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Following are the key developments from the Defense space that we track for the week of 26 December, 2016 to 2 January, 2017.

Political Developments:

- Draft proposal boosts India's chances for entry into NSG

Industry & Other Developments:

- India 2nd largest arms purchaser in the world after Saudi Arabia: Report
- India Clears First Payment for Rafale Fighter Jets to France
- Russian Helicopters to Build Ka-226T at 2nd Plant to Speed Up Delivery to India
- U.S. to send 2 M-777 Howitzers for tests in India
- India likely to unveil advanced version of Tejas Combat Aircraft in 2019
- Boeing's Super Hornet manufacture hits export hurdle
- 'Offender' Rheinmetall seeks to go off blacklist

Upcoming Defense Bids & Emerging Opportunities:

- Bids invited for Active Electronically Scanned Array (AESA) radars
- RFI to purchase 15,000 NVDs for rocket launchers, 5,000 NVDs for medium machine guns, over 125,000 for other small handheld arm
- Quotes requested from 7 global payers for electronic warfare (EW) self-protection suites

Political Developments:

■ Draft proposal boosts India's chances for entry into NSG

Draft proposal for accepting new members into Nuclear Suppliers Group (NSG) may boost India's chances, which requires Pakistan to take additional steps to engage in civil nuclear trade with other 48 member states. As per draft policy, circulated by India's point person, former NSG chairman Rafael Mariano Grossi, at group's meeting in Vienna last month, India's commitments on non-proliferation to NSG in 2008 that won it an exemption for civil nuclear trade will suffice for its entry in to the group. India got an unconditional waiver from NSG in 2008. India is seeking NSG membership on grounds that it is already doing business with the members of the group and that it has an impeccable non-proliferation record. *(Source)*

Industry & Other Developments:

■ India 2nd largest arms purchaser in the world after Saudi Arabia: Report

As per the latest report 'Conventional Arms Transfers to Developing Nations 2008-2015' released by Congressional Research Service (CRS) released, India emerged as the second largest purchaser of arms among developing nations after Saudi Arabia.

Between 2008-2015 India purchased defence equipment worth \$ 34bn (in current dollars), distant second after Saudi Arabia's \$ 93.5bn. CRS highlights recent Indian efforts to diversify its procurement of arms, of which the US has been a major beneficiary.

■ India Clears First Payment for Rafale Fighter Jets to France

India has cleared its first tranche of 15% payment to French govt. towards 36 Rafale Combat Aircraft deal. Considering Indian government's speedier delivery request, Dassault has already started the works (first delivery expected in early 2019). The delivery for this project is led by Dassault led JV, where it would design, integrate and market the combat and civil aircraft, whereas other JV partners, Safran and Thales would be doing engines and electronic systems and suites. Notably, the other 2 JV partners have higher proportion in this JV. *(Source)*

■ Russian Helicopters to Build Ka-226T at 2nd Plant to Speed Up Delivery to India

As per a press release, Russian Helicopters company will launch the 2nd production site for Ka-226T helicopters at its Ulan-Ude Aviation Plant to accelerate the assembly and delivery of the choppers to India. The Kumertau Aviation Production Enterprise will work with Ulan-Ude plant on filling India's order as well as continue full assembly of the helicopter for domestic clients. Russia & India signed a joint Ka-226T helicopter manufacturing agreement at the Oct, 2015-16 Goa summit.

■ U.S. to send 2 M-777 Howitzers for tests in India

2 of the Ultra-light howitzers India contracted from U.S. last month will be delivered to Army within 6 months. In Nov-2016, India signed Letter of Acceptance (LoA) with U.S. government under Foreign Military Sales (FMS) program for 145 BAE Systems-built M-777A2 artillery guns in \$ 737mn deal. 2 guns will be delivered to the Army within 6 months of signing of the LoA for preparing the range tables and calibration. A senior officer explained that range tables were required when integrating local ammunition in use by Army with the gun and calibrating it against a whole lot of variables such as weather and temperature.

