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51 YEARS of SP's SINCE 1964 DECADES OF BOUNDLESS EXCELLENCE

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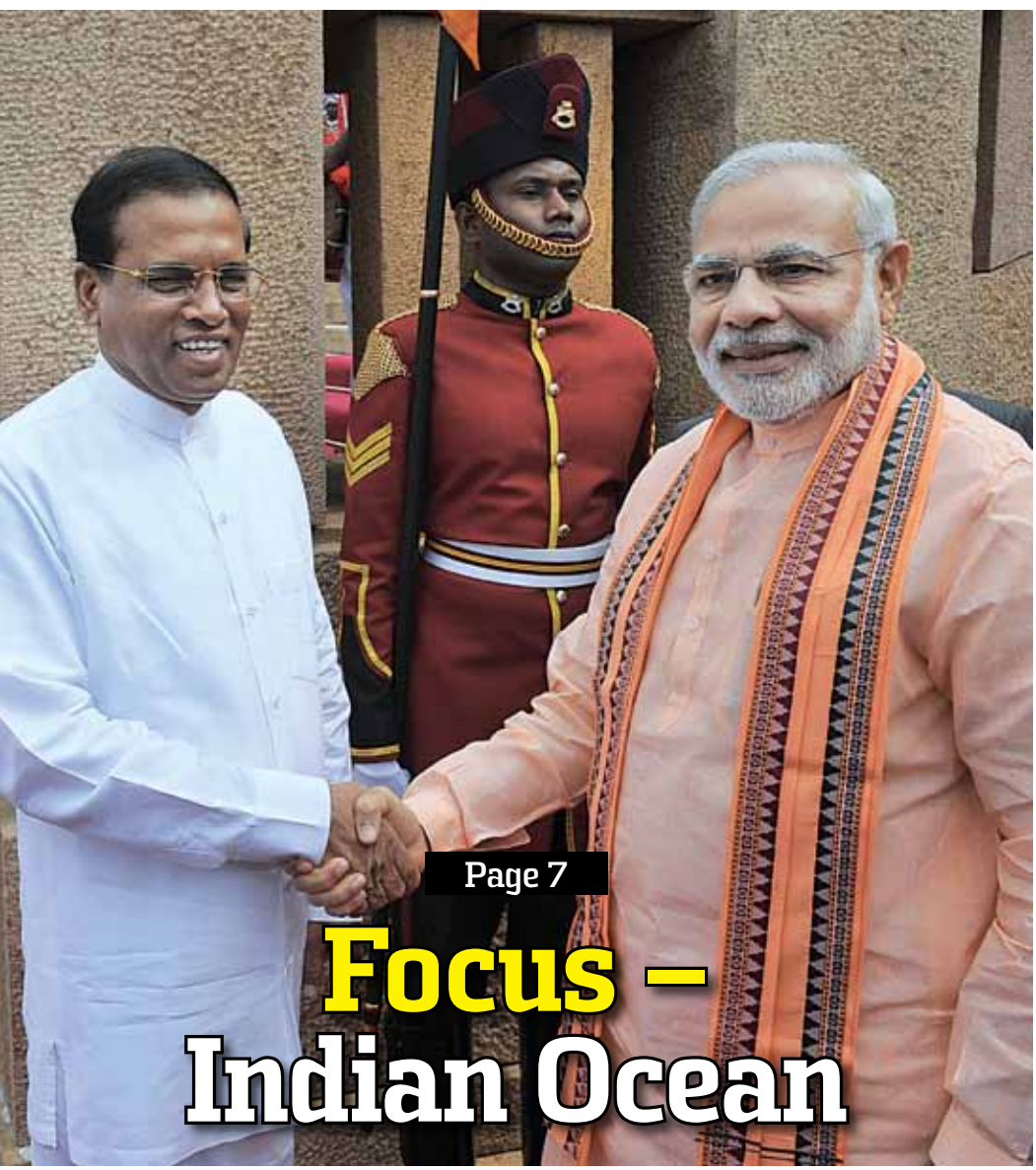

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In a country like India with limited support from the industry and market, initiating 50 years ago (in 1964) publishing magazines relating to Army, Navy and Aviation sectors without any interruption is a commendable job on the part of SP Guide Publications.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

Narendra Modi, Hon'ble Prime Minister of India

51 YEARS of SP's
SINCE 1964
DECADES OF BOUNDLESS EXCELLENCE

While we at SP's cherish our journey started in 1964, founded by our Founder Editor and Founder Publisher Shri S P Baranwal; we do believe that the entry into 51st year and beyond is just a beginning for us. We therefore look forward to constantly evolving and expanding our qualitative efforts during coming years and coming decades.

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India's BVR air-to-air missile Astra successfully test-fired

India's beyond visual range (BVR) air-to-air missile Astra was once again successfully test-fired on March 19 by the Indian Air Force (IAF) off the coast of Odisha near the Integrated Test Range, Balasore. The missile has been indigenously designed and developed by the Defence Research and Development Organisation (DRDO). In the test flight an Astra missile carrying telemetry equipment in place of the warhead was fired from a Sukhoi-30 aircraft against a Lakshya (pilotless target aircraft) target. The target was successfully engaged and it was captured by telemetry and electro-optical tracking stations.

A successful trial of Astra, conducted on March 18, was also launched from a Sukhoi-30 aircraft, which was aimed at confirming missile's capability to undergo manoeuvre involving very high gravitational forces up to the order of 30 'g'. These fourth and fifth

launch campaigns were coordinated by the Air Headquarters including the flight of Lakshya target.

The Defence Research and Development Laboratory (DRDL) Missile Complex in Hyderabad is the primary development agency for the missile. Dr K. Jayaraman, Director of DRDL, was present at the mission centre overseeing the trials along with Dr. Subhash Chandran, the Programme Director. Dr V.G. Sekaran, Director General (Missiles & Strategic Systems), congratulated the team of designers, technologists, production and quality agencies, and Air Force for developing and testing such a complex system which is comparable with the best in the world.

The Project Director Dr S. Venugopal said that "the fourth and fifth air launch of Astra was once again perfect in all respect and engaged the target with precision. More tests will follow to prove its repeatability." He said Astra has proved its capability as a formidable weapon. SP

PHOTOGRAPH: DRDO

Cover:
Prime Minister Narendra Modi with the President of Sri Lanka Maithripala Sirisena, at the ceremonial reception in Colombo on March 13, 2015.

Cover images: PIB, SP Guide Pubns

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Indian Ocean region is of strategic significance

The Indian Ocean region (IOR) is a strategic region from many counts – geopolitically and trade wise (it happens to be one of the busiest sea lanes in the world) and India is a key player in this region. The power play with countries in the IOR has significant ramifications on politics and economics. That the Prime Minister Narendra Modi recently connected with Sri Lanka, Mauritius and Seychelles has reinvigorated the IOR.

As a consequence of these visits, India has bagged 'infrastructure development rights' for two islands in the region: 'Agalega' from Mauritius and 'Assumption' from Seychelles. The understanding to allow India to develop these islands is of immense strategic significance for India with China having taken initiatives years back to engage with the littoral states in pursuance of her strategic aims of dominating the IOR.

Prime Minister Modi was the first Indian Prime Minister to visit Seychelles in 34 years. Lt General P.C. Katoch (Retd) has made an analysis of the visits and the far-reaching implications it has on geopolity. The expansions made by the Chinese Navy is a matter of concern not only to India but also other IOR countries.

Moving from the Indian Ocean to nuclear power, India recently ironed out differences with the US and it is hoped that there would be dynamic movement in terms of nuclear energy production. As such India operates 21 nuclear reactors in seven power plants, supplying 3.5 per cent of India's electricity. Since 2008, India's nuclear power generation capacity has been raised from 50 to 80 per cent. From our present capacity of 4,780 MW, the government plans to reach 14,600 MW by 2021 and 27,500 MW by 2032, eventually aiming to supply 25 per cent of its electricity from nuclear power by 2050. We have an analysis by Lt General Katoch (Retd).

From nuclear power, we move to an important development politically in Jammu and Kashmir, post the Assembly elections. General V.P. Malik (Retd) has analysed the scenario and states that the problem with the PDP-BJP coalition is not the 'Agenda for Alliance' but the mindset and the attitude of the constituents developed over many years and their electoral pronouncements.

Back to defence, the most disturbing news is the delay in the induction of the MMRCA into the Indian Air Force. The supplier's only constraint is the degree of financial criticality this contract has as far as the French military aviation industry is concerned. It hinges on finances and profitability for the vendor versus India's military compulsions. The MMRCA deal is a pointer to the dangers inherent in delayed decision making, writes Group Captain B. Menon (Retd).

However, we see some movement with regard to the Indian Army's Battlefield Management System (BMS) project, with the government down-selecting two Indian industry consortia, namely, Tata Power and Larsen & Turbo and Bharat Electronics Limited and Rolta, as development agencies for BMS in the 'Make' category.

We at ***SP's*** believe that the 'Make in India' campaign is gaining momentum and India will in the near future be a major defence industry player. We look forward to your feedback as to help us improve on a continuous basis.

Happy reading!

