

SP's



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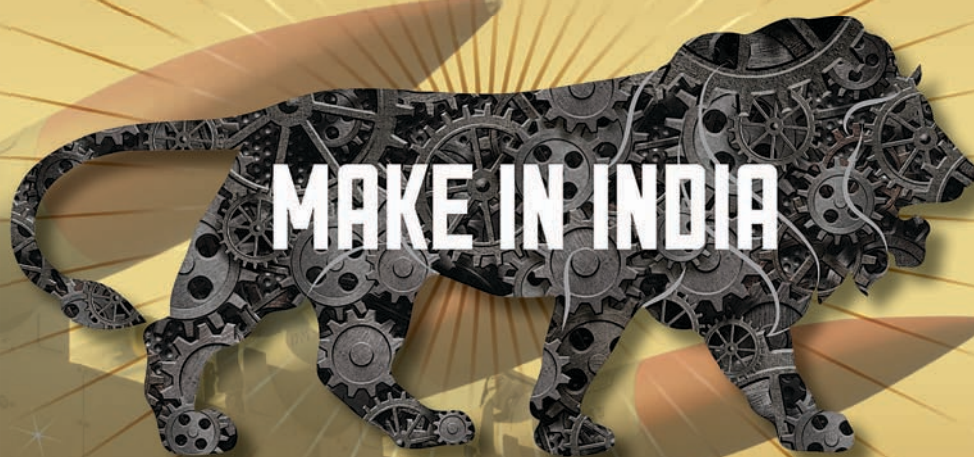
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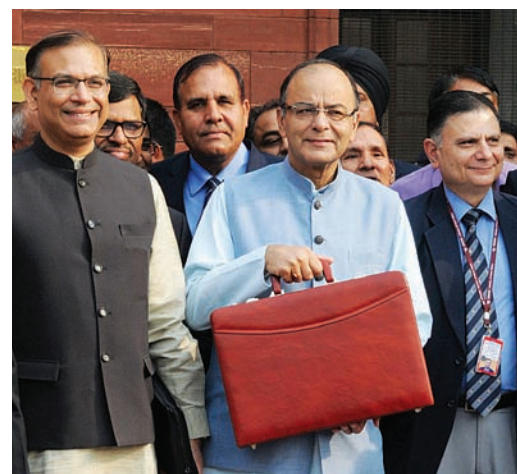
EXCLUSIVE

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Exercise Force-18 culminates

Exercise Force-18, the largest ground forces multinational field training exercise on 'Humanitarian Mine Action and Peacekeeping Operations', culminated in Pune in the presence of the Chief of Army Staff, General Dalbir Singh. The week-long exercise witnessed participation of over 300 foreign participants and observers from ASEAN Plus countries.

In his closing comment General Dalbir Singh said: "This exercise in India is a watershed event in the history of ASEAN Defence Ministers meeting (ADMM). It has showcased perfect harmony amongst the ASEAN Plus Nations in the field of Humanitarian Mine Action and Peace Keeping Operations.

"The activities conceived and planned under the ADMM Plus umbrella are of strategic importance to all of us. They further the all encompassing aim for the peace, stability and development of the region.



The forum provides an equal and beneficial playground for all the participants, harmonising relations, building capacities and facilitating meaningful interaction among the regional players.

"Peacekeeping with multiple troop contributing countries and multidimensional mandates in dynamic and complex environment is a challenging task. It demands more intrusive consultative process for developing credible and legitimate response mechanisms."

Senior dignitaries from the participating countries including Deputy Chief of General Staff Vietnam Army, Senior Lt General Vo Van Tuan also attended the closing ceremony. The event was then followed by speech by co-chairs from Vietnam, South Korea and India. **SP**



Cover:

The Narendra Modi-led Government is going aggressive on several initiatives and top of them all is the 'Make in India' plan. All the ministries are working in that direction, more so the Ministry of Commerce and Industry which is key to the push that is required for not just self-reliance in several sectors but also to give it an export momentum.

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PUBLISHER AND EDITOR-IN-CHIEF

Jayant Baranwal

ASSISTANT GROUP EDITOR

R. Chandranth

SR TECHNICAL GROUP EDITORS

Air Marshal B.K. Pandey (Retd)

Lt General Naresh Chand (Retd)

Lt General V.K. Kapoor (Retd)

R. Adm S.K. Ramsay (Retd)

SPECIAL CONTRIBUTOR

Lt General P.C. Katoch (Retd)

CHAIRMAN & MANAGING DIRECTOR

Jayant Baranwal

PLANNING & BUSINESS DEVELOPMENT

Executive Vice President: Rohit Goel

ADMIN & COORDINATION

Bharti Sharma

DESIGN & LAYOUT

Creative Director: Anoop Kamath

Designers: Vimlesh Kumar Yadav,

Sonu Bisht

Research Assistant - Graphics:

Survi Massey

SALES & MARKETING

Director: Neetu Dhulia

General Manager Sales: Rajeev Chugh

SP'S WEBSITES

Sr Web Developer: Shailendra P. Ashish
Web Developer: Ugrashen Vishwakarma

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E-mail: subscribe@spguidepublications.com
subscribe@spsmai.com

LETTERS TO THE EDITOR

editor@spsmai.com

FOR ADVERTISING DETAILS, CONTACT:

advertise@spsmai.com

neetu@spguidepublications.com

rajeev.chugh@spguidepublications.com

SP GUIDE PUBLICATIONS PVT LTD

A-133 Arjun Nagar
(Opposite Defence Colony)
New Delhi 110003, India.

Tel: +91 (11) 24644693,

24644763, 24620130

Fax: +91 (11) 24647093

E-mail: info@spguidepublications.com

REPRESENTATIVE OFFICE

204, Jal Vayu Vihar

Kalyan Nagar

Bengaluru 560043

Tel: +91 (80) 23682204

MOSCOW, RUSSIA

LAGUK Co., Ltd, Yuri Laskin

Krasnokholmskaya, Nab.,

11/15, app. 132, Moscow 115172, Russia.

Tel: +7 (495) 911 2762,

Fax: +7 (495) 912 1260

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Commerce Ministry facilitating 'Make in India' campaign

One of the most aggressive initiatives of the Narendra Modi-led government is 'Make in India' and all ministries are working towards this initiative to make not only India self-reliant, but also to ensure that India becomes a manufacturing hub not just in the region but also the world. The Ministry of Commerce and Industry is one of the key ministries which facilitates implementation of the plan, through various incentives, programmes, etc. The Minister of Commerce and Industry, Nirmala Sitharaman, through her office has given details of the plans the Ministry has undertaken to facilitate industry in fulfilling the Prime Minister's mission.

The specific response to the questions from *SP's M.A.I.*, the Ministry has given clear links for the industry's reference and this goes a long way in understanding the various programmes, incentives, etc, many a time difficult to figure out in the labyrinthine bureaucratic circulars. The Ministry response comes on the eve of the ninth edition of Defexpo 2016, land, naval and internal security event which is taking place in Goa this time.

Defexpo has attracted nearly 1,000 participants from all over the world, reflecting the importance of India which is the topmost country which is importing arms in the world. Also this is happening at a time when the government is engaging different countries, the US, France, Russia, Israel, the UK, Japan and many others with regard to defence cooperation. The idea is to get these countries to think beyond selling arms and other equipment, but to transfer technologies such that India becomes a defence and aerospace manufacturing hub. We have highlighted how Indo-US partnership has taken on new meaning under the NDA regime, wherein there is more engagement and the US has accorded India a status of equal partner in trading, something which has never happened earlier.

All the activities requires government support and as regards the defence budget is concerned there is not much of improvement from last year, but considering the unused allocation from last budget, the increase is over 20 per cent. Considering the major acquisitions that are going to happen in the near future, analysts state that the budgetary allocations made for defence are highly inadequate. It remains to be seen how the government is going to balance between

budget and the requirement of the armed forces which is so urgent.

