS) is developing new algorithms and architectures for rapid plug-and-play integration of PNT sensors across multiple platforms, with the intent to reduce development costs and shrink deployment time from months to days. ANS aims to create better inertial measurement devices by using cold-atom interferometry, which measures the relative acceleration and rotation of a cloud of atoms stored within a sensor. The goal is to leverage quantum physical properties to create extremely accurate inertial measurement devices that can operate for long periods without needing external data to determine time and position. Additionally, ANS seeks to exploit non-navigational electromagnetic signals—including commercial satellite, radio and television signals and even lightning strikes—to provide additional points of reference for PNT. In combination, these various sources are much more abundant and have stronger signals than GPS, and so could provide position information in both GPS-denied and GPS-degraded environments.

Microtechnology for positioning, navigation and timing (Micro-PNT) leverages extreme miniaturisation made possible by Darpa-developed micro-electromechanical systems (MEMS) technology. Micro-PNT comprises a portfolio of diverse efforts collectively devoted to develop highly stable and precise chip-scale gyroscopes, clocks and complete integrated timing and inertial measurement devices. Darpa researchers have fabricated a prototype with three gyroscopes, three accelerometers and a highly accurate master clock on a chip that fits easily on the face of a penny. The self-calibrating, high-performance and cost-effective microscale sensors that Darpa is developing could offer tremendous size, weight and power (SWAP) improvements over existing sensors.

Quantum-Assisted Sensing and Readout (QuASAR) Quantum-assisted sensing and readout (QuASAR) intends to make the world's most accurate atomic clocks—which currently reside in laboratories—both robust and portable. QuASAR researchers have developed optical atomic clocks in laboratories with a timing error of less than one second in five billion years. Making clocks this precise portable could improve upon existing military systems such as GPS, and potentially enable entirely new radar, LIDAR and metrology applications.

The programme in ultrafast laser science and engineering (PULSE) applies the latest in pulsed laser technology to significantly improve the precision and size of atomic clocks and microwave sources, enabling more accurate time and frequency synchronisation over large distances. These capabilities are essential to fully leverage super-accurate atomic clocks, as clocks such as those that

QuASAR seeks to build are more precise than our current ability to synchronise between them. If successful, PULSE technology could enable global distribution of time precise enough to take advantage of the world's most accurate optical atomic clocks.

The Spatial, Temporal and Orientation information in contested environments (STOIC) programmes seeks to develop PNT systems that provide GPS-independent PNT with GPS-level timing in a contested environment. STOIC comprises three primary elements that when integrated have the potential to provide global PNT independent of GPS: long-range robust reference signals, ultra-stable tactical clocks, and multifunctional systems that provide PNT information between multiples users. In time, dependence on GPS may be as unimaginable as is the idea today of living without it. **SP**



Darpa is pioneering the next-generation of PNT capabilities beyond GPS, which includes using miniaturisation, pulsed lasers, quantum physics and even lightning strikes for external navigational fixes

Susan Sarandon's home burgled

Susan Sarandon fell victim to residential burglary when her New York home was broken into recently. The stolen items include a laptop, a camera and several pieces of jewellery, as well as some "papers", according to Page Six. Sarandon was out of town when the burglary happened.

At the time of the burglary, 67-year-old Sarandon was out of town. Her son, 22-year-old Miles Robbins, was at the house. According to the police report, he stepped out of the Manhattan home between 8pm and 9pm, providing the burglar with ample opportunity. The burglar apparently used a ladder to hop from the roof next door to the top of the actress' nine-story brick building. Authorities suspect that he/she entered the home through a terrace window or door.

Miles noticed that someone had been inside the house on his return at around 3.30am to 4am and immediately called the police, when he saw that the place had been raided. The details of the robbery are unclear at this point. The police are yet to announce the total value of the stolen jewellery, according to People, however estimates put Sarandon's jewellery collection at the Manhattan home at around \$1 million. Sarandon will have to assess the value of the stolen belongings, when she returns home. The *Thelma and Louise* actress was allegedly notified of the burglary by a concerned neighbour. **SP**



Cyber attack on US government contractor

USIS, an US government contractor has said that there was a cyber attack on it which had the markings of a state-sponsored attack. An official with the Department of Homeland Security said the intrusion may have compromised some of its employees' information. The contractor oversees candidates for security clearance for civilian and military works.

USIS, once known as U.S. Investigations Services, Inc., has been under fire in Congress in recent months for its performance in conducting background checks on National Security Agency leaker Edward Snowden and on Aaron Alexis, a military contractor employee who killed 12 people during shootings at the Navy Yard in September 2013.

Private contractors conduct background checks on more than two-thirds of the 4.9 million government workers with security clearances and USIS handles nearly half of that number. Many of those investigations are performed under contracts with the Office

of Personnel Management, the Department of Homeland Security and the Defense Department. **SP**

Californian woman flies without ticket

A Californian woman reportedly travelled on a Southwest Airlines flight from San Jose to Los Angeles without a ticket, according to the federal law enforcement officials. According to media reports, it was the San Jose airport's second security breach in recent months, after a teenage Somali immigrant stowed away in the wheel well of an April flight from there to Hawaii.

The woman, Marilyn Jean Hartman, sneaked past a security agent at Mineta San Jose International Airport along with a family. She went through the electronic screening process before entering an airport terminal. Authorities say she made it through screening because she had no prohibited items on her or in her purse.

Hartman, 62, then managed to board Southwest Airlines Flight 3785 to Los Angeles International Airport and was discovered once the plane landed. The San Francisco woman was ordered to 24 months' probation after she pleaded no contest. **SP**

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