Jayant Baranwal
Publisher & Editor-in-Chief

French Rafale on US Navy super-carrier for anti-ISIS ops

As the MMRCA negotiations near finality, the French Government has one final chance to show off the Rafale's operational capabilities. French Navy Rafale fighters from Squadron 11F of the Marine Nationale have been deployed aboard US Navy super-carrier USS Carl Vinson in the Persian Gulf this month to carry out carrier qualifications. These exclusive US Navy photographs show the Rafale launching and trapping on the nuclear-powered aircraft carrier's flight deck. The USS Carl Vinson is deployed as part of the Carl Vinson Strike Group supporting maritime security operations, strike operations in Iraq and Syria as directed, and theatre security cooperation efforts in the US 5th Fleet area of responsibility. F/A-18 Super Hornets from the aircraft carrier have been carrying out precision strikes on ISIS targets in Iraq for the last few months. The Charles de Gaulle aircraft carrier is now supporting active anti-ISIS operations in Iraq and Syria with 12 Rafales and 9 Super Etendard tactical strike jets. The carrier is scheduled to spend the next two months in the Persian Gulf along with the USS Carl Vinson. SP

First joint parachute drop by US Army, Indian Army Parachute Regiment and NSG

In February, right in the middle of Aero India 2015, the US Army teamed up with the Indian Army's 2nd Parachute Regiment (Special Forces) for a parachute demonstration from a C-17 Globemaster III. The two armies have jumped together before during Yudh Abhyas exercises, but for the first time, National Security Guard paratroopers were part of the jump. The Indian commandos teamed up with paratroopers from the US Army Bravo Company, 1st Battalion, 1st Special Forces Group for detailed joint briefings and the jump from a Pacific Air Forces C-17 Globemaster III over Yelahanka on a warm day.

The jump, while primarily for demonstration purposes at the show, was also a gesture of jointmanship between the Special Forces just weeks after President Barack Obama and Prime Minister Narendra Modi renewed the strategic partnership and defence relationship between the two countries, an agreement that includes expanding the nature of joint military exercises and exchanges. The Indian Army and IAF are expected to participate in exercises in the US this year. SP

PHOTOGRAPHS: Specialist 2nd Class John Philip Wagner, Jr., US Navy, SP Guide Pubns, Airman 1st Class Stephen G. Eigel

HAL's light utility helicopter first flight in August

Hindustan Aeronautics Limited's light utility helicopter (LUH) is all set to undertake its first flight from the HAL Airport in Bengaluru in August this year. A mock-up displayed at last month's Aero India show in Bengaluru has attracted interest from several countries, with delegations at the show requesting to be kept updated on progress of the platform to support future requirements in those countries. HAL's LUH Project Director K. Mahabaleshwara Bhat was a busy man at the show, hosting several interested military delegations inside the cabin of the olive green liveried LUH mock-up in the central forecourt of the show's display area.

The LUH is being developed keeping in mind several key lessons learned on the Dhruv programme. The LUH, being developed with skids undercarriage, will also be spun off in a wheels version. It is also being developed with foldable rotors (the entire operation takes 10 minutes to complete) – a key lesson learnt on the Dhruv programme, to make it acceptable to the Indian Navy for shipborne roles. Future builds of the Dhruv, incidentally, will sport the foldable rotor system perfected on the LUH and offered afresh to the Indian Navy. The Dhruv currently only functions from shore. The LUH is being developed to meet a requirement of 187 helicopters (the remaining 197 will be through the new 'Make in India' RSH programme). SP

Single-bid situation for Indian AWACS project

While the Defence Ministry mulls over the next step in the crucial Indian Air Force HS748 Avro replacement programme, the DRDO has been presented with a somewhat similar situation on its Airborne Warning & Control System (AWACS) project. Releasing a tender last year for a requirement of six modified aircraft to carry a 10-metre radome, the DRDO has received a bid only from Airbus for the A330 wide-body platform. Boeing Corp. which had also received the RFP is reported to have declined participation as it felt any AWACS project required a certain lead time for modifications and incremental technology build-up, and that this was not built into the RFP. Airbus, on the other hand, which had

been the original choice (following the IAF's choice of the Airbus A330 multirole tanker transport), believes its platform fits with the Indian requirement.

Sources at Airbus said the company was willing to work closely with DRDO to discuss the programme and take it forward. Sources said the company, apart from being a potential supplier of the aircraft platform, was also in talks with DRDO to consult on other aspects of the project itself from an ab-initio stage. While the radome for first stage testing is under fabrication at the Centre for Airborne Systems in Bengaluru, the DRDO will be looking for technological tie-ups for the programme, vastly more complex than the successful AEW&C programme that will be coming to fruition this year with Embraer. SP

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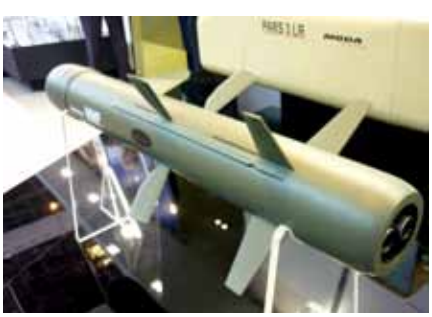
PHOTOGRAPHS: SPSC

HAL unveils mini-UAV

Hindustan Aeronautics Limited (HAL) unveiled its own build of the Elbit Systems Skylark mini-UAS, announcing that it was close to entering negotiations shortly with the Indian Army and CRPF for supply of the hand-launched drone for over-the-hill surveillance and intelligence gathering. The Skylark payload consists of daylight CCD or optional FLIR for night operations. During operation, it sends real-time video to a portable ground station. Recovery involves a deep stall manoeuvre, landing on a small inflatable cushion. It has a range of 20/40 km. HAL and Elbit Systems (who already have a joint venture HAL-BIT Systems).

The Army has been in the market for hand-launched drones since at least 2007, publishing a requirement for 32 manportable UAVs for "tactical, point-of-interest imaging and rapid action surveillance for ground forces". HAL is understood to have committed ₹1,200 crore in 2014-15 to bring in new machinery and technology to design and prototype new UAVs. It has also been on the look-out for joint venture partners to develop and build UAVs to meet the large requirement within the country and in the region. The Skylark UAS has been used in Gaza operations and elsewhere and praised for its modular construction, capable of being integrated with a slew of electro-optical or camera payloads. Elbit Systems has said the Skylark can take on Indian-developed sensor payloads too. SP

MBDA pitches co-development of fifth-gen ATGM



European missile firm MBDA has pitched the Missile Moyenne Portée (medium-range missile) fifth-generation anti-tank missile system for co-development and co-production in India. The company has opened preliminary discussions with the Indian Army and DRDO to pursue the pitch. The MMP is described by MBDA as a lightweight weapon system, easily manportable high level of day and night, all-weather reconnaissance and identification capability, with a confined space firing capability, rapid reaction operation, firing sequence reversibility, lethality against a wide target set: hot and cold targets, including the latest MBTs, with collateral damage risk minimisation qualities. The Indian Army recently selected the Israeli Spike ATGM to meet its immediate requirement. The PARS 3 air-launched anti-armour missile for the ALH Rudra armed helicopter is currently under progress, with no decision made yet. The MMP, MBDA believes, will allow India to be involved in the crucial testing and advanced development phase of the weapon system to meet future needs just of the Indian armed forces but foreign armies as well. In December 2011, the French defence procurement agency DGA had awarded MBDA a risk reduction contract for the MMP programme that will now replace the MILAN weapon system which has been in service with the French armed forces since 1974, and with the Indian Army as well. SP

LT GENERAL
P.C. KATOCH (RETD)

Focus – Indian Ocean

Prime Minister Narendra Modi at the joint commissioning of offshore patrol vessel Barracuda at the Port Louis Harbour in Mauritius in March 2015.

PHOTOGRAPH: PIB

Modi became the first Indian Prime Minister to visit Sri Lanka in 28 years – an irony of our foreign policy deficit.

Prime Minister Modi had corrected India's fixation with its 'Look East' policy at the cost of our immediate neighbours when he invited all the SAARC heads to the swearing-in of his government. Acknowledging the strategic significance of the Indian Ocean and its primacy for India's security and for maintaining peace and stability in the region, he then visited Australia and Fiji. Many would not know that years back when 3,500 Indian families were eased out from Fiji through anti-India feelings generated by inimical forces, equal number of Chinese business families had quietly moved into Fiji. Prime Minister Modi has deepened the focus on the Indian Ocean region (IOR) through his recent visit to Seychelles, Mauritius and Sri Lanka. As a consequence of these visits, India has bagged 'infrastructure development rights' for two islands in the region: 'Agalega' from Mauritius and 'Assumption' from Seychelles.

The understanding to allow India to develop these islands is of immense strategic significance for India with China having taken initiatives years back to engage with the littoral states in pursuance of her strategic aims of dominating the IOR. India has offered to set up joint working groups with the two blue economies in the region to harness potential for economic cooperation. Prime Minister Modi was the first India Prime Minister to visit Seychelles in 34 years. India signed four agreements with Seychelles to boost security and maritime partnership in the following categories: one, cooperation in hydrography; two, cooperation in renewable energy; three,

Prime Minister Narendra Modi in Colombo in March 2015.

cooperation in infrastructure development, and; four, cooperation in sale of navigation charts and electronic navigational charts. In Seychelles, Modi also inaugurated a Coastal Surveillance Radar Station (CSRS) that will serve as a fresh pair of eyes in the IOR. India is setting up a total of eight such stations, spread out across various islands of the Seychelles. When the entire network is up, it would be possible to observe live happenings as far as the Cape of Good Hope.

Signing of agreements with Mauritius included: MoU in the field of ocean economy; programme for cultural cooperation for the period 2015-18; protocol for the import of fresh mangoes from India; MoU for the improvement in sea and air transportation facilities at Agalega Island of Mauritius, and MoU on cooperation in the field of traditional system of medicine and homeopathy. These agreements would enable setting up and upgrading infrastructure for improving sea and air connectivity at the outer island of Mauritius to ameliorate condition of inhabitants and enhance capabilities of the Mauritian defence forces, and; extensive framework for cooperation in the field of ocean economy for mutually beneficial cooperation for exploration and capacity development in the field of marine resources, fisheries, green tourism, research and development of ocean technology, exchange of experts and other related activities.