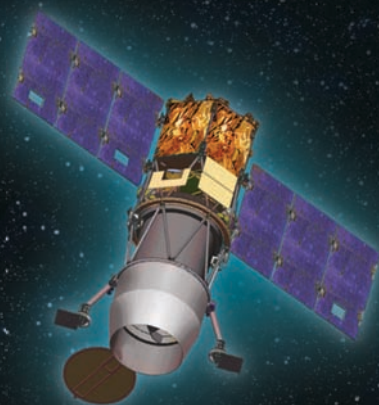
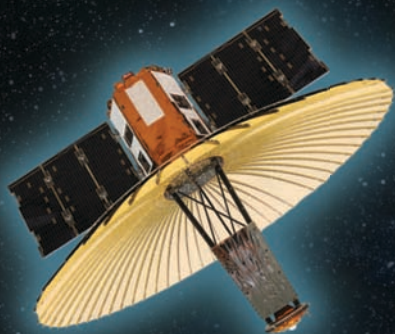
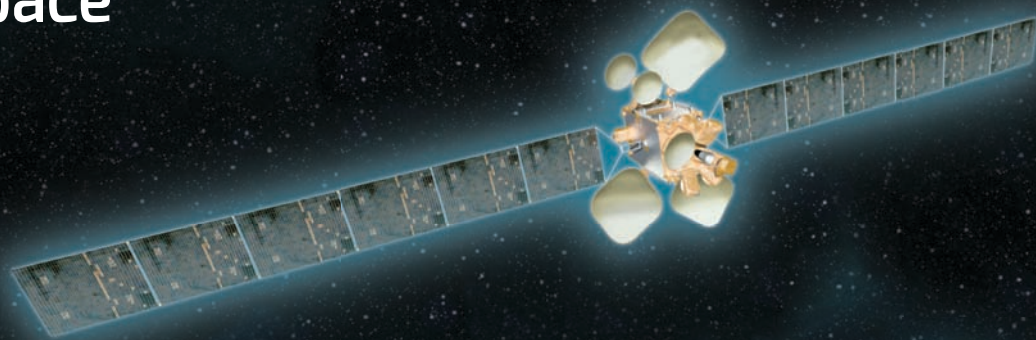
The requirements on various fronts—internal security, coastal security, etc—have been highlighted in this issue by Rear Admiral Sushil Ramsay (Retd) and Lt General Naresh Chand (Retd) on what the government needs to do with regard to coastal security and deployment of unmanned aerial vehicles (UAVs). India has strong association with Israel with regard to UAVs and other equipment and the relationship between India and Israel has special meaning. The security environment is increasingly becoming fragile as asymmetric threats are on the rise. If one looks at what is happening in Belgium, it is quite scary and unless systems are put in place there are going to be strikes which can debilitate the fabric of the nation. And Pathankot is a reminder.

Anyways, we hope that Defexpo in Goa will pave the way for more partnerships between Indian companies and foreign OEMs such that there is faster deployment of security systems, even while such partnerships are going to create employment, generate business and make India stronger.

We wish all the visitors to Defexpo 2016 all the best in their business and request you to visit us at Hall 10, Stall 10.5.5!

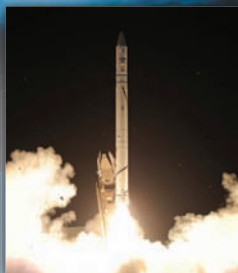
Jayant Baranwal
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The Narendra Modi-led government is going aggressive on several initiatives and top of them all is the 'Make in India' plan. All the ministries are working in that direction, more so the Ministry of Commerce and Industry which is key to the push that is required for not just self-reliance in several sectors but also to give it an export momentum.

*In response to questions from **Jayant Baranwal**, Editor-in-Chief of **SP's M.A.I.**, the 'Make in India'/Invest India team at the respective offices, on behalf of the **Minister of Commerce and Industry, Nirmala Sitharaman**, has outlined the 'Make in India' plans in the aerospace and defence sectors, the sectors that are going to give a massive thrust to development. The team on behalf of the Minister has responded to **SP's** specific questions. Excerpts:*

Ministry of Commerce 'facilitator' of 'Make in India' initiatives

SP's M.A.I (SP's): When you say 'Make in India' what exactly is the destination – (a) to get foreign OEMs to manufacture the military platforms in India for Indian market and (b) to get foreign OEMs to manufacture for the overseas markets?

Ministry: The main objective of the 'Make in India' campaign is to transform India into a global design and manufacturing hub. The products manufactured in India can be used for domestic consumption and can be exported as well.

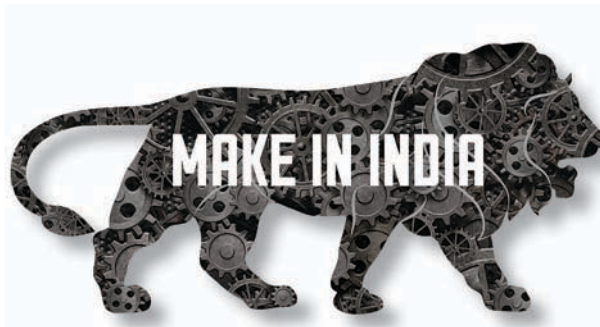
SP's: What all incentives the foreign OEMs are supposed to get under the campaign?

Ministry: As per the extant Defence Procurement Procedure 2013, foreign direct investment (FDI) in joint ventures with Indian enterprises is considered as an eligible avenue for discharge of offset obligations in India.

SP's: In view of creating a solid India-based industrial complex, what all steps are being taken?

Ministry: The government has taken the following initiatives in order to build an indigenous defence manufacturing base in India:

- **Liberalisation of FDI cap in defence manufacturing.** FDI up to 49 per cent is allowed under the automatic route. FDI beyond 49 per cent is allowed under government route on a case to case basis, which is likely to result in access to modern and state-of-the-art technology in the country.
- **Issue of list of equipment requiring an industrial licence and liberalising regulations.** The detailed list can be accessed from the link pasted (http://dipp.nic.in/English/acts_rules/Press_Notes/pn3_2014.pdf)
- **Finalisation of security manual for licensed defence industry?** The security manual can be accessed from the link pasted (<http://ddpmod.gov.in/showfile.php?lid=151>)
- **Increase in initial validity of industrial licence?** The initial validity of industrial licence has been extended to 15 years, which is further extendable up to 18 years for existing as well as future licences.
- **Notified strategy for export of defence products?** The detailed strategy can be accessed from the link pasted (<http://ddpmod.gov.in/showfile.php?lid=174>)



- **Notified list of military stores requiring No Objection Certificate from Department of Defence Production?** The detailed list can be accessed from the link pasted (<http://dgft.gov.in/exim/2000/NOT/NOT13/not11513.pdf>)

SP's: Will the technologies be borrowed/purchased from overseas?

Ministry: Yes, the technologies will be transferred by the foreign companies.

SP's: Will the route of transfer of technology (ToT) be used to enable fast establishment of industries offering instant delivery possibilities?

Ministry: No, transfer of technology will only enable the foreign companies to get more incentives. It will not enable faster establishment of such industries.

SP's: Research & development – it has been confined to DRDO (Defence Research and Development Organisation), in our country so far. What all is being done to expand the number of players in India?

Ministry: The government is considering providing incentives for undertaking R&D activities in India. As per the information available in public domain, the government is considering to fund private R&D for building a defence technology base in the country for which various norms will be stipulated in the Defence Procurement Procedure 2016. Moreover, the first budget of the current government had also provided for creating a 100-crore technology development fund to provide resources to public and private sector companies to support research and development (R&D) of defence systems.

SP's: Will the government be funding any programmes in case private sector companies are willing to work on development of certain military programmes?

Ministry: Yes. The fund is being created to support companies to invest in R&D.

SP's: How about stronger accountability within DRDO ensuring that there is less wastage of public monies, while the results do not really align with those dimensions?

Ministry: The government is taking steps to improve the performance of DRDO to transform the organisation into a hub for defence manufacturing.

Foreign Direct Investment

SP's: As current level is 49 per cent (raised from 26 to 49), which kind of programmes may still attract beyond the limit of 49 per cent?

Ministry: As per the FDI policy, now FDI beyond 49 per cent is allowed under approval route in cases which result in access to modern and state-of-the-art technology in the country.

SP's: What has been the total of FDI till now as a result of the referred raise?

Ministry: As per the statistics published on DIPP (Department of Industrial Policy and Promotion) website, defence sector has managed to received FDI amounting to ₹0.48 crore between September 2014 to December 2015 (i.e, the time since the FDI cap was increased from 26 to 49 per cent). **SP**



International Seminar on 'MAKE IN INDIA' PARADIGM-ROADMAP FOR A FUTURE READY NAVAL FORCE

April 18 - 19, 2016, FICCI, Federation House, Tansen Marg, New Delhi



OBJECTIVE

The objective of the seminar is to align Indian industry with the requirements of a future ready naval force by understanding the futuristic technologies that may be available in the time horizon upto 2025. This seminar will help to align the current technological preparedness and future technological R&D plans of the industry with the Indian Navy's Modernisation Plans. This seminar will also discuss the opportunities for Indian and Foreign OEMs to build Naval Centric Defence Industrial Base under the 'Make in India' mission of the Government of India. Each session is meticulously planned in consultation with the Indian Navy so that domain experts from the Navy and select participants from industry, Indian and Foreign, together chart the way forward for Future Ready Indian Navy – under the make in India paradigm.

SESSION THEME

- **Session 1:** Missiles and Gun Systems for a Future Ready Naval Force
- **Session 2:** Propulsion & Power Generation
- **Session 3:** Torpedo and Directed Energy Weapons
- **Session 4:** Surveillance and Detection Systems
- **Session 5:** Propulsion and Power Generation - Electric and Nuclear
- **Session 6:** Naval Aviation
- **Session 7:** Perspective on Submarines
- **Session 8:** Autonomous Vehicles for Naval Applications
- **Session 9:** Coastal Surveillance and Response
- **Session 10:** Panel Discussion on Shipbuilding

KNOWLEDGE PAPERS

Knowledge papers are invited, not exceeding 1500 words, latest by March 15, 2016 for evaluation and consideration. Selected papers will be published in the Compendium on 'Futuristic Naval Technologies' which will be released during the seminar.

WHO SHOULD ATTEND

- Senior representatives from Ministry of Defence, DRDO & DPSUs
- Senior serving & retired officers from the Indian Navy, Coast Guards
- Representatives of leading Indian & International Defence MNCs
- Defence Manufacturers & Suppliers
- Defence Experts, Academia and Thought Leaders
- Defence SMEs

BRANDING OPPORTUNITIES

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- **Sponsorship Opportunities**
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CONTACT:
Mr. Bhaskar Kanungo
 Deputy Director - Defence & Aerospace
 T: +91 11 23487276
 E: bhaskar.kanungo@ficci.com

Mr. Rajesh Tripathi
 Consultant – Special Projects
 T: +91 11 23487587
 E: rajesh.tripathi@ficci.com



Union Minister for Finance, Corporate Affairs and Information & Broadcasting, Arun Jaitley in North Block along with the Minister of State for Finance, Jayant Sinha before the presentation of General Budget 2016-17

The Defence Budget – Lowest rise

[By **Ranjeet Kumar**]

Probably this year's defence budget (2016-17) has seen the lowest rise in the history of defence budgets. The negligible rise in this year's defence budget will shock the armed forces and the strategic community who visualise a new great power role for the country. The NDA Government has made a very meagre provision of ₹2,49,099 crore which is just ₹2,372 crore more than ₹2,46,727 crore defence budget of last year (2015-16).

The negligible increase of just 0.96 per cent gets more worrisome in view of the heavy devaluation of Indian currency compared to last year, when it hovered around ₹62-63 for one US dollar in comparison to present-day foreign exchange rate of around ₹68-69. Since the Indian armed forces are dependent on imports to the extent of 65 per

cent, this year's provision of just ₹88,340 crore for the capital outlay, i.e. for the modernisation of the armed forces will not be sufficient for the various acquisitions that the NDA Government has promised in accordance with its ethos of making India militarily strong. Also, last year's defence budget (2015-16) comprised 13.88 per cent of the total Central budget, which has now gone down to 10 per cent.

Also, the Manohar Parrikar-led Ministry of Defence (MoD) has cleared defence projects worth over ₹1,50,000 crore over the last year. These cannot be executed totally, in view of the limited provisions this year under capital outlay. At a time when the country is facing renewed threats and challenges on its borders and maritime areas of interest, requirements of arming its armed forces with the latest weaponry has never been felt more, hence the meagre provision for the nation's defence would not suffice.



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Defexpo 2016

28 - 31 March 2016
Naqueri Quitol in Quepem Taluka of South Goa, India



Reacting strongly to the budget, defence expert Air Commodore Prahsant Dixit (Retd) said: "Budgeting for defence expenditures in the 2016-17 Finance Bill was most perfunctory in style and content. Firstly, the Finance Minister did not even consider it important to mention it in his budget speech – an outlay of nearly 2 per cent of the gross domestic product (GDP). Secondly, it truly is out of sync with the regime's sloganeering about 'Make in India' for defence equipment, with R&D getting only ₹1,102 crore more than last year whilst the workhorse, the corporate sector left in distress. If the government believes that start-ups limited to ₹500 crore can achieve this with a three-year tax holiday, then they are dreaming."

Last year's provision of capital outlay in the total defence budget was ₹74,229 crore. The armed forces could not fully utilise this amount and the MoD had to return over ₹12,400 crore to the Finance Ministry. Hence, the revised estimate of last year's budget was reduced substantially.

Defence officials claim that the additional expenditure on the payments on account of the recommendations of One Rank One Pension (OROP) scheme and implementation of the Seventh Pay Commission recommendations have put a great burden on this year's defence budget. The armed forces has a serving staff of around 13 lakh and over 25 lakh soldiers get retirement benefits from the government. This expenditure will continue to rise and the MoD in discussion with the Ministry of Finance will have to find a way out, otherwise Indian defence will suffer the most. The pension payments this year has increased substantially and an additional provision of ₹22,094 crore was made. Hence this year's payments under defence pensions will go up to ₹82,332 crore. However, the defence pensions are made under a separate head of defence pensions, which is separate of the defence budget.

On defence research and development the government has made a minor increase of ₹1,102 crore, this year's provision was only of ₹13,593 crore. For the three armed forces a total provision of ₹1,43,869 crore has been made which is ₹18,061 crore more than previous year's ₹1,25,808 crore. Out of this, the Army has received the lion's share of ₹1,13,732 crore, the Navy ₹17,424 crore and the Air Force ₹23,655 crore.

Experts are of the view that the Finance Minister has made provisions in the defence budget only for the regular upkeep of the armed forces and usual maintenance of its weapon stores. Last year the Defence Acquisition Council of the MoD had cleared projects over ₹1,50,000 crore, however, it seems difficult to execute all these projects with the lowest ever rise in defence budget this year. Most important among all the projects is the commitment made to France for acquiring 36 Rafale fighter aircraft, for which price bargaining is currently on and the Indian Government will have to shell out minimum of ₹65,000 crore. Likewise, the Indian Government has also okayed the acquisition of Chinook and Apache helicopters from Boeing, worth a few billion dollars. From Russia and Israel many sensitive defence projects are under implementation and in view of the meagre provision in this year's budget one finds it difficult to induct high technology equipment in the Indian armed forces according to the strategic and tactical needs of the armed forces. Also one finds it difficult to understand from where the government will find resources to continue to implement the sensitive Mountain Strike Corps project on the borders with China and complete the project on schedule. Probably there would be many other projects of similar nature which will need extra financial resources from the Finance Ministry to fund. SP

Indian Government will have to shell out minimum of ₹65,000 crore for acquiring 36 Rafale fighter aircraft, for which price bargaining is currently on



PHOTOGRAPH: Dassault Aviation



AIR MARSHAL
B.K. PANDEY (RETD)

Indo-US defence ties

India and the US share strategic objectives and one area in which there is positive convergence between the two nations is the rising threat from China

In the recent past, China has become increasingly belligerent in the East and South China Sea and she has also been making blatant attempts to assert her sovereignty over the areas claimed. This has not only been a matter of serious concern but has also caused a degree of alarm for the countries in the region especially Vietnam, Philippines, Malaysia and Indonesia, apart from India. But what is relevant for India is that China's aggressive posture has also provided an impetus to the emergence of a new alignment of nations more appropriately described as a power block, in the Asia-Pacific region consisting of four nations, namely the United States, Australia, Japan and India. While this development ought to be of equal concern to China, as for India, there are some uncertainties that continue to nag the newly crafted Indo-US strategic partnership.

Only a few decades ago, the relationship between the US and India was not very cordial; in fact, it was somewhat hostile. The US always supported Pakistan which was for all practical purposes an ally, providing it with military hardware including modern combat aircraft that were used against the Indian forces in the Indo-Pak war of 1965. Six years later, the US Navy sent an aircraft carrier into the Indian Ocean in an attempt to intimidate India during the war with Pakistan in 1971 for the liberation of Bangladesh.

Recent history of Indo-US relations have also been plagued by some turbulence. Before being elected as the Prime Minister of India in May 2014, Narendra Modi was persona non grata in the US as he was carrying the baggage of the carnage during the riots in Gujarat in 2002. During this sordid episode which was essentially a violent reaction to another equally horrendous carnage, a large number of members of a particular community were slaughtered in mob violence. Narendra Modi was the newly installed Chief Minister of Gujarat at that time and was regarded by many as being responsible for the mayhem. In fact, the US Government at that time had decided not to grant him a visa should he have applied for one.

However, post the landslide victory by the BJP during early 2014, there was a perceptible change in the scenario. Experts in international relations were of the view that the results of the election would bring about a radical change in the Indo-US relations. And they were right, at least to some extent. The fact that Barack Obama was the first US President to be invited as the chief guest at the Republic Day

parade at Delhi on January 26, 2015 may have appeared to some to be a symbolic gesture of mere cosmetic value, but in fact, it did help send a clear message of a new beginning in Indo-US friendship and the mutual intent to take the relationship between the largest and the oldest democracies in the world to a new level.