During the Prime Minister's visit to Mauritius, the India-built offshore patrol vessel (OPV) Barracuda was commissioned into the National Coast Guard of Mauritius. In his speech Prime Minister Modi thanked Mauritius for choosing India as partner and drew attention to the importance of the India Ocean by saying, "Today, the world speaks of 21st century driven by the dynamism and the energy of Asia and the Pacific. But, its course will be determined by the tides of the Indian Ocean. This is why Indian Ocean is at the centre of global attention more than ever before ....Our vision for Indian Ocean region is rooted in advancing cooperation in our region; and, to use our capabilities for the benefit of all in our common maritime home." He also talked of terrorism, sea piracy, tsunamis, cyclones, illegal fishing and oil spills, all requiring close cooperation to share responsibilities and shape the future for ensuring a safe, secure and stable IOR that delivers us all to the shores of prosperity.

Prime Minister Modi was also to visit Maldives during this tour as per original plans but this had to be shelved because of the instability in that country as a result of the arrest of former President Mohamed Nasheed who now is reportedly facing a long prison term. Nasheed's trial is purportedly being conducted on dubious charges and the Commonwealth Ministerial Action Group (CMAG) is contemplating to place Maldives on the formal agenda over former President Mohamed Nasheed's trial on terrorism charges. The importance of the Maldives lies in its strategic location in the Indian Ocean, astride three of the most important sea lanes of communication, through which most of India's trade and oil requirements pass, apart from its close proximity to India. Maldives has been going down the road of radicalisation over the past decade with youth going to LeT training camps in Pakistan. Currently, many Maldivian youth have joined the ISIS and some have been killed fighting as well. The present Maldivian Government has recently enthusiastically endorsed China's proposal for the Maritime Silk Road and has offered Chinese companies land on lease.

India has plans to set up ten specialised Coastal Surveillance Radar Stations in the Maldives also but this will perhaps have to wait till Prime Minister Modi can visit Maldives or Maldivian President Yameen visits India. Meanwhile Indian navy ship Gomati arrived in Maldives on March 10, 2015, to take part in a joint surveillance patrol of the Maldives' exclusive economic zone (EEZ) from March 11 to 16, in conjunction with the Maldives National Defence Force (MNDF) Coast Guard vessels. Indian naval vessels have routinely conducted joint surveillance and anti-piracy patrols with the MNDF coastguard.

Going to Sri Lanka, Modi became the first Indian Prime Minister to visit Sri Lanka in 28 years – an irony of our foreign policy deficit. Six CSRSs are presently functioning in Sri Lanka, allowing it to identify vessels sailing past the island adding up to collective monitoring capabilities in conjunction wiith the Indian Radar Network in southern parts of India. Sri Lanka released 86 Indian fishermen just before the visit of Prime Minister. Modi addressed the Sri Lanka Parliament urging cooperation in all fields including in countering terrorism and India's help to Sri Lanka in developing Trincomalee as a petroleum hub. Modi also visited war-torn Jaffna after briefly visiting Anuradhapura and Talaimannar, flagging off a train service at the latter.

India has been pressing Sri Lanka to implement the 13th amendment on devolution of powers in 'letter and spirit' and to fulfil the aspirations of the ethnic Tamils. The 13th Amendment that followed the Indo-Sri Lankan Accord of July 1987 signed between then Prime Minister Rajiv Gandhi and then Sri Lankan President J.R. Jayewardene envisaged the devolution of powers to the provinces in the midst of the island's bitter ethnic conflict. At Jaffna, Prime Minister Modi handed over 27,000 houses built with Indian assistance to displaced Tamils. Trade-wise, Sri Lanka is India's largest trading partner country in the SAARC region. The bilateral trade between India and Sri Lanka has grown four times in the last nine years increasing from $658 million in 2000 to $ 2,719 million in 2009. The main Indian exports to Sri Lanka are petroleum (crude & products), transport equipments, cotton, yarn fabrics, sugar, drugs pharmaceuticals and fine chemicals. The main Sri Lankan exports to India are spices, electrical machinery except electronic, transport equipments, pulp and waste, natural rubber and paper board. Sri Lanka looks to investments from China as well and should be able to balance friendly relations with both India and China, which should be fine as long as Chinese actions do not amount to strategic muscle flexing. SP

PHOTOGRAPH: PIB

The PDP-BJP coalition in Jammu and Kashmir

GENERAL
V.P. MALIK (RETD)

Mufti Mohammad Sayeed meeting the Prime Minister Narendra Modi in New Delhi in February 2015

PHOTOGRAPH: PIB

It is well known that both the PDP and BJP have always represented uncompromising core ideologies and displayed little common ground

Jammu and Kashmir (J&K) with its diverse topography, culture, religion, linguistic and ethnic identities has represented a truly pluralistic landscape of India. Alas! That is not true anymore. With Sufism and Kashmiriyat gone, the unreal demand for *azaadi* by a group of Kashmiris, Pakistan-sponsored militancy, and our own short sighted politics and poor governance have managed to polarise the state.

This was so evident in the last state assembly elections. Following a 'Modi wave' and earlier election successes, the Bharatiya Janata Party (BJP) was able to decimate the Congress, National Confference (NC) and Peoples Democratic Party (PDP) in the Hindu-dominated Jammu region. In the Muslim-dominated Kashmir Valley, the PDP trounced the NC on the basis of poor governance. But in a common agenda, both parties succeeded publically to keep the BJP out. The fractured and indecisive election result was primarily due to geographical, communal and political polarisation which had been going on for decades.

It is well known that both the PDP and BJP have always represented uncompromising core ideologies and displayed little common ground. The PDP has been soft on the Kashmiri separatists; BJP strong in anti-separatists and Kashmiri grandstanding and rhetoric. Their decision to form a joint government in J&K has given a strong impression of 'political self-interest' to their opponents. Most people are

sceptical of their ability to work together in running the state. But if this coalition can provide an inclusive political power structure and effective governance, it would be able to bridge the physical and psychological gap between Jammu and Kashmir regions, and save the state from a possible dismemberment in future. In the national interest, perhaps, it could be a risk worth taking!

From the 'Agenda for Alliance', released on March 1, 2015, when they formed the coalition government, it appears that both parties are conscious of these ground realities. The agenda states, "It is not the mandate of political parties that is fractured; it is the polity of J&K that is fractured.... The reality on the ground needs to be faced politically, not numerically."

In the Agenda, both parties seem to have climbed down from much of their hard line manifestos and electoral rhetoric. This includes special status of J&K (Article 370), any immediate decision on the Armed Forces Special Powers Act (AFSPA), and on 'external' and 'internal' political initiatives and dialogues. Other items mentioned in the agenda like government reforms and development requirements and so on are non-controversial.

The problem with the PDP-BJP coalition is not the 'Agenda for Alliance' but the mindset and the attitude of the constituents developed over many years and their electoral pronouncements

Let us deal with the contentious items first.

Two issues often obfuscate perceptions on Article 370. The first is related to the restriction on citizens from outside the state to buy property in J&K. This is not unique to J&K. There are similar provisions for several states which are listed in Article 371 and Articles 371-A to 371-I of the Constitution. The second is about disqualification of women of the state from property rights. There is no direct provision for it in Article 370 and this matter can be easily resolved through administrative or judicial interventions.

In an opposition parties' conclave in Srinagar in 1982, leaders of national parties, including some which form part of the NDA today, had declared that the special constitutional status of J&K under Article 370 should be preserved and protected in letter and spirit. The abrogation demand is less due to restrictions contained in Article 370, more due to regional polarisation and prejudices. The relevance of Article 370 is more emotional and less substantive. In the present circumstances, it would be preferable to chip away Article 370, as has been done in the past, instead of pushing for its elimination. 'Erosion' may be a better policy than 'Abrogation'!

As far as 'Disturbed Areas Act' and the AFSPA are concerned, I have always felt that protracted and excessive employment of the army on internal security duties leads to 'laws of diminishing returns.' When deploying the army on such duties, we need to be realistic, austere and flexible. So long as militant camps exist across the line of control (LoC)/border and cross border infiltration attempts continue, there is no question of removing the Disturbed Areas Act and AFSPA in the belt between the LoC/border and about 10-15 km short of it. For other areas, the matter needs to be discussed in the Unified Command which has representatives from all security forces, intelligence agencies and the state administration and is headed by the Chief Minister. As counter-insurgency and terrorism operations have shown substantial improvement in recent years, the army can afford to take some risks and be flexible on the Disturbed Areas Act in peaceful parts of the hinterland. In these areas, the army can be redeployed on the basis of its ability to provide timely assistance to the local police/CPOs. This is what we did in Punjab in early 1990s.

Meanwhile, the security forces must continue with 'zero tolerance' on human rights violations. The AFSPA requires Central Government's permission to prosecute human rights violators. This should be given if there is any indication of a deliberate crime. (So far, permission has seldom been granted.) I also feel that some more steps can be taken to reduce the khaki and olive green visibility, particularly in urban areas. Their ubiquitous presence in a democratically elected state is jarring. Also, the civil land occupied by the security forces should either be vacated or its owners entitled to compensation, as practised elsewhere.

The dialogue with Pakistan is primarily a Central Government (Ministry of External Affairs) concern. The state government can convey its cross border related problems and nudge the Central Government, but it cannot be allowed to hijack India-Pakistan relations. A dialogue where Pakistan and the Hurriyat Conference try to sit on the same negotiating table with India cannot be accepted.

India and Pakistan do require maintaining ceasefire on the LoC, eliminating cross border terrorism and strengthening confidence building measures. The fact is that India-Pakistan dialogue has seldom been without hiccups in the past, and has never been given up for long by the two neighbours. Fresh efforts to resume the dialogue have already begun. The PDP-BJP coalition's shared vision calling for "enhancing people-to-people contact on both sides of the LoC, encouraging civil society exchanges, taking travel, commerce, trade and business across the LoC to the next level and opening new routes across all three regions to enhancing connectivity," therefore, is non-controversial. If successful, this will create a conducive environment for faster development of J&K and peace on the subcontinent.

It must also be clear that any political initiative with internal elements like the Hurriyat Conference and other separatists can be a joint effort of the state and the Central Government (Ministry of Home Affairs) only.