India and the US do share strategic objectives and the one area in which there is maximum and positive convergence between the interests of the two nations is the rising threat from China. The recent economic turmoil notwithstanding, China is a regional power and is racing ahead of India both economically and militarily clearly striving to be a superpower to challenge the position of the US on the global scene. Combating the menace of terrorism is another area

where the interests and priorities of India and the US are congruent. On the economic front, the US views India as a lucrative market for investments provided the political leadership is able to set the house in order. India, on the other hand, eyes the regime of high technology the US has to offer both in the military and non-military sectors of the industry as also collaboration in the field of nuclear power generation to ensure India's energy security in the years to come.

But today, the continued support of Pakistan by the US is a major irritant and in fact a stumbling block in the effort by India to strengthen ties with the US. What makes the context somewhat incongruous is the fact

that while Pakistan is virtually an ally of China which is inimical to both the US and India, the US continues to provide liberal economic and military aid to Pakistan. The most recent episode is the plan by the Obama Administration to sell to Pakistan eight Lockheed Martin F-16 Block 52, the most advanced version of the legendary combat platform, ostensibly to combat terrorism, an alibi somewhat difficult to digest by even the most gullible. This deal is to be financed partially by an economic aid package that has also been planned for this year. This decision by the Obama Administration has been opposed not only by India but by members of the US Congress as well.

While both India and the US harbour great hopes of propelling their strategic partnership to unprecedented levels, there is a lurking danger that the Pakistan factor may well subvert the efforts and aspirations of the two nations. And China will leave no stone unturned to spoil the party! **SP**



President Barack Obama with
Prime Minister Narendra Modi



Theatre-level Readiness and Operational Exercise

India's satellite-based networking capabilities

Rukmini will provide networking capabilities with various Indian Navy's assets. During Theatre-level Readiness and Operational Exercise (TROPEX) in the Bay of Bengal in 2014, Rukmini was able to network about 60 ships and 75 aircraft seamlessly.

[By **Rear Admiral Sushil Ramsay (Retd)**]

India launched its first dedicated defence satellite, GSAT-7, for the Indian Navy on August 30, 2013. GSAT-7 was successfully launched by the Ariane-5 launch vehicle of Arianespace from Kourou, French Guiana. Ariane-5 precisely placed GSAT-7 into the intended geosynchronous transfer orbit (GTO).

GSAT-7 is an advanced communication satellite built by Indian Space Research Organisation (ISRO) to provide wide range of service spectrum from low bit rate voice to high bit rate data communication. GSAT-7 communication payload is designed to provide communication capabilities to users over a wide oceanic region including the Indian land mass. The GSAT-7 payload design includes multi-band communication. It was thought essential to have an integrated platform for the Indian Navy's exclusive use. Earlier, satellite communication in ships was through Inmarsat, a major provider of global mobile satellite communications services.

Indian Navy's first dedicated satellite, Rukmini, went into oper-

ational mode soon after October 13, 2013 and GSAT-7 reached its GTO position at 70 degree east longitude. GSAT-7 is not designed for auxiliary functions like 'Targeting Guidance,' which are the essentially the features for a 'surveillance satellite'.

Post-Mumbai 26/11 terrorist attack, a slew of measures such as coastal radar chain and AIS network to improve India's maritime domain awareness (MDA) off and along the coast were initiated. Efforts are on to set up the NC3I network and to establish a National MDA system to seamlessly integrate information from multiple sources and maritime agencies and geospatial applications are the core of most of these projects.

Rukmini will provide networking capabilities with various Indian Navy's assets. During Theatre-level Readiness and Operational Exercise (TROPEX) in the Bay of Bengal in 2014, Rukmini was able to network about 60 ships and 75 aircraft seamlessly. The intention of Indian Navy is to use this geostationary naval communication and surveillance satellite to cover activities up to Malacca Strait in the east and the Strait of Hormuz to the west. Rukmini has a

IAI and Tata joint venture

Itzhak Nissan, IAI's President and CEO, and Ratan N. Tata, Chairman Emeritus of Tata Sons, have signed a memorandum of understanding (MoU) to establish a joint venture company in India. The new company will develop, manufacture and support a wide range of defence and aerospace products, including missiles, UAVs, radars, electronic warfare systems and homeland security systems. The MoU for the joint venture was signed earlier.

The new JV company will also perform offset work for IAI and other defence and aerospace programmes in India, and will establish indigenous capabilities to support IAI's Indian customers.

IAI-Elta – ELM-2070- TecSAR satellite

In January 2008, an Israeli spy satellite was successfully launched into orbit under a commercial contract between IAI and Antrix Corporation. The launch of IAI-Elta – ELM-2070 TecSAR satellite by an India-made rocket was carried out from the Sriharikota space station of ISRO. Antrix Corporation is the commercial arm of ISRO.

The satellite was designed and developed by MBT Space, a division of IAI. It is equipped with a camera that can see through clouds and carry out day and night all-weather imaging.

nearly 2,000 nautical mile 'footprint' over the Indian Ocean region.

With GSAT-7 which would give it an integrated platform the Indian Navy would be able to overcome the limitation from line of sight and ionospheric effects, among others, that it currently faced as far as space-based communications were concerned. The satellite is meant to link up various naval warships and submarines pushing the navy closer to network-centric operations.

Satellites for Network-centric Warfare

Satellites can serve as a critical components of a network-centric warfare which relies on the smartness with which the information superhighway and communications channels are exploited for real time coordination of the 'strategic moves' of defence forces spread across and around the world-on land as well as oceanic and air borne platforms.

A satellite-based network-centric approach helps derive advantages in terms of the ability to stay ahead of an opponent and dictate the dynamics of engagement. By all means, satellites hold the key for a well-coordinated and synchronised operations of a battlefield strategy by seamlessly integrating weapons systems, missiles, radars and sensor suits, UAVs, UCAVs, electronics and communications network, fighter jets, transport aircraft, logistics and support systems and defence forces spread across a vast geographical swathe for sustaining 'strategic superiority' from the word go. Denying the adversary access to space through the degradation or destruction of his satellite resources has now assumed more usual importance in the modern-day warfare strategy.

Navigation satellites have today emerged as vital space platforms with immense potentials to support the network-centric operations of all the three wings of the services. A large, independent navigation capability that can be accessed anytime from anywhere holds the key to the success of network-centric operations.

GPS capability is also vital for the firing of missiles and precision weapons with a high degree of accuracy. Under an agreement India has signed with Russia, Indian defence forces will be allowed access to the potentials of the Russian Glonass satellite system for purposes such as firing of a missile with a high degree of accuracy. Indeed, the difficulties India experienced in accessing the restricted services of US-owned GPS especially for military applications like firing of the missiles underlines the strategic importance of owning and operating an independent satellite navigation system.

TROPEX

TROPEX 2014 for the first time provided the Indian Navy with an opportunity to validate its network-centric warfare capabilities with the effective utilisation of GSAT-7. The subsequent exercises also assessed the operational readiness of warships, submarines and

aircraft validated the Navy's war-fighting doctrine and integrated newly-acquired capabilities in its concept of operations.

While embarked on board INS Vikramaditya to witness TROPEX 2015, Defence Minister Manohar Parrikar said that the Indian Navy must remain a "superior force" in the Indian Ocean region and assured that the government would extend full support for making it a truly blue water navy.

During TROPEX 2015, the Indian Navy demonstrated multiple facets of operations encompassing a variety of weapons firing, MiG-29K and Sea Harrier operations from two aircraft carriers, integration of the P-8I aircraft with fleet, and operations by the Marine Commandos.

The successful vertical launch of the BrahMos, the supersonic long range anti-ship cruise missile, from the recently commissioned stealth destroyer INS Kolkata, anti-missile defence being surface-to-air missiles (SAM), with the successful interception of a fast, low-flying, surface-to-surface missile by a SAM, were the main accomplishment during TROPEX 2015.

Information Management and Analysis Centre

As a critical component for beefing up coastal surveillance and security in the aftermath 26/11 Mumbai terror attacks, the Information Management and Analysis Centre (IMAC), the nerve centre of the Navy, was commissioned in 2014 and located at Gurgaon.

The IMAC is the single point centre interlinking the newly formed coastal radar chain. It is manned by the Navy and functions under the National Security Adviser. The National Command & Control, Communication and Intelligence System (NC3I) will be the backbone of National Maritime Domain Awareness.

The NC3I will link 20 naval and 31 Coast Guard monitoring stations to generate a seamless real-time picture of the nearly 7,500-km-long coastline. The system currently comprises 46 radars and 30 additional radars are planned to fill all the gaps in coastline security.

The hubs are linked by high speed optical fibre networks and satellite links serve as a back-up in case of emergency. Apart from coastal radars and optical sensors, it also draws information from automatic identification systems fitted on merchant ships and has a comprehensive shipping database of world registers of shipping for analysis of traffic.

The network was built by Bharat Electronics Limited which has sourced customised software from the US company Raytheon. The software has added filters to identify threats from the vast number of ocean-going vessels by correlation and data fusion.

While the IMAC will be the merging point of all maritime intelligence, the NDMA will integrate several agencies into one fold. IMAC has yet again proved the efficacy satellite-based surveillance and security apparatus. SP



Latest MALE UAS from IAI/Malat – Super Heron

UAVs for land and maritime forces

[By Lt General Naresh Chand (Retd)]

India's land borders are extensive thus air surveillance is the ideal medium of surveillance and gathering intelligence. Accordingly India started its development of unmanned aerial vehicles (UAVs) besides importing UAVs. Israel and the US are the leading countries in the development of UAVs. India selected Heron and Searcher UAVs from Israel Aerospace Industries (IAI). These have been also imported for the Indian Navy as well as for the Indian Air Force (IAF). Heron is a medium altitude long endurance (MALE – about 30,000 feet) and thus is being used in the mountainous region. Searcher has a ceiling of about 15,000 feet and is being employed in the plains (Searcher Mk1) and Searcher Mk2 is being used in the desert terrain.

Israeli UAVs

IAI and Elbit manufacture a very large variety of strategic and tactical UAVs, some of which are:

Israel Aerospace Industries

Super Heron: This is the latest MALE UAS made by IAI/Malat. The Super Heron was added as a link between the Heron and the Heron TP UAV systems. It has a new advance propulsion system specifi-

cally developed for the Super Heron, provision for large and heavy payloads, place for a large SATCOM antenna, advanced avionics, endurance (up to 45 hours), line of sight mission radius of 250 km, mission radius with airborne data relay or ground-based data relay of 350 km and with SATCOM it is up to 1,000 km.

Heron TP: Heron TP is an advanced, multi-purpose MALE UAS with an extended performance envelope and a variety of payloads capability with an endurance of 36 hours and altitude of 45,000 ft.

Searcher MkIII. Searcher MkIII is a multi-mission tactical UAS used for surveillance, reconnaissance, target acquisition, artillery adjustment and damage assessment. It has an endurance of 18 hours, range of 350 km and altitude of 23,000 ft.

Other UAVs: Panther is a uniquely designed fixed-wing AVTOL UAV System with tilt-rotor capability that provides a remarkable solution to a wide variety of tasks when pinpoint automatic take-off and landing is a requirement. The BirdEye 650D is an advanced, affordable, long endurance mini UAS and an enhanced version of the BirdEye 650. It provides real-time stabilised day/night imagery data for urban operation and over-the-hill intelligence.

Elbit

Hermes 900: Hermes 900 is based on Hermes 450 UAS. It is a multi-role, MALE which features over-the-horizon, persistent multi-mis-

sion, multi-payload capabilities with payload carrying capacity of 350 kg. It is capable of performing missions for area dominance, persistent intelligence, surveillance, target acquisition and reconnaissance. Hermes 900 also can perform ground support and maritime patrol missions, and offers the capability for integrated multi-platform, multi-sensor operation. It has maximum payload of 350 kg, endurance up to 36 hours and a service ceiling of 30,000 ft.

Skylark I - LEX - Mini UAS: This is the latest evolution of the battle-proven, high-performance Skylark I system, which operates at battalion level.

US drones

AeroVironment

RQ-11B Raven: RQ-11B Raven is a lightweight UAV designed for rapid deployment and high mobility for both military and commercial application's requiring low-altitude reconnaissance, surveillance and target acquisition. Raven B is the standard small UAV for the US Army which has a line-of-sight range of 10 km or more with an altitude of 30-152 m AGL. AeroVironment's Tactical ISR portfolio also consists of lightweight UAVs like Puma AE, Wasp AE and Shrike VTOL which are designed for providing ISR and communications, including real-time tactical reconnaissance, tracking, combat assessment and geographic data, directly to a small tactical unit or individual soldier.

Northrop Grumman

BQM-155/RQ-5/MQ-5 Hunter: The BQM-155A takes off from normal runways, but booster-assisted zero-length launches are also possible. Mission radius for single vehicle flight is about 150 km, which can be extended to 300 km using a second Hunter as airborne relay. Maximum endurance is about 12 hours. The company has also developed the MQ-5B, a Hunter variant which has been further optimised for the multi-mission role. Hunter is being replaced by MQ-1C Gray Eagle.

Bat UAV: Bat is family of multi-mission UAVs that is designed

for tactical missions such as counter IED, communications relay, signals intelligence, electronic warfare which has a land and a maritime version.

General Atomics Aeronautical Systems

Gray Eagle UAV: GA-ASI's Gray Eagle extended range/multi-purpose UAV is an essential part of the US Army's aviation modernisation plan, which is an advanced derivative of the combat-proven Predator. It has an endurance of 25 hours, speeds up to 167 knots true airspeed, can operate up to 29,000 feet, and carries 488 kg of internal and external payload.

Maritime UAVs

Many type of land-based UAVs can be used in maritime role. India is already using Heron and Searcher of IAI. Elbit's Hermes 900 can also perform maritime patrol missions. Deck-based systems are based on rotary-wing. Some examples are given below.

Current Naval Rotary Unmanned Air Vehicles (NRUAVs)

IAI/Malat's NRUAV: This is an unmanned helicopter, which can be operated from the ship's deck. IAI/Malat's NRUAV system provides multi-layered ISR missions and is based on Malat-made helicopter modification suite for existing, proven, manned naval vertical take-off and landing (VTOL) platforms. It features automatic VTOL from moving naval platforms and can operate by day and night. It has an endurance of 6 hours and a ceiling of 15,000 ft. It can also provide anti-submarine intelligence and electronic warfare.

Airbus Defence and Space Tanan 300: TANAN 300 is a new-generation compact VTOL Tactical UAS for maritime and land missions. It has a range up to 100 nm (180 km) and a 50-kg payload.

Northrop Grumman's MQ-8B Fire Scout: Fire Scout VTOL tactical UAV provides exceptional situation awareness and precision targeting support for the US Navy. With a total endurance of eight plus hours, the Fire Scout can provide more than six hours time on station with a standard payload at 110 nm (200 km) from the launch site. A pair of Fire Scouts can provide continuous coverage at 110 nm. SP

(Left) Skylark I - LEX - Mini UAS from Elbit Systems; (right) IAI's Malat Naval Rotary Unmanned Air Vehicle





IAI's ELM-2083 – Aerostat Early Warning Radar

Coastal surveillance and security

Consequently, a comprehensive coastal surveillance project for coastal radar network along the Indian coastline was formulated for beefing up of coastal security, including the littoral nations such as Bangladesh and Maldives

[By **Rear Admiral Sushil Ramsay (Retd)**]

In the aftermath of Kargil operations in July 1999, a high-powered committee designated as the Group of Ministers was formed under the chairmanship of the then Home Minister L.K. Advani with the main charter of “Reforming the National Security System”. The Group of Ministers in their report commented on coastal security by stating that the concept of border security has undergone a sea change with the growing vulnerability of the coastline and also of the airspace of states and island territories.

Division of Responsibility

There is a multi-tier arrangement for maritime security, involving the Indian Navy, Indian Coast Guard (ICG) and the concerned marine police. Coastal patrolling is done by the State Marine Police

whose jurisdiction extends up to 12 nautical miles (about 22 km), ICG functions between 12 and 200 nautical miles (about 22 km to 370 km), which is the exclusive economic zone (EEZ) and the Indian Navy extends beyond 200 nautical miles. Aerial surveillance is carried out by the Indian Navy and the ICG.

Coastal Security Scheme (CSS)

To strengthen coastal security, a CSS was formulated to cover nine coastal states and four Union Territories (UTs). Phase-I of the scheme was approved in January 2005 for implementation in five years from the year 2005-06 and extended for one year till March 31, 2011. The scheme included 73 coastal police stations, 120 x 12 tonne and 84 x 5 tonne vessels, 10 rubber inflated boats especially for Goa, apart from accommodation and other administrative equipment. The scheme stands completed on March 31, 2011.

Radars have been installed at Nabhadra, Dwarka, Porbandar, Mangrol, Jafrabad, Gopnath, Hazira and the Union Territory of Daman. The main control room has been set up at Indian Coast Guard's Porbandar station. These radars would be able to detect fishing boats at a distance of 20 nautical miles and big ships as far as 50 nautical miles from the shore even in the night. Importantly, low-flying aircraft too would be within their range. The radars are equipped with an optical system, which will capture the images of the vessels at a distance of 10 nautical miles from the shore. Installation of coastal radar network is considered an important development towards securing India's coastlines.