Following some unsavoury remarks by the Chief Minister Mufti Mohammad Sayeed and issues raised by some PDP workers soon after the swearing-in ceremony, Prime Minster Narendra Modi committed in the Parliament that the PDP-BJP coalition in J&K will work only as per its 'Agenda for Alliance'. Thereafter, on March 7, 2015, the state government allowed Yasin Malik to organise a massive pro-*azaadi* rally in Mufti Mohammad Sayeed's own constituency. Next day, it released Musarrat Alam Bhatt, a well known Kashmiri separatist accused of organising stone-pelting activities in the Valley in 2010-11 in which many people got killed.

Mufti Mohammad Sayeed and his daughter Mehbooba Mufti, who is President of the PDP, have often been accused of practising 'soft separatism'. There is no doubt that the PDP is under pressure in the Valley after taking a U-turn on its approach to the BJP. But with such quick and questionable actions, have they given a false start to the coalition government? Is the coalition government going to be still born? One wonders how far the PDP will go in running with the hare and hunting with the hounds!

The problem with the PDP-BJP coalition is not the 'Agenda for Alliance' but the mindset and the attitude of the constituents developed over many years and their electoral pronouncements. It is anybody's guess at present on their ability to rule the state jointly. For the sake of people of J&K, one hopes that they would stop squabbling in public and start taking governance seriously. The challenge of governing J&K entails patience, discipline and compromises, and a measure of jostling over the symbolic and the material between the two parties. SP

The writer is a former Chief of the Army Staff

LT GENERAL
P.C. KATOCH (RETD)

Army's BMS project takes another step

Indian Army's Battlefield Management System (BMS) project has taken another step with the government down-selecting two Indian industry consortia, namely, Tata Power and Larsen & Turbo and Bharat Electronics Limited and Rolta, as development agencies (DA) for BMS in the 'Make' category.

Project BMS was envisaged to enable a faster decision process by commanders at all echelons, enable better decision due to reliable operational information provided in real-time and have the ability to quickly close the sensor to shooter loop by integrating all surveillance means to facilitate engagement through an automated decision support and command and control system, exploiting technology for mission accomplishment in the Tactical Battle Area (TBA) by rapid acquisition, processing and transfer of information, enhanced situational awareness, capability to react to information, sharpen ability to synchronise and direct fire, plus establish and maintain overwhelming operational tempo.

The BMS will comprise a tactical handheld computer with individual warfighter and tactical computers at Battle Group HQ and combat vehicles enabling generation of common operational picture by integrating inputs from all relevant sources by integrated use of GIS and GPS with a high data rate. The DAC had approved the BMS as a 'Make India' project in 2011 and following completion of the Integrated Project Management Study (IPMS) and issue of the expression of interest (EoI) it was earlier envisaged that DA's would be selected around March 2014. The system customised to the specific army requirement needs to be first integrated and tested in a controlled environment for which a test bed laboratory will need to be established. After testing in the laboratory conditions, validation trials of the system will be carried out in-field conditions. After successful validation of the system in field, the process for equipping will begin.

Phase I of Project BMS comprising test bed laboratory and field trials at test bed location of one Combat Group and three Infantry Battalion Groups by 2012 has been delayed by almost five years. With DA selection done, design phase could commence by June 2015, limited prototype tested in laboratory by December 2016 and finally prototypes developed and fielded for user evaluation by December 2017 (instead of earlier schedule of 2012). The cascading effect has already delayed completion of Phase 2 (Equipping) from initial plan of 2017 to 2022 and Phase 3 (Change Management and Upgradation of System) from 2022 to 2027 as per current status.

This schedule is possible only if there are no further hurdles. The approximate cost of Phase I of the system was earlier estimated to be around ₹350 crore, which may now double up. Similarly, the overall project of fielding the BMS in complete Army may jump from initial estimates of some ₹23,000 crore to perhaps ₹80,000 crore or even more. The Secretary General of the Federation of Indian Chambers of Commerce and Industry (FICCI) has welcomed the decision of the selecting the two Indian industry consortia as DAs to develop the prototype BMS. Success of the programme is bound to unleash potential of the indigenous industry in the OIS and ICT fields. FICCI has congratulated the two industry consortia expressing confidence that they would deliver state-of-the-art prototypes within the stipulated time frame at a price that is competitive. These products will help India in inching towards the goal of self-reliance, besides giving the user a sense of pride from a 'Make in India' technology. The success of the project will in turn boost the confidence of foreign investors and defence companies in partnering with Indian industry in keeping with the 'Make in India' vision. FICCI also drawn attention of the Ministry of Defence (MoD) to delays in finalising the Futuristic Infantry Combat Vehicle (FICV), another 'Make' project which has faced inordinate delays, and has called for more projects to be categorised under 'Make' to achieve self-reliance in the true sense.

The quest for indigenously developing FICV began in 2007 when Project FICV was conceived on private-public partnership basis in the defence sector. The decision for such partnership was based on government decision that 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 indigenous capabilities through technology transfer.

Following the above procedure, MoD surveyed private and public industry to zero in on potential contractors. Based on the GSQR, EoI was eventually sent to Mahindra Defence Systems, Tatas, L&T and Ordnance Factory Board (OFB), each of whom have already submitted both their technical and commercial bids, which are under evaluation. Finally, two DAs were to be shortlisted who would be required to produce five prototypes by 2015 for user trials. Attempt by OFB to partner the Defence Research and Development Organisation (DRDO) as a design partner was not accepted because finally 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. However, selection of the DAs for developing the FICV prototypes is still awaited despite inordinate delays. More focus is certainly required at MoD level. SP

LT GENERAL
P.C. KATOCH (RETD)

Nuclear power

Much has been written about the recently inked Indo-US nuclear accord. There has been criticism in particular about the nuclear liability clause; a roadblock that was ironed out by going in for insurers offering ₹750 crore capacity for the nuclear pool, with rest to be footed by the government; total ₹1,500 crore set up as 'Nuclear Risk Pool' with both operators and suppliers to be provided cover against associated risks.

The criticism is about the ₹750 crore being footed by the Indian Government, being taxpayers' money. This criticism, however, needs to be viewed in the following context: first, India already has over two score nuclear power reactors, all run by government-owned Nuclear Power Corporation of India (NPCIL). In case of an accident in any of these, compensation paid by government also is taxpayers' money; second, the Indo-US nuclear accord was in cold storage for over six years with nuclear liability being one among the two major reasons. President Barack Obama used his executive powers to waive the issue raised from the US side to track the nuclear material being provided. Freezing the accord further because of non-agreement on nuclear liability would have been detrimental to our economic and security interests; third, India's future energy requirements are gigantic and there is no shortcut from optimising on all forms of energy including nuclear energy; fourth, we may have large reserves of thorium but we do need huge amounts of nuclear fuel from abroad; fifth, execution of the accord would essentially have lengthy time lines and not getting it through now would have delayed the process perhaps by another few years, impinging on our energy security.

A dispassionate analysis would indicate that the ₹750 crore portion of the Nuclear Risk Pool is small in comparison to the overall gains. Of course we had the Bhopal gas tragedy where over 5,50,000 persons were affected (3,787 dead and 5,58,125 injuries including some 3,900 severely and permanently disabling injuries) with little or no compensation and some Delhi politicians in the then government even facilitating the escape of CEO of Union Carbide, Warren Anderson to the US. A more probable figure estimated was that 8,000 died within two weeks and an additional 8,000 thereafter due to gas-related diseases. Nuclear power addresses concerns about the environment, energy security and the volatility of fossil fuel prices.

Undoubtedly there has been speculation world over on account of safety post the Fukushima nuclear power plant disaster but then take a look at China that has been building three to four reactors every year since the past decade with foreign collaboration, particularly with France and Russia. According to the World Energy Outlook (WEO), global electricity demand should double to 28,000 TWh by 2030, led by rapid growth in developing countries, three times faster than OECD countries. WEO 2014 released last November says without clear directions in 2015, the world is set for warming well beyond the 2 degree Celsius goal and that nuclear power can play a role in energy security and carbon abatement albeit financing and public concerns are key issues.

At the UN Climate Summit last September, Indian Minister for Environment said that India's carbon-dioxide emissions were expected to continuously rise for next 30 years. As per the UN, large population in India still use wood for cooking. About one-fourth of the country is not on the electrical grid though India is the fourth largest energy consumer globally after China, US and Russia. Environmental security has been of great concern to the world and during his recent visit to India President Obama made specific reference to the issue, seeking India's cooperation. Therefore, nuclear energy becomes necessary not only to bridge massive voids in India's future energy requirements but also mandatory for saving the environment.

India operates 21 nuclear reactors in seven power plants, supplying 3.5 per cent of India's electricity. Since 2008, India's nuclear power generation capacity has been raised 50 to 80 per cent. From our present capacity of 4,780 MW, the government plans to reach 14,600 MW by 2021 and 27,500 MW by 2032, eventually aiming to supply 25 per cent of its electricity from nuclear power by 2050. Our Kakrapar nuclear reactor is the first in the world using thorium and we are lucky in holding more than 25 percent of global thorium reserves (IAEA puts it at 67 per cent – almost two-thirds of global reserves).

A thorium nuclear reactor has no possibility of a meltdown like the Fukushima reactor because thorium cannot sustain a nuclear chain reaction without priming, as a result of which fission stops by default. Though thorium does require start-up by neutrons from a uranium reactor, from thereon this activated thorium reactor can activate other thorium reactors discounting any further requirement of uranium. With such reserves at our disposal we should remain focused goals. SP

PHOTOGRAPH: NPCIL

Our Kakrapar nuclear reactor is the first in the world using thorium and we are lucky in holding more than 25 per cent of global thorium reserves

Alpha Design front-runners of 'Make in India' campaign

Alpha Design Technologies is a home-grown company with global aspirations. In 11 years, it has made enormous strides in defence manufacturing, having grown from a three-man set up to over 850 employees. Alpha Design Technologies is a model company of how India can take its 'Make in India' campaign and cater not only to the domestic market but also the international market. In an interview with ***SP's M.A.I.****, the founder Chairman and Managing Director of Alpha Design Technologies,* ***Colonel H.S. Shankar (Retd)*** *speaks on the company's plans.*

SP's M.A.I. **(SP's): What were the objectives of Alpha Design when you started 11 years back and how far you have achieved?**
Col. H.S. Shankar (Shankar): The main objective was to set up in the private sector a technologically strong defence and avionics design and production organisation to cater for the needs of army, air force, navy and paramilitary forces. We aimed to carry out the above by establishing a strong research and development (R&D) and production base and in collaboration, where necessary, with DRDO labs, IITs/IISc, DPSUs, other private sector industries and OEMs abroad.

We have been largely successful in our endeavor. From a three-man start-up, we are now 850 people strong, with ultra-modern production facilities and we are one of the fastest growing defence R&D and production units with 520 young engineers, who are in the age group of 21 to 29 years. We have steadily grown to reach ₹200 crore annual turnover and the company's next year's sales is expected to cross ₹300 crore mark. With a strong and impressive order book position of ₹1,000 crore plus and in addition, large number of indigenously developed equipment/systems in various phases of user trials/evaluations by the defence and paramilitary forces, we can only grow higher and bigger!

SP's: What were the strategies you adopted for achieving this quick growth?
Shankar: We made a careful study of the defence market and identified those types of equipment and systems that will be needed by the armed forces in the next five to 10 years and those which can be undertaken by us. Those identified as our own designs, we started work immediately, putting our own R&D resources. Regarding collaborated projects, we identified our partners – in India and abroad – and had a plan of action for each identified project.

We also decided to answer to all the RFIs and RFPs which were in our focused areas and started taking part in user trials/evaluations. We won quite a few, lost some, but overall it was 'Plus, Plus'!

SP's: What are the major successful equipment and systems you have developed through your own R&D?
Shankar: Through our own R&D efforts, we have developed and obtained orders from the MoD/others, after extensive trials and evaluations, equipments such as Hand Held Thermal Imager Sights, Reflex Sights, Tactical Access Switch-cum-ULSB Mk III, Tactical Access Switch, Communication Interface Units, SMART Hand Sets, Missile Recording System, Satcom Systems (such as portable SATCOM, WCDMA), RF Seeker Units for Missiles, Software Defined Radios and Waveforms, SDR-based Radio Relays, Dummy Targets, EW Simulators, Rolls-Royce Engine Simulators, 37 different EW modules, IFF Systems – Interrogator, Transponder, Combined Interrogator Transponder, etc. We also make various portions of airframe of Sukhoi-30 fighter aircraft, such as Ailerons, flapperons, etc. All the indigenous Su-30 fighter aircraft produced by HAL Nasik (more than 150 fighters) carry sub-units made by us!

SP's: What does the future holds for Alpha Design in next five to 10 years?
Shankar: During Aero India 2015, Alpha signed the biggest export order of $80 million with Elbit Systems, for exports of Thermal Imager Based Fire Control System sub-units to Israel. Alpha has an attractive order book of more than ₹1,000 crore and more than 70 per cent of this is for exports/offsets. Quite a few exciting in-house developed R&D products are either undergoing user trials or in the process of being offered for user trials/evaluations.

SP's: What is your view on current policies of the government and improvements needed in functioning of MoD?
Shankar: The Government of India is doing its best to provide level playing field to public and private sector and the recent initiatives, such as, 'Make in India' programme has generated new enthusiasm in the industry. Private industries in defence sector should now develop their own products by investments in R&D, establish high end and high quality manufacturing facilities, with exports as focus and not depend on the government always. We must become outward looking like Israel and when we export, naturally, it will by itself cater for Indian markets. Of course, few more clarifications from MoD with respect to offsets such as inclusion of imported raw materials and electronic components as part of offsets; providing foreign exchange variation clause to private sector industries as provided to DPSUs; inclusion of MSMEs in 'Make' project, etc., can assist in 'Make in India' concept a reality. The government has approved 49 per cent FDI/FII for defence industries and this can be enhanced to 51 or even 74 per cent by automatic route, instead of through FIPB. SP

Visit of Admiral Sir George Zambellas

Admiral Sir George Zambellas, the First Sea Lord and Chief of the Naval Staff, Royal Navy visited India from 16 to 19 March 15.

The Admiral was received at South Block lawns by Admiral R.K. Dhowan, Chief of the Naval Staff, Indian Navy, and was accorded a ceremonial guard of honour. During the day, the dignitary held bilateral discussions with the Defence Minister and the three Service Chiefs as well as various senior Ministry of Defence and other government officials at New Delhi.

The Admiral also visited some of Indian Navy's training establishments at Kochi, and interacted with the Flag Officer Commanding-in-Chief, Southern Naval Command, the Flag Officer Sea Training and the Flag Officer Naval Aviation at Goa. While in Kochi, the Admiral was shown the first aircraft carrier, being built indigenously at the Cochin Shipyard Limited.

The Indian Navy and the Royal Navy cooperate with each other in technical training, anti-piracy patrols and Navy to Navy Staff Talks. The two navies have been exercising together at sea in the bilateral Exercise Konkan since 2004. Warships from both navies call at each other's ports, which provide excellent opportunity for professional interaction and building bridges of friendship.

Issues that are likely to be discussed during the First Sea Lord's visit include enhancement of training exchanges, improving maritime domain awareness by sharing of white shipping information and participation of the Royal Navy in the prestigious International Fleet Review being organised by the Indian Navy off Visakhapatnam in February 2016. SP

Surya Kiran VIII : Joint India-Nepal exercise concludes

The eighth India-Nepal combined exercise (Surya Kiran VIII) which commenced on February 23 concluded on March 7 at Salijhandi, Nepal. The exercise was conducted under the aegis of Nepalese Army.

The exercise aimed to create a greater understanding between Indian and Nepalese Army and develop interoperability in jungle warfare and counter-terrorism operations in mountainous terrain. It also focused on the basics of disaster management with special reference to pandemic/ epidemic control and aviation aspects. Over the years, the two countries have decided to progressively increase the scope and content of the combined exercise.

The training culminated in a 48-hour consolidation and validation exercise in which troops of both countries carried out a search and destroy mission in the general area of Saljhandi. The final exercise was reviewed by Major General Padamvillas Karki of Nepalese Army and Major General Vinod Prakash Singh Bhakuni of Indian Army.

The closing ceremony was conducted on March 7, 2015. While addressing both contingents, Major General Bhakuni said that the goodwill generated during this training will go a long way in further strengthening the military bond between the two armies and also in understanding each other's organisational concepts and methodology of conducting counter-terrorism operations as well as sharing knowledge and experience on the issues of disaster management. SP

Republic of Singapore Navy launches Submarine Training Centre

The Chief of Singapore Navy Rear Admiral Lai Chung Han officiated the launch of the new Submarine Training Centre (STC) at Changi Naval Base.

Since 2000, the Republic of Singapore Navy (RSN) has been conducting local submarine training and qualifying new submariners in Singapore. The launch of the STC signifies a major milestone in the history of RSN's local submarine training. The STC is a one-stop training facility that enhances training realism, effectiveness and efficiency, and is able to meet all operational training and qualification requirements for the submariners.

The STC also features simulators where both individual and team training can be conducted in a safe environment incorporating realistic scenarios. On the same day, two RSN Challenger class submarines, RSS Challenger and RSS Centurion, were also retired from service. These submarines have served the RSN well since 1997. In recognition of RSS Challenger's role as the RSN's first submarine and training platform, the STC has been named RSS Challenger. SP

PHOTOGRAPHS: PIB, ADGPI

Whither MMRCA?

Delay in the MMRCA induction will force the IAF to deploy late 20th century aircraft in the battlefield of the 2020s

Dassault Aviation's Rafale multi-role fighter's scintillating flying display at Aero India 2015

PHOTOGRAPH: Karthik Kumar / SP Guide Pubns

[By **Group Captain B. Menon (Retd)**]

The inordinate delay in the medium multi-role combat aircraft (MMRCA) procurement programme for the Indian Air Force (IAF) is a major setback to its modernisation plans. It certainly will have an adverse impact on the operational capability and force levels of the IAF not only now, but extending into the next two decades.

Background

Around three decades ago a need was felt to find a replacement for the mainstay of the IAF's combat fleet, the MiG-21 air defence fighter aircraft. The assessment was that the MiG-21 fleet would have to be phased out commencing mid-1990s. A decision was taken to locally design, develop and induct a light combat aircraft (LCA) with a multi-role capability as its successor. To meet the needs of the Indian Navy, a carrier variant was also required, capable of short take-off and barrier arrested recovery (STOBAR) from decks with ramps.

The Air Staff Requirement (ASR) for the IAF variant was not finalised till late 1985 and it was clear then itself that the original target of first flight in 1990 and squadron induction in 1995 would not be met. The maiden flight was undertaken in 2001. Even in the 1980s, the IAF was well below its optimum level in respect of the number of combat aircraft squadrons on its inventory. The LCA project did achieve its aim of developing the second Indian fighter aircraft, after the HF-24; but the gestation period has extended to over three decades, 32 years to be precise. The final product, which is on the verge of entering squadron service now as the LCA Mk I, has not met with the expectations of the IAF in terms of time frame for delivery and performance. The thinking now is that it would at best be a transition type and only its successor, the LCA Mk II will be a suitable aircraft with the performance required to be effective in the current threat scenario. As far as the naval variant goes, the prototypes are still in the process of flight trials and one has successfully carried out take-off and landing from an aircraft carrier.