Coastal Security Post Mumbai, 26/11

Comprehensive measures duly approved by the Cabinet Committee on Security in the aftermath of Mumbai 26/11 terrorist attack. Salient features of the scheme were:

- The Indian Navy has been made responsible for overall maritime security, which includes both coastal and offshore security duly assisted by the ICG, State Marine Police and other Central and State agencies.
- Four Joint Operation Centres (JOCs) are to be established.
- A National Command, Control, Communication and Intelligence (NC3IN) network would be established for real-time Maritime Domain Awareness.
- The Indian Navy will also control all ICG joint operations.
- A specialised force, called Sagar Prahari Bal comprising 1,000 personnel and 80 Fast Interception Crafts (FIC) of the Indian Navy will be raised.
- Force levels to be increased wherever required.
- Necessary coastal organisations for ICG will be established.
- The DG ICG is designated as the 'Commander Coastal Command' and made responsible for overall coordination.
- Setting up of Static Coastal Radar Chain and a comprehensive network chain of Automatic Identification System (AIS) stations will be established.

Consequently, a comprehensive coastal surveillance project for coastal radar network along the Indian coastline was formulated for beefing up of coastal security, including the littoral nations such as Bangladesh and Maldives. With this perspective in view a high level committee has formalised a comprehensive plan for setting up a coastal surveillance and coastal radar network all along the coastline of Indian peninsula.

The coastal surveillance scheme was conceived to operate through a chain of electro-optic sensors (radars and day and night cameras) which were to be installed on lighthouses and towers that look out at the Arabian Sea and the Bay of Bengal. The data picked up from multiple sensors all along the coast will be transmitted to surveillance centres located in the interior. The data will then be integrated through 'data fusion' techniques to give a lucid operational picture.

The entire project for coastal surveillance through radars and sensors was carried out in two phases. In Phase-1, the ICG has set up 46 electro-optic sensor stations in high-threat areas, and 12 Remote Operating Stations. This will be expanded in Phase-2 to cover the entire coastline within three years. The 12 Remote Operating Stations feed into one of four Regional Operating Centres at Mumbai, Kochi, Chennai and Visakhapatnam. Finally, all this information is fed in real time to the apex Control Centre at New Delhi, where it will be integrated to present a nationwide perspective.

Stepping up its vigil, the Coast Guard has planned to set up 16 radar networks along the Eastern coastal region for enhancing the surveillance capabilities a Coastal Surveillance Radar Network along the coastline is being established, out of which 16 are planned for the Eastern region. In a move to keep the EEZ on the Eastern

Indian coastal surveillance and IAI-Elta

The Indian Navy has acquired two airborne radars developed by Israeli IAI's Elta Systems Group to fill vital gaps in the country's coastal security system. This acquisition has facilitated surveillance through balloon-mounted air defence radars with detection range of over 500 km, including tracking of low-flying aircraft.

The Indian Navy has acquired from Israel two EL/M-2083 Aerostat air-search radars, which are already in service with the Indian Air Force. While the acquisition was on Indian Navy's shopping list for a long time, it was accelerated by the government after the Mumbai 26/11 terrorist attack.

The new radars, mounted on a hot-air balloon secured to the ground have improved the Indian Navy's ability to detect enemy aircraft by providing 3D coverage over a radius of 500 km. The biggest advantage of Aerostat radar is that it is not fixed and can be moved to any location on the basis of prevailing threat scenario. It is designed to provide flexibility in operational deployment, thus adding new dimension to the coastal surveillance.

Another system of this kind is the Tethered Aerostat Radar System. It is an early warning and control phased array radar designed to detect approaching hostile aircraft from long ranges, especially at the low altitudes. Data gathered by the radar is transmitted to a central air defence command and control centre where it is used to maintain an extended comprehensive air situation picture. Once a potential threat is detected the on-board system alerts responders in a timely manner. It is based on the EL/M-2080.

coast under continuous vigil, a major thrust has been accorded by operating nine ships and three aircraft daily. Besides, new Coast Guard stations at Krishnapatnam, Nizampatnam, Kolkata, Frazer-gunj and Gopalpur were commissioned.

Likewise, to beef up coastal surveillance and security on the West, ICG has already commissioned its coastal security network in Maharashtra at Dahanu. This was the second ICG station in Maharashtra after ICGS Murud-Janjira to have been commissioned.

Integrated Underwater Harbour Defence and Surveillance System

Kochi naval harbour has become the first in the country to get a top-notch defence system, which enables operators to foresee, and respond to, surface and subsurface threats to vital assets along the harbour and warships berthed alongside. The Integrated Underwater Harbour Defence and Surveillance System (IUHDSS), a state-of-the-art automated system capable of detecting, identifying, tracking and generating warning for surface and subsurface threats, was commissioned by Vice Admiral Sunil Lanba, Flag Officer Commanding-in-Chief of the Southern Naval Command, on July 31, 2015. The system, comprises a cluster of coastal surveillance radars, high-power underwater sensors and diver detection sonar, has been designed by IAI-Elta.

Besides Kochi, naval harbours at Mumbai, Visakhapatnam and Port Blair are also slated to be equipped with IUHDSS harbour surveillance. The multi-agency Joint Operations Centre, set up at these places to coordinate coastal security operations, will receive real-time images relayed by these sensors and the command and control of the operations launched in response to threats will vest with the coastal defence Commanders-in-Chief, Flag Officers Commanding-in-Chief of the three naval commands and the Commander-in-Chief, Andaman and Nicobar Command. SP



LT GENERAL
P.C. KATOCH (RETD)

Raisina Dialogue – New geopolitical initiative

The Raisina Dialogue 2016 held at New Delhi from March 1-3, 2016, is a new geopolitical and geo-economics initiative of the Modi Government, aimed to explore prospects and opportunities for Asian integration as well as Asia's integration with the world. Referred by some as the Indian version of the Shangri-La Dialogue, its focus was on Asia's physical, economic, digital connectivity and fostering common global spaces with an emphasis on Asia. The Raisina Dialogue, organised by the Ministry of External Affairs (MEA) in conjunction the Observer Research Foundation (ORF), It is predicated on India's vital role in the Indian Ocean region and how India along with its partners in the region and beyond can build a stable and prosperous world order. The Dialogue saw participation from some 40 countries and some 400 delegates including 120 international ones.

A host of eminent foreign speakers and panelists participated including from Afghanistan, Australia, Armenia, Bangladesh, Bhutan, Belgium, China, Cambodia, Germany, Israel, IAEA, Japan, Kenya, Malaysia, Mauritius, Morocco, Nepal, Netherlands, Pakistan, Russia, Sri Lanka, Seychelles, Singapore, Senegal, South Africa, Taiwan, Turkey, UAE, UK, USA, Uganda, Vietnam and the World Bank. It may be recalled that the emphasis for improving connectivity and opening up trade within the South Asian Association for Regional Cooperation (SAARC) was priority of Prime Minister Narendra Modi from day one but the stumbling block was always Pakistan. At the inaugural panel of the Raisina Dialogue, Minister of External Affairs Sushma Swaraj emphasised the importance of connectivity in South Asia saying it is key to not only India's development but the entire region and the Asian continent. Referring to development undertaken by India in neighbouring countries and efforts to improve connectivity, she said SAARC is still trying to live up to its vast potential in the region and that India would work for the development of the region and win over 'vested interests' – an obvious reference to Pakistan.

Significantly, former Afghan President Hamid Karzai criticised Pakistan for not cooperating with the Afghan Government despite his best efforts to convince his immediate neighbour for the need for cooperation, accusing Pakistan as the missing link while Afghanistan, Iran and India are cooperating to improve the much needed connectivity.

The Raisina Dialogue emerged as a major global forum with Asian connectivity acquiring focused salience, with new ideas and insights, challenges and opportunities discussed. This forum provided what should have been natural fallout of global acknowledgement of this

being the Asian Century. Connectivity is the backbone for ensuring the economic growth and prosperity, security and stability in Asia and beyond. The Dialogue participants agreed that the concept of connectivity should follow a consultative process that must involve all stakeholders and that connectivity must be understood in the broader sense; going beyond just physical connectivity to include coordinating financial, regulatory, legal, institutional and commercial aspects, plus people-to-people and cultural connectivity.

The Dialogue also addressed maintaining the sanctity and freedom of the global commons; from the sea lines of communication to the cyberspace. Emphasis was also laid on the need to take a comprehensive view of security, which go beyond traditional threats to include non-traditional ones, most prominent being the issue of terrorism. Interplay and competition between different connectivity initiatives, energy security, cyber threats, Internet governance, politics and economics of water in Asia, South-South Cooperation, sharing of Asian and African experiences, and development cooperation were discussed in a deliberate manner.

Significantly, External Affairs Minister Sushma Swaraj as part of her valedictory address at the Raisina Dialogue said, "I look forward to discussions on the prospects of SAARC and on creation and management of smart borders that immediately follows my intervention. The potential of both issues in helping connect peoples, goods and ideas are immense as also is their value in dealing with some of the security challenges that impede these processes. I am sure it will bring out important and valuable insights in moving forward in these areas."

The Raisina Dialogue was envisioned as a multi-stakeholder, cross-sectoral meeting involving policy and decision makers. The sour note in Raisina Dialogue 2016 was the retort by Li Zhaoxing former Chinese Foreign Minister, response to a question saying, "Your friend Dalai Lama is not head of a country. He is only a political monk trying to divide his own motherland." Considering Li was speaking in India's capital, such remark not only being undiplomatic but reeked of arrogance that has become hallmark chutzpah of many Chinese. But this is not the only such initiative that the Modi Government has undertaken. A second dialogue 'Gateway of India' Dialogue in collaboration with Mumbai-based think tank Gateway House will focus on economic diplomacy with an aim to make India a manufacturing hub. These two dialogues filling up erstwhile voids should see India on the go. **SP**

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

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President's Standards presented to 75 and 43 Armoured Regiments

Jaisalmer Military Station witnessed a historic moment recently when General Dalbir Singh, Chief of the Army Staff, on behalf of the President of India, Pranab Mukherjee, presented the 'President's Standards' to 75 Armoured Regiment and 43 Armoured Regiment. Both the Regiments conducted a mounted parade on the indigenous Arjun tanks with clockwork precision and immaculate coordination in consonance with the highest traditions of the Indian Army. To commemorate this historic event, the Chief of Army Staff also released a 'Special Cover'.

The Chief of the Army Staff said: "This veneration will add to your responsibility and certainly I believe that you all will go beyond your capabilities to execute every single task that would be assigned to your Regiments."

75 Armoured Regiment was raised in 1972 under the command of Lt Colonel Vijai Singh (later Lt General). The squadrons of 75 Armoured Regiment participated in the 1971 Indo-Pak War to include the Battle of Laungewala. 75 Armoured Regiment has a unique distinction of being the only unit of Indian Army to be raised on captured Pakistani Territory 'Sakna' (26 kilometres inside Pakistan) on March 12, 1972. The Regiment Colours are Canary Yellow over Bottle Green and the Regiment's motto is *Sahasam Vijayate* which means Courage Wins.

43 Armoured Regiment was raised in 1981 under the command of Lt Colonel B.M. Kapur (later Lt General). 43 Armoured Regiment is the first armoured Regiment to be equipped with



India's indigenous tank, MBT Arjun. The Regiment Colours are Sky Blue and Navy Blue. Sky Blue signifies limitlessness and Navy Blue signifies fearlessness. The Regiment motto is *Yudhyasva Vigatjwar* which means 'To fight with a calm and determined mind'. **SP**

Indo-Indonesia Exercise Garuda Shakti-IV

Indo-Indonesia Joint Training Exercise Garuda Shakti is conducted as part of military diplomacy between Indian and Indonesian Army alternatively in India and Indonesia respectively. The exercise is conducted on a reciprocal basis and its first edition was conducted in the year 2012 in India. The second edition was conducted in Indonesia in 2013 and third in India in 2014. The exercise is aimed at building and promoting positive relations between the two armies of India and Indonesia.

The fourth edition of the joint exercise was conducted for 13 days from March 10 to 23, 2016, at Magelang, Indonesia, in which an Indian Army platoon strength contingent carried out cross training with a platoon from the airborne battalion of the Indonesian Army. The selected Indian unit has had varied operational experience in counter-insurgency and counter-terrorist operations in the Northern, Western and Eastern theatres. The Indian contingent has been put through a rigorous training schedule to prepare it for the exercise which includes combat



PHOTOGRAPHS: PIB, Indian Army

conditioning, firing, tactical operations, tactical skills and special airborne operations training.

The exercise is conducted as joint counter-insurgency operations exercise in urban and rural scenario and encompass various facets of tactical counter-insurgency operations. The aim of the exercise is to build and promote positive relations between the armies of India and Indonesia and to enhance the ability of Indian and Indonesian Army to undertake joint tactical level operations in a counter-insurgency environment under United Nations Charter. **SP**

Launch of Yard 2097

The sixth ship of LCU MK IV project was launched on March 12 at an impressive ceremony at the Garden Reach Shipbuilders and Engineers Ltd (GRSE), Kolkata.

Rear Admiral A.K. Verma (Retd), Chairman & Managing Director, GRSE, commenced the proceedings with a formal welcome, which was followed by an address by the chief guest, Vice Admiral Bimal Kumar Verma.

Vice Admiral Verma asserted that Indian Navy has been supporting the drive for indigenous construction of warships leading to advancements of our shipbuilding industry and acknowledged the role of GRSE as a reliable partner in pursuing the national goal of 'Make in India'.

LCU L-56 is the sixth vessel of the series of eight LCU ships being designed and built by GRSE for the Indian Navy. The ship can be deployed for multi-role activities like beaching operations, humanitarian and disaster relief operations and evacuation from distant islands. The first ship of the class LCU-L51 was launched on March 12, 2014, and is presently undergoing sea trials at GRSE. The vessel is likely to be delivered shortly to the Indian Navy. **SP**

HAL exports structural assemblies of Dornier to RUAG

The Hindustan Aeronautics Limited (HAL) has handed over the first ship-set to RUAG, Germany, at a function held at its Transport Aircraft Division (TAD) at Kanpur recently, as part of export orders for structural assemblies of Do-228-212 NG (New Generation).

"We have manufactured and supplied the ship-set in a record time, ahead of schedule commitment", says T. Suvarna Raju, Chairman and Managing Director of HAL. This is the first of the four ship-sets for which HAL had received the export order only about four months ago.

RUAG is a Swiss technology company with its headquarters in Bern and it is OEM of Dornier-228-NG aircraft. HAL has manufactured these ship-sets at its Transport Aircraft Division in Kanpur and exported them to the OEM.

Volker Wallrodt, Managing Director of RUAG and his team of senior officials were present at the handing-over programme. Both Raju and Wallrodt felt that the business alliance has been rewarding for both the companies in terms of technological advancement and costs. They stressed on strengthening the ties with continued mutual support and cooperation by exploring more avenues and business opportunities in larger interests of both the companies.

HAL's Kanpur division has produced more than 120 aircraft for



the IAF, Navy, Coast Guard and to other export customers in Mauritius and Seychelles. The company has plans to upgrade these aircraft. HAL Board has sanctioned for manufacture of two civil Dornier aircraft. HAL intends to operate from its own airport at Nasik.

HAL Kanpur has received the Directorate General of Civil Aviation's approval for manufacture of Dornier Do-228 aircraft in civil role in accordance with India's Civil Aviation Requirement. HAL has achieved an important milestone by becoming a production organisation for Dornier Do-228. SP

US Air Force unveils picture of new stealth bomber



The US Air Force (USAF) recently unveiled the first ever image of its futuristic stealth bomber, the B-21, which will be the first American bomber of the 21st century.

Addressing the US Air Force Association's Air Warfare Symposium in Florida, Air Force Secretary Deborah Lee James revealed a concept of the plane known until now as the Long Range Strike Bomber (LRS-B).

"This aircraft represents the future for our airmen, and [their] voice is important to this process," James said, adding that the aircraft's final name will be announced at the conference this fall.

The designation B-21 recognises the aircraft as the military's first bomber of the 21st century, according to USAF.

No prototypes of the advanced fighter jet exist yet and the rendering is based on the initial concept of the warplane, development of which is assigned to Northrop Grumman. According to James, the bomber is supposed to allow the USAF to operate in high-end threat environment of future, giving US military the ability to launch attacks against any target around the world.

She acknowledged the striking similarities between the new aircraft and the B-2 stealth bomber, which is also made by Northrop. The new plane is designed "based on a set of requirements that allows the use of existing and mature technology," James argued. SP

Deployment of P-8I to Seychelles for EEZ surveillance

The Indian Navy has deployed a P-8I maritime reconnaissance aircraft to Seychelles since March 20, 2016, for surveillance in the exclusive economic zone (EEZ) of Seychelles, in accordance with the MoU between the Governments of India and Seychelles. The Indian Navy has, in the past, undertaken surveillance missions in the Seychellois EEZ twice a year, by deploying Indian Navy ships. The last such deployment was undertaken by ships of the 1st Training Squadron of the Indian Navy, in October 2015.

This is the first time that the P-8I aircraft has been deployed to Seychelles.

The aircraft will remain deployed till March 23, 2016. During this period, the aircraft will undertake surveillance of the Seychellois EEZ. In addition, the deployment will facilitate professional interaction between the aircrew and the Seychelles People's Defence Force. SP

Turbochrome Ltd agreement with P&W military engines

TAT Technologies Ltd (TATT), a leading provider of services and products to the commercial and military aerospace and ground defence industries recently announced that its wholly-owned subsidiary, Turbochrome Ltd has signed a 15-year agreement with Pratt & Whitney.

Under this agreement, Turbochrome would provide certain repair services to Pratt & Whitney of the F100 229 engine, parts and components on the engines installed on F-15I and F-16I aircraft operated by the Israel Air Force.