All this has resulted in the LCA failing to smoothly replace the MiG-21. Delays have eroded its technology edge. The result had

been degradation of the fighter fleet in numbers as well as in capability. The Pakistani Air Force (PAF) is fast cacthing up with the IAF in terms of mid-air refuelling and AWACS capabilities. Chinese technology has improved to the extent that their People's Liberation Army Air Force (PLAAF) fields state-of-the-art systems in large numbers and is no longer dependent on Russian expertise. Some of these systems, including stealth aircraft and unmanned aerial vehicles, will be made available to Pakistan also. India is losing the edge in quality vis-à-vis Pakistan and China and has always been behind in numbers as far as China is concerned.

The Multi-Role Combat Aircraft

In view of the delay in the LCA programme as well as the need to replace the MiG-23, the MiG-27 and the Jaguar fleets in not too distant a future, in 2001 the IAF initiated a proposal for the acquisition of 126 multi-role combat aircraft (MRCA) in the 15- to 20-tonne class. Later the ASR was revised with weight revised to 24 tonnes. The nomenclature was changed to MMRCA. The first 18 aircraft was to be imported and the rest to be progressively manufactured in India. However, it was still hoped that the LCA would be inducted by 2005.

The supplier's only constraint is the degree of financial criticality this contract has as far as the French military aviation industry is concerned. It hinges on finances and profitability for the vendor versus India's military compulsions. The MMRCA deal is a pointer to the dangers inherent in delayed decision making.

The request for information (RFI) was sent for the Mirage 2000-5 Mk2, F-16 C/D, MiG-29OVT and the JAS 39 Gripen. The delay in issuing the RFI led to Dassault replacing the Mirage 2000-5 offer with the Rafale, the MiG consortium substituting the MiG-29OVT with the MiG-35 and the Eurofighter Typhoon as well as the F/A-18E/F Super Hornet entered the fray. The list of contenders included the Rafale, F-16 IN, the F/A-18 IN, the MiG-35, the Typhoon and the Gripen. The Rafale had a naval variant capable of both STOBAR and catapult assisted take-off and barrier arrested recovery (CATOBAR) make it suitable for ramp as well as flat deck carrier operations without modifications. Finally in August 2007, the request for proposal (RFP) was sent to the bidders with replies expected within six months. Technical evaluations were completed by end May 2009. Flight evaluations commenced in August 2009 were completed in December 2010. The Typhoon and the Rafale were shortlisted.

The IAF hoped to have the contract inked by July 2011. It remained a hope. Problems surfaced regarding the calculation of life-cycle costs. At the end of January 2012, the Rafale was finally selected for negotiations based on lower unit and life-cycle costs. Delays and Rafale upgrades led to cost escalations from $12 billion in 2007 to $18 billion in 2014 and $28 billion in 2014. The Eurofighter consortium (EADS) made a pitch by lowering their price and even Saab tried to remain in the race by offering to assist in developing the LCA Mk II. The US also lobbied for their aircraft. However a rethink was ruled out.

The latest hurdle is the transfer of technology. Dassault Aviation is reluctant to be held liable for both the delivery schedule and quality control for the 108 out of the total 126 aircraft to be manufactured in India under licence since they have no control over the Hindustan Aeronautics Limited (HAL), the licensee. They also have reservations about the capability of our defense industry to absorb and handle the technologies being transferred including the sophisticated active electronically scanned array (AESA) radar.

Both parties now state that more negotiations are needed. As time passes, costs continue to escalate. Technologies develop fast and the IAF will be forced to ramp up their specification requirements to cater for acquisitions made by potential adversaries. This will drive up costs further and lead to further delay. The delays in the LCA has already drawn down force levels to dangerous lows and forced the IAF to continue to deploy obsolete aircraft. Delay in the MMRCA induction as it will take at least three years from award of contract to first induction will force the IAF to deploy late 20th century aircraft in the battlefield of the 2020s.

The Future

The LCA was to replace the MiG-21. It has not even started to do that even 32 years down the line. Its gestation period has been longer than the total combat life of some fighter aircraft. Time is critical and delays have made the LCA in its Mk I avatar almost obsolescent. To the credit of the programme, it has provided a good learning experience for the Indian aerospace industry.

The MMRCA was envisaged as a gap filler to mitigate the drawdown of the combat fleet, basically the MiG-27 and the Jaguar. But because of the delay in the LCA programme, the MMRCA may effectively be a replacement only for the MiG-21 fleet. The IAF will get into a critical situation if the MMRCA induction is delayed further Induction of all 126 aircraft and their operationalisaion could extend to well beyond the mid-2020s.

Indications are that the joint development of the fifth-generation fighter aircraft (FGFA) is also well behind schedule. It will be a tragedy if its induction in the Indian variant is soon followed by its induction in the Russian export variant in the PLAAF and the PAF. Exports from Russia to Iran, South Korea and possibly China are all possibilities and it may well trickle down to Pakistan.

This will mean a force of Su-30MKI and LCA with limited capability and numbers will be the sole assets of the IAF from the mid-2020s till the FGFA becomes a reality. Force levels would drop so much that the IAF will not be able to cope with the threat from the adversaries. A heavy fighter optimised for long range and large weapons loads, the Su-30MKI will be forced to operate in all roles including close air support and short range interdiction since the IAF will have nothing smaller and lighter that can survive in combat in the 2020s.

The IAF has no effective 'Plan B' if the MMRCA deal falls through. It will have to be dependent on the Su-30MKI alone and will have to augment production. Let alone a single nation or vendor dependence, the IAF would have sunk to a new low of a single aircraft type dependence.

The option is to complete the negotiations so that induction starts as soon as possible. One option is to increase the number of aircraft imported directly from the selected vendor in flyaway condition so that the IAF has a force in place sooner. Whether it will be acceptable in the current context of the new thrust on 'Make in India', is another matter. The next option is to convince the vendor that technology transfer is viable and quality control and production schedules in India can be met with. The last is to relax the terms imposed on the vendor. The supplier's only constraint is the degree of financial criticality this contract has as far as the French military aviation industry is concerned. If it is critical to Dassault's future business prospects, they will meet with the demands. Ultimately, it hinges on finances and profitability for the vendor versus India's military compulsions. The MMRCA deal is a pointer to the dangers inherent in delayed decision making. SP

Cold weather tests carried out on LCH at Leh

The cold weather trials of light combat helicopter (LCH) were carried out at Air Force Station, Leh recently. "The trials covered engine starts with internal batteries after overnight cold soak at 3 km altitude and 4.1 km altitude", said T. Suvarna Raju, Chairman of Hindustan Aeronautics Limited.

The engine starts were satisfactory in the temperature of minus 18 degree Celsius at 4.1 km. The flights were also carried out to assess high altitude performance and low speed handling.

The LCH prototype, TD-2, was ferried from Bengaluru to Leh and the flight trials were carried out involving customer pilots from Air Force and Army and with the participation of representatives from RCMA (H/c) and DGAQA (H/c).

"LCH Technology Demonstrator TD-3 made its maiden flight in November last year and the TD-4 is likely to fly soon. The initial operational clearance (IOC) is expected in the later part of this year and to achieve this we are concentrating on building more prototypes and increase the number of flights to reduce the lead time for IOC", adds Raju.

The second and third prototypes had their first flight in June 2011 and November 2014. The forth prototype is currently being built to speed up the trials for certification process. SP

100th PC-21 leaves Pilatus

The 100th PC-21 rolled off the final assembly line at Pilatus Aircraft Ltd recently. Destined for the Royal Saudi Air Force training fleet, this PC-21 also happens to be the 1,000th turboprop trainer to be produced at Pilatus.

Pilatus trainer aircraft are used by over 30 operators around the world to train the military pilots of the future. Carefully tailored to provide an optimum training solution, Pilatus products enjoy a reputation as the world market leader in this segment.

The latest Pilatus trainer, the PC-21, was developed from ground up and delivers unparalleled performance, cockpit equipment, flexibility and ease of maintenance for a turboprop aircraft. The PC-21 training system which consists of the aircraft, high-end simulator technology, comprehensive computer based training and instructional documentation, offers one of the most advanced, integrated training systems available on the market today.

Three air forces currently use the PC-21 training system with excellent results: Switzerland (8 PC-21s), Singapore (19 PC-21s) and the United Arab Emirates (25 PC-21s).

Saudi Arabia and Qatar have also selected the PC-21 and in 2012 ordered 55 and 24 aircraft respectively. The first of these aircraft have already been delivered and the instructors, having been through type conversion at Pilatus, are preparing for their first student courses. With the rest of the aircraft currently in production, both air forces look forward to revolutionising their pilot training programmes. SP

Operation Avalon: A400M Atlas soars around the world

On February 19, 2015, an A400M Atlas transport aircraft took off from Airbase 123 in Orleans for a long-duration mission, called 'Operation Avalon.' This is the first world tour for the Air Force's new tactical transport aircraft.

The Atlas took off from Orleans carrying 5.5 tonnes of cargo destined for the UAE in particular. The equipment, mostly aircraft maintenance items, medical equipment and support items, is partly for the benefit of the French forces deployed on Operation Shamal. The large payload of the Atlas and its very long range now allow crews of tactical transport aircraft to conduct missions lasting longer than previously possible. At its second stop in Kuala Lumpur, Malaysia, the aircraft was also very well received, sparking the interest of Malaysians who will take delivery of their first A400M aircraft in March.

Throughout the trip, experiments are conducted on the environment of the A400M (temperature, air quality) to make recommendations including aviation safety, as well as in the set-up of rest and rotations for aircrews. "The entire mission is scheduled to last about 75 flight hours," said Lt Colonel Oliver, pilot of the tactical transport aircraft programme office (EMATT) of the Centre d'Expériences Aériennes Militaires (CEAM, the French Air Force's operational conversion unit).

"It is currently the longest mission ever conducted on the Atlas since it joined the forces in August 2013. These long flights allow continuing experimentation and trials of the A400M. Each pilot is well equipped with an EEG measuring his state of fatigue, as well as his level of vigilance. Everyone must also take a series of computer tests and questionnaires. The influence of jet lag on our general health is also taken into account."

The next step is already underway: Destination Avalon, in Australia, to attend the airshow. SP

PHOTOGRAPHS: HAL, French Air Force, Pilatus

Sikorsky S-97 Raider begins assembly of second aircraft

Sikorsky Aircraft Corp. announced the start of final assembly of the second S-97 Raider helicopter at the company's Development Flight Center.

Along with a team of industry suppliers, Sikorsky is developing two Raider prototypes to demonstrate the revolutionary new capabilities in improved maneuverability and flight speed. The Raider is a rigid coaxial rotor prototype aircraft ideally suited for armed reconnaissance and a spectrum of special operations missions.

"Our teammates on the Raider programme have been answering our challenge to deliver a military helicopter with capabilities never seen before," said Mark Hammond, S-97 Raider Program Manager. "As a team, we've already demonstrated the power of working together to develop a high-performance and affordable next-generation aircraft. Starting assembly of the second prototype is a great milestone for the programme." SP

Advanced Hawkeye to be deployed on Theodore Roosevelt

Five E-2D Advanced Hawkeyes assigned to Carrier Airborne Early Warning Squadron (VAW) 125 will make their maiden deployment as part of Carrier Air Wing (CVW) 1 aboard the aircraft carrier USS Theodore Roosevelt (CVN 71).

The E-2D Advanced Hawkeye is set to replace the E-2C Hawkeye in its primary mission to provide airborne early warning and command and control capabilities for all aircraft-carrier battle groups. While the primary mission for the E-2 has not changed, the Advanced Hawkeye is able to gather and process data more precisely and efficiently thanks to state-of-the-art radar and communication equipment.

The Advanced Hawkeye's technology makes it a multi-mission platform through its ability to coordinate concurrent missions which may arise during a single flight. These missions can include airborne strike, ground force support, rescue operations and managing a reliable communications network capable of supporting drug interdiction operations. SP

First ever Italian F-35A rolls out

History was achieved recently when the first Italian F-35A Lightning II rolled out of the Cameri Final Assembly and Check Out (FACO) facility, marking the first F-35A assembled internationally and the first of eight aircraft currently being assembled. The aircraft, designated as AL-1, will now proceed to additional check out activities before its anticipated first flight later this year.

The rollout exhibits the ongoing strong partnership between the Italian Ministry of Defense, industry partner Finmeccanica-Alenia Aermacchi, and Lockheed Martin. The Italian FACO is owned by the Italian Ministry of Defense and is operated by Alenia Aermacchi in conjunction with Lockheed Martin with a current workforce of more than 750 skilled personnel engaged in F-35 aircraft and wing production.

"The Cameri FACO is truly a national crown jewel, currently assembling the first eight Italian F-35As and producing wings for all F-35As fleet-wide," said Lorraine Martin, Lockheed Martin Executive Vice President and F-35 Program Manager. "Additionally, as the European F-35 airframe Maintenance, Repair, Overhaul and Upgrade Center, it will generate thousands of long-term, high-tech jobs for the Italian people for decades. Lockheed Martin is proud of its relationship with Italy and values the highly-skilled Alenia Aermacchi workforce building this incredible jet." SP

First modernised MiG-29UPG takes to the skies

The first MiG-29UPG modernised by Indian specialists completed its first scheduled test flights in February, said Sergei Korotkov, Director General of MiG Corporation.

In 2009, the IAF and the MiG Aircraft Corporation signed an agreement on the modernisation of 62 Indian MiG-29s, turning them into the MiG-29UPGs. The aircraft are now equipped with modern avionics complexes, similar and compatible to those used in the MiG-29K fighter jets flown by the Indian Navy. The contract is estimated to be worth $964 million.

According to the portal vpk-news, this modernisation significantly expands the range of tasks that the MiG-29 can perform. Currently, the plane is primarily designed to intercept aerial targets and achieve air superiority. The upgraded aircraft, along with expanded capabilities to destroy air targets, now has the ability to attack ground (surface) targets, both stationary and mobile, with precision weapons at any time of day and in any weather conditions.

The first six MiG-29s were modernised in Russia. The rest will be upgraded in India, where currently four aircraft are undergoing the reconstruction process. SP

PHOTOGRAPHS: Sikorsky, MiG

PHOTOGRAPH: Dassault Aviation

nEUROn: 100th flight and end of French State trials

The Ministry of Defence has completed its campaign of stealth flight testing of the Neuron UCAV technology demonstrator. These tests were conducted by the Directorate General of Armaments (DGA) from Istres, as were the manufacturer testing by Dassault Aviation, which they followed beginning on October 31, 2014. The final flight – which was also the 100th flight of the aircraft – took place on February 26. nEUROn flight testing will now continue overseas until the end of the year, first in Italy and then in Sweden.

The DGA testing campaign measured the radar and infrared signatures of nEUROn and confronted it with various operational sensors, particularly ground and airborne radar, as well as with missile seekers. This involved the expertise of several research centres including DGA Flight Testing (at Istres and Cazaux) DGA Information Dominance (Bruz) and DGA Aeronautical Techniques (Toulouse). Valuable lessons were learned on the stealth features of this type of aircraft.

DGA is the overall authority of the nEUROn project, and awarded the contract to industry in 2006. It is the result of European cooperation that brings together, in addition to France with Dassault Aviation as prime contractor, five partner countries and their national manufacturers: Italy (Alenia Aermacchi), Sweden (Saab), Spain (Airbus Defence & Space), Greece (HAI) and Switzerland (RUAG). The first flight of nEUROn took place in Istres on December 1, 2012.

nEUROn marks a major research and technology effort by the Ministry of Defence for the future, and supports and maintains essential industry skills. It foreshadows the next generation of fighter aircraft, whether manned or unmanned, with the ambition of preserving European autonomy in this field.

The experience France gained from nEUROn is already being exploited in the Franco-British future UCAV project (Future Combat Air System, FCAS), whose industry studies were launched on November 5, 2014. SP

Programme milestones

The nEUROn programme was launched in 2003. The main contract was notified to the prime contractor in 2006, the industrial partnership contracts were signed concurrently. The first flight of the technological demonstrator was completed on December 1, 2012, in Istres (France).

Demonstration flights

The scenarios to be validated through the demonstration flights will be as follows:

- insertion in the test range airspace,
- air-to-ground subsonic mission,
- detection, localisation and autonomous reconnaissance of ground targets without being detected ("to see without being seen"),
- air-to-surface weapon release from an internal bay.

Programme status

At the end of 2012, the status of the nEUROn programme is the following:

a) The different parts of the airframe have been manufactured and are delivered to Dassault Aviation in Istres facilities:
- the main fuselage by Saab,
- the rear fuselage and the exhaust nozzle by HAI,
- the wings by EADS-CASA,
- the bay doors by Alenia,
- the weapon interface by RUAG,
- the structural parts contributing to the low observability by Dassault Aviation factories of Argenteuil and Biarritz.

b) The final assembly and the final layout of the piping, electrical wiring and equipment installation, including the engine and the landing gear were completed in the Dassault Aviation facilities.

c) The software integration in the various electronic equipments was completed, using the "global integration tests rig" in Istres.

d) He ground tests (hydraulics, electrical, fuel), soon to be followed by comprehensive engine tests, took place throughout 2012 with a first flight at the end of 2012.

e) The maiden flight was completed on December 1, 2012. This first sortie proceeded exactly as expected. It lasted 25 minutes and validated the vehicle's main flight parameters. Take-off was entirely automatic and the aircraft reached an altitude of about 2,000 metres, before turning round, completing the approach and then landing. SP

Union Home Minister inaugurates International Counter-Terrorism Conference

The Union Home Minister Rajnath Singh has said that the appeal of ISIS to the young, educated people, in spite of its medieval ideology, is a cause for concern to the global community. The Union Home Minister was addressing the inaugural session of the International Counter-Terrorism Conference organised by the India Foundation in association with Sardar Patel University of Police Security and Criminal Justice at Jaipur, on March 19, 2015.

Rajnath Singh said that terror outfits like the ISIS do not believe in a pluralistic society and are extremely intolerant of a liberal and secular democratic order. They do not accept the fundamental fact that diversity of faiths and philosophies reflects the inherent beauty of human beings, he added.

The Union Home Minister said that these terrorists unleash the worst forms of violence to erase the diversity and destabilise the democratic order and are adept at using the latest technologies to propagate their beliefs and deeds. They extensively use modern technology to reach out to wider audience with susceptible minds, he added.

The Union Home Minister said that the influence of Islamic State on the Indian youth is negligible as just a handful of Indian youth have joined the ISIS and some have also returned after being persuaded by their families. The Union Home Minister further said that the failure of ISIS to attract Indian Muslims is due to the complete integration of Indian Muslims into the national mainstream. Indian Muslims are patriots and are not swayed by fundamentalist ideologies. Moreover, India, as a country is proud of all its diversity, he added.

Rajnath Singh said that we also need to be concerned over the increasing possibility and opportunity to use available technology and cyberspace in a destructive manner. The menace of terrorism is greatly amplified in today's digital world, he added. Rajnath Singh said that today a 'lone wolf' or a 'DIY (Do It Yourself) Terrorist' can go online and learn how to carry out an attack without ever leaving home. We have recently constituted an expert committee to look into all possible avenues of cybercrime and its linkages with the terrorist world, he added.

The Union Home Minister has said that the source of most terrorist activity in India lies across our borders. It is unfortunate that even after paying such a heavy cost for itself, Pakistan and its associates find it difficult to understand that there are no 'good terrorists and bad terrorists', he added. The Union Home Minister said that Pakistan should seriously rethink its strategy of using terrorism as an 'instrument of proxy war', since this would be in her own national interest.