Pratt & Whitney has recently announced that as of January 1, 2016, it will provide full propulsion sustainment support, which includes material forecasting, item repair management and provisioning of operational, intermediate and depot-level spare parts for the IAF's full fleet of F100-PW-229 engines. SP

Boeing names Leanne Caret as President and CEO of Defense, Space & Security unit

The Boeing Board of Directors has elected Leanne Caret as President and Chief Executive Officer of the company's Defense, Space & Security business effective March 1, 2016. She will succeed Chris Chadwick, who has announced his retirement from the company.

Caret, 49, a 28-year company veteran, currently leads that unit's Global Services & Support business, which has approximately 13,000 employees in 295 locations around the world. With \$9 billion in revenues, it is the US Department of Defense's largest performance-based logistics contractor and an industry leader in providing sustainment services for a diverse range of military products and systems.

"Leanne has a track record of delivering results, an intense customer focus, and the global acumen necessary to build on the existing strengths of our defence, space and security business and grow it for the future," said Boeing Chairman, President and CEO Dennis Muilenburg. "She also is an experienced and inspirational leader who understands all aspects of our business, operates with a One Boeing perspective and has the trust and respect of our employees and our external stakeholders."

Chadwick, 55, retires this spring after a 34-year career that included a range of senior executive roles. He has led the \$30-billion Defense, Space & Security unit since December 2013, after previously leading its Military Aircraft business, which is home to the organisation's tactical aircraft, rotorcraft, and weapons programmes, among others.



"We thank Chris for the dedication and commitment to Boeing that underpinned the extensive contributions he made to this company throughout his career," Muilenburg said. "His leadership and strategic focus during a challenging time in our markets has prepared us to move forward with confidence and improved competitiveness."

Ed Dolanski, 48, will succeed Caret as President of Global Services & Support. Dolanski is currently President and Chief Executive Officer of Boeing subsidiary Aviall, the largest provider of new aviation parts and aftermarket supply-chain management services for the aerospace and defence industries.

In addition to becoming CEO of the Defense, Space & Security organisation, Caret also becomes a Boeing Executive Vice President and joins the company's executive council.

Caret's Boeing career began in 1988. Before leading the services and support organisation she was Chief Financial Officer for the Defense, Space and Security unit and, before that, Vice President and General Manager of its rotorcraft programmes.

She holds a bachelor of science degree in business administration from Kansas State University and a master of business administration degree from Wichita State University. She also earned certifications from Harvard University in the Program for Leadership Development and the International Security Defense Program, and completed the Integral Leadership Program at the University of Notre Dame. **SP**

HAL and PHL to establish helicopter MRO at Delhi

The Hindustan Aeronautics Limited (HAL) and Pawan Hans Ltd (PHL) signed an MoU to establish a joint venture at Rohini in Delhi to carry out the maintenance work related to all types of helicopters and address the needs of defence and civil markets in India and other countries.

P. Ashok Gajapati Raju, the Union Minister for Civil Aviation, Rajiv Nayan Choubey, Secretary, Ministry of Civil Aviation, T. Suvarna Raju, Chairman and Managing Director of HAL, Dr B.P. Sharma, CMD of PHL and other senior officials were present on the occasion.

According to Raju, both the companies will form a joint working team and conduct detailed studies, work on business plan, time line and other required documents for the success of the venture. HAL has been manufacturing and overhauling its Cheetah/Chetak and Dhruv helicopters besides providing support for Seaking helicopter. The PHL is the largest civil helicopter operator in the country.

Helicopter business of HAL presently contributes to sizeable business of HAL. In years to come, this business segment will grow fast. The fleet size of helicopters in civil segment in India is expected to go up to 800 in the next 10 years. In addition, there is expected induction of 600 helicopters in defence. **SP**

Defence System Integration Complex

The Bharat Electronics Ltd (BEL) is planning to establish a Defence Systems Integration Complex in Andhra Pradesh. Foundation stone for the 360-hectre complex at Palasamudram in Anantapur district was laid late last year. This new missile systems integration complex for BEL will further strengthen the defence capabilities in the country and enable manufacturing, integration and testing of ongoing and upcoming projects in the area of surface-to-air missile systems.

BEL has taken various initiatives to enhance procurement from MSMEs (micro, small and medium enterprises) towards achieving the goals of 'Make in India' policy. BEL has also identified MSMEs (technology partners) and will be working with them in collaborative R&D mode based on their capabilities and BEL's requirements in future.

BEL's unit at Machilipatnam, Krishna district in Andhra Pradesh, has been sourcing items required for the manufacture of electro-optic products from MSMEs of Andhra Pradesh state. Further, some of the components, subsystems, mechanical parts required for setting up of the missile integration complex at Palasamudram will be sourced from private vendors/SMEs of Andhra Pradesh. **SP**

Pope Francis loses temper after almost being pulled over by crowd

Pope Francis lost his temper in Mexico after a person pulled him so hard he fell onto a child in a wheelchair. Video footage shows the Pope stopping to greet children at the edge of a crowd in Morelia's Jose Maria Pavon Stadium, where he delivered a speech to thousands of young people.

At this point, two arms reached out to grab him, not letting go even as he lost his balance and was pushed onto the child.

Aides and security men stopped the Pope from falling to the ground, and he appeared angry, raising his voice and telling the unseen person, twice in Spanish, "Don't be selfish!"

The Pope on his six-day trip to Mexico paid tribute to the indigenous people of the country, telling them their land had been stolen. **SP**



US citizen arrested for photographing Khajuraho with drone

An American citizen was caught photographing the Khajuraho temples, the UNESCO World Heritage Site in Madhya Pradesh, using a drone camera, Archaeological Survey of India (ASI) officials said.

Gopal Krishen Sharma, junior conservation assistant at ASI sub-circle in Khajuraho, said a man was flying a drone from the rooftop of a hotel in front of the western group of the Khajuraho temples without any permission. We immediately rushed to the hotel, caught the foreigner and seized his drone and its remote. We handed him over to the local police. Sharma said his documents showed he was from the US and had come to Khajuraho recently.

His name is Derek Bessimier according to his visa. When questioned the American said he was not aware that drone photography was not allowed there. He also said there were no signboards anywhere which said it was prohibited in the area. Khajuraho police station in-charge K.G. Shukla said as the US citizen was not aware of the prohibition and it was a not a serious criminal act and they won't lodge any case against him.

In October 2014, the Director General of Civil Aviation (DGCA) also had issued a public notice banning flying drones in Indian airspace till further notice. It had cited 'security threats' as the reason for the ban.

In February this year, a Polish and an Italian were caught using a drone for aerial photography at the world heritage site. "We stopped them before they could do much. After scanning their documents and deleting all the contents of their cameras, they were let go," Sharma said.

In February 2012, after a motor glider flew over the no-flying zone over Khajuraho temples, ASI officials filed a complaint with the local police against the violator. The motor glider was taking part in an adventure sports programme being held at the nearby Beni Sagar dam. **SP**

60 suspicious flying objects sighted at IGIA in three months

The Delhi International Airport witnessed over 60 unidentified objects in its airspace in three months from October last year. The Central Industrial Security Force (CISF) Director General Surender Singh, during an annual interaction with journalists, said a total of 62 such incidents have been reported from October 27 last year till today.

"These objects, however, like toy balloons, kites, Chinese balloons among others. It is very difficult to make out (about the kind of the flying objects with naked eyes)," Singh said. The DG said the government will soon come out with 'operational guidelines' to tackle such cases after a similar incident was reported late last year when a suspected drone-like object was spotted near the Indira Gandhi International Airport (IGIA) runway.

"This is a general problem which is not only at the airport. There are other sensitive installations too (near the airport area). Soon guidelines will be out determining the responsibility of each agency in such cases," the CISF boss said. While CISF is the overall in-charge for airport security in the country, it is assisted by local police and the Indian Air Force, more proactively at sensitive facilities like IGIA.

Officials said new guidelines or standard operating procedures (SOPs) for all airports are required while dealing with such potential threats as there are multiple stakeholders in civil aviation security and hence, a clear chain of command and task is required to thwart a possible aerial attack by using these gadgets. The CISF boss was also asked about the menace of hoax calls received at airports. The DG said while 44 such calls were received last year at across various airports the force is deployed at, 16 such calls have been made till now this year. "These instances are considerable...but we take them all very seriously. We assume them to be genuine and all the procedures are undertaken to check them," he said. The DG said that the idea of a much talked about proposal to deploy CISF men on-board Indian merchant vessels to protect them in pirate-infested waters has been 'shelved'. **SP**



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



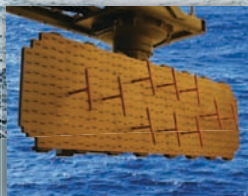
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