Rajnath Singh said that India has been a victim of cross-border terrorism for the last several decades and terrorism knows no boundaries and doesn't respect nations' sovereignties. They have become transnational in character and therefore international cooperation is needed to build popular opinion and pressurise the countries that use terrorists as their strategic assets, he added. He further said that all countries should be aware of developments in this area, which is bound to affect them in some way, sooner than later. SP

CCTNS project to make landmark change to internal security scenario in the country: Kiren Rijiju

The Union Minister of State for Home Affairs Kiren Rijiju has said the ongoing Crime and Criminal Tracking Network and Systems (CCTNS) project when completed will mark a revolutionary change to manage and monitor the internal security situation in the country. Addressing the 30th Raising Day function of the National Crime Records Bureau (NCRB) on March 13, Rijiju said it will see the dawn of new age projects including the e-courts, e-prisons and e-hospitals. He said the CCTNS project was conceived by the Union Ministry of Home Affairs as part of police modernisation programme under the national e-governance project. The CCTNS software application is being developed in consultation with various stakeholders particularly the states and Union territories which can also make need-based alterations according to local requirements.

Lauding the NCRB, Rijiju said that despite acute staff crunch, the NCRB has contributed effectively and the information they provide acts as backbone of all law and order related departments. He said the world is becoming increasingly complicated by the day and the role of NCRB is going to be crucial in the scenario of security challenges to come.

While giving welcome address, the Director General of NCRB, R.R. Verma said under the CCTNS project police stations have already started generating online FIRs and a database of crime records and criminals is being prepared that will enable tracking of criminals anywhere at the press of a button.

About 58 per cent of police stations across the country are presently generating FIR through the CCTNS system. As on February 20, 2015, 88 per cent of total sites are ready for CCTNS implementation, 59 per cent of the ten years' legacy data has been digitised and 76 per cent of the total sites have been provided network connectivity.

A souvenir was released on the occasion of the Raising Day and the Indian Postal Department has released a special stamp to mark the occasion. SP

PHOTOGRAPH: PIB

Airbus Defence and Space teams with Kadet Defence Systems of India

Airbus Defence and Space and Kadet Defence Systems (KDS) of Kolkata, have signed a strategic cooperation agreement covering the sale and marketing of services and products in the field of aerial targets.

The companies have teamed initially to offer Airbus Defence and Space´s Manoeuvrable Expendable Aerial Target (MEAT) to the Indian Air Force and Army and the exclusive new agreement will extend that to offer further products inside India and for export.

KDS' range of lower speed aircraft will complement Airbus Defence and Space's higher speed family permitting a range of products to be developed and manufactured in Europe and India.

The teaming lays a roadmap for technology transfer, joint product development, local manufacturing, and provision of joint services in the Asia-Pacific region.

Peter Gutsmiedl, Head of Airbus Defence and Space, India, said: "This teaming agreement further demonstrates our clear commitment to India as a strategic market and partner, and underlines our willingness to find mutually productive ventures in line with the 'Make in India' concept.

"Airbus Defence and Space is developing a vast range of tangible initiatives in India in cooperation with Indian companies and partners, including an investment in a radar development and production facility, extensive aerospace engineering activities, and of course the manufacturing together with Tata of the bulk of an expected fleet of 56 military transport aircraft proposed to replace India's ageing Avro fleet."

Avdhesh Khaitan, CEO and founder of KDS said: "We are extremely excited to be teaming with Airbus Defence and Space. Although both companies are already offering products to the Indian armed forces, this teaming arrangement will greatly enhance the size and scope of what we can bid on future programmes." SP

EDIC adds five new defence services companies

Emirates Defence Industries Company (EDIC), the integrated national defence industries platform launched in December 2014, announced five additional subsidiaries from Mubadala Development Company and Tawazun Holding have been identified for integration to the new entity.

Set to join EDIC's dynamic portfolio of companies are Mubadala's Advanced Military Maintenance, Repair and Overhaul Centre (AMMROC) and Tawazun's Abu Dhabi Autonomous Systems Investment (ADASI), Burkan Munitions Systems, Caracal International and Caracal Light Ammunition. They join 11 other companies that were previously announced as part of the EDIC platform.

Speaking on the sidelines of this year's International Defence Exhibition & Conference (IDEX) in Abu Dhabi, Homaid Al Shemmari, Chairman of EDIC, commented, "These five companies were selected as part of EDIC's strategy to be the region's premier integrated defence manufacturing and services platform."

EDIC also announced several senior management appointments, including Sara Al Shorouqi as Executive Director of Communications, Imad Ayass as General Counsel, Mohamed Al Raeesi as Senior Legal Counsel, Laila Saif as Acting Head of Human Capital, and Omar Al Faresi as Acting Head of Finance. Luc Vigneron was previously announced as Chief Executive Officer. SP

Terma establishes permanent presence in UAE

Terma, global provider of aerospace, defence and security solutions, has established a permanent presence in the Middle East region.

"In 2014, Terma announced the establishment of a Terma office in the UAE. I am proud to state that the office has now become a reality", said Jørn Henrik Rasmussen, Vice President, Terma Global, and overall responsible for Terma's international sales and marketing efforts.

"During the past 10-15 years, Terma has supplied radar systems and airborne solutions to customers in the Middle East region in close collaboration with regional business partners. With the region showing rapid development within defence and security, the opening of a permanent presence in the area is a natural next step", said Jørn Henrik Levy Rasmussen.

"Terma is now present with subsidiaries, offices and representatives in North America, the Netherlands, Germany, Singapore, United Kingdom and India, and I am very excited that this new office in the Middle East has now been established to support our international presence", said Rasmussen. He concludes: "The region offers many interesting projects in the near future." SP

DCI opens a new helicopter international training centre

DCI is announcing the opening of a brand new helicopter international training centre (HCIF) registered in Dax, and located within the French military pilot training centres (Dax and Luc-en-Provence). The H-ITC courses are taught in English or in French and jointly with the French Army Aviation (ALAT) and Helidax.

This new training centre is meeting a fast growing demand from friendly countries regarding pilot training, from initial level up to complex mission management. These trainings are performed on the Helidax 36 EC120 equipped with modern features such as Glass Cockpit or on military aircraft, when appropriate. During his training and stay in France, each trainee benefits from an customised support provided by DCI and covering accommodation, food and transport. SP

ITA agreement with Sikorsky

Brazil's Technological Institute of Aeronautics (ITA) has concluded a cooperation agreement with the American company Sikorsky Aircraft Corporation, a manufacturer of helicopters. The signing took place on February 11, in São José dos Campos (San Paolo state). The goal is to develop knowledge in technologies for rotary-wing aircraft in Brazil.

Signed by the ITA rector Professor Fernando Sakane and representatives of Sikorsky, the agreement provides support for innovation in helicopters, including the creation of a specific laboratory in ITA, scholarships for undergraduate thesis projects in helicopter technology, and collaboration in the creation of a course in the area.

"This partnership is here to stay, as there is a lot of experience on both sides to share," summed Antonio Pugas, Vice President of Sikorsky in Latin America, Black Hawk manufacturer and the Sea Hawk, models used in dozens of countries, including Brazil. SP

Forest Whitaker frisked while shopping

Well known film actor Forest Whitaker was publicly frisked in the middle of a New York deli after being accused of shoplifting which leads many to believe the only thing that made him suspicious was his race.

It all happened February 17, when the Hollywood millionaire was on his way out of the deli. Suddenly an employee stopped Whitaker and accused him of grabbing some items off the shelf and trying to leave without paying for them. Even bystanders who were inside the Upper West Side Milano Market were shocked and in disbelief when they saw the employee frisk the famous actor in public for all to see.

Needless to say, the rich actor hadn't stolen a single thing from the establishment and he left the deli outraged. "This was an upsetting incident given the fact that Forest did nothing more than walk into the deli," his representative told TMZ. "What is most unfortunate about this situation is the inappropriate way store employees are treating patrons of their establishment."

The question remains: is it all patrons being treated this way? Or would the employee not dare touch Forest if he was a white man in a business suit? SP

Major lapses in currency printing

In a major security breach that could embarrass the previous Congress-United Progressive Alliance Government, an internal enquiry report has revealed that certain security features were allegedly compromised during the printing of Indian currency, and the lapses were kept under wraps by senior officials working under the Ministry of Finance. The incident took place in 2012 under the then UPA Government.

As per experts, the use of a security thread is the most distinguishing feature of bank notes. But the then Indian Government had allegedly compromised on it.

The enquiry report shows that the security thread inserted in currency paper at the Hoshangabad Security Paper Mill were from an Islamic nation and the defect in the paper intended for 10-rupee notes was reported on November 8, 2012, but kept a secret.

The report also says the examination of the 10-rupee notes showed indecipherable text on the security thread, the notes either had Arabic text inscribed on the security thread or did not have any security thread at all. The security thread was also found to be non-magnetic when examined on a quality control device.

The currency paper with defective security thread initially escaped at least four to five quality checks. It was later found that four boxes of sheets had defective currency paper. With 5,000 sheets in a box and 50 notes printed on each sheet it amounts to 10 lakh defective notes been printed. SP

South Africa's increasing security lapses

Al Jazeera has reported that the South African Government and security agencies have left secrets exposed at every level and foreign spies have access to all areas of government. .

A secret security assessment by South African intelligence says foreign espionage is booming, with more than 140 foreign spies estimated to be operating in South Africa – and that the South African state is doing a poor job of protecting itself. They are thought to have gained access to government departments, ministries and "even the presidency" and are suspected of breaking into nuclear power plants, stealing military blueprints and hacking computers.

The report slams poor security awareness among civil servants, who regularly failing to observe the most basic procedures, leaving classified information unlocked and failing to adequately vet new recruits.

The secret assessment of the nation's security vulnerabilities, written in October 2009 by South African intelligence, concludes information security is at 'serious risk' and says it will remain so in the 'long-term.' SP

PHOTOGRAPH: Wikipedia

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