As per the schedule, first lot of deliveries will begin 21 months after initial payment which, defence officials say, will be done about 5 weeks from signing of LoA. Of the 145 guns, 25 will be imported and remaining 120 would be assembled in India. BAE Systems expects to sign an agreement with the U.S. Department of Defence soon to execute the contract.

■ India likely to unveil advanced version of Tejas Combat Aircraft in 2019

The first Prototype of India's Light Combat Aircraft (LCA), Tejas Mk2 version is slated for built during 2018-19, while series production(s) are planned for inducting to fleet which is stated to be taken up in 2 phases commencing from 2020 onwards. This project to design and develop TEJAS Mk2 was sanctioned in Nov-2009 at cost of \$ 370mn. It was thought that MK2 project may not succeed but recent Request for Proposals (RFP) indicate that manufacturer may be simultaneously working on MK-1A and MK-2 versions. Indian aircraft manufacturer Hindustan Aeronautics Limited (HAL) has floated a tender for the supply of valves and wheel

tires for TEJAS MK2. The open tender is for domestic as well as global manufacturers. TEJAS MK2 aims to have home-developed Active Electrically Scanned Array (AESA) radars, unified EW suites, on board oxygen generation systems and upgraded avionics.

Our View:

In Jul-2016, the indigenously developed light combat aircraft, Tejas, was inducted into Indian Air Force (IAF). Aircraft's cockpit's Head-up Display (HUD), vital equipment for pilots, was designed & developed by Central Scientific Instruments Organisation (CSIO). This technology after flight verification has been transferred to BEL for commercial production. We expect awarding to BEL to be seen in the long-run.

So far BEL has manufactured 68 HUD units. Another 100 units order is expected from Hindustan Aeronautics Limited (which manufactures Tejas).

■ **Boeing's Super Hornet manufacture hits export hurdle**

Boeing's decision to manufacture advanced medium combat aircraft, Super Hornet in India, has run into a fresh hurdle with issues over their export. Michael Koch, Boeing's President for Defence, Space and Security in India, told that they are committed to produce Super Hornets in India. The Super Hornets will be built in India in a world class advanced manufacturing facility with very latest technologies in place, perfectly positioning India to build its Advanced Medium Combat Aircraft (AMCA). Sources in Defence Ministry said the issue of exporting fighter jets manufactured here remains key question which needs to be answered for the project to take off. The official added that if there are plans of shipping these planes, there will be riders coming along with it because India cannot have these jets to be shipped to the "enemy countries".

■ **Offender' Rheinmetall seeks to go off blacklist**

In a first test of new blacklisting policy of the government for arms firms indulging in unethical practices, banned conglomerate Rheinmetall has written to Defence Ministry, asking to be taken off the banned list as it wants to participate in PM Narendra Modi's Make in India initiative. Rheinmetall, a military technology group headquartered in Dusseldorf, is specially complicated as the company has already been charged for hiring a middleman in an attempt to get off a defence ministry banned list in 2012.

Request of the German company is likely to be considered by the ministry under a new policy that has reduced the period of blacklisting from 10 years to 5, while retaining the flexibility to take any action as decided by the defence minister. Business with Rheinmetall was first put on hold after it was charged by the CBI in a 2009 case for allegedly paying bribes to bag an order for 35 mm Revolver Air Defence Guns from the Ordnance Factory Board (OFB).

Upcoming Defense Bids:

■ **Bids invited for Active Electronically Scanned Array (AESA) radars**

Under Ministry of Defense's directions, India's sole combat aircraft manufacturer, Hindustan Aeronautics Ltd. (HAL), released global Requests for Quotations (RFQ) for procurement of state-of-the-art electronically scanned array radars and electronic warfare self-protection jammer pods for forthcoming modified version of the indigenously developed Light Combat Aircraft Mark-1A aircraft.

Under fast-track program, ~100 Active Electronically Scanned Array (AESA) radars will be bought at cost of \$1.85bn, and bids have been issued to Elta(Israel), Raytheon and Northrop Grumman (US), SAAB (Sweden), Thales (France) and Rosoboronoexport(Russia).

In addition, 100 electronic-warfare jammer pods will be procured from overseas at cost of \$200mn, and bids have been sent to Elta, Raytheon, Northrop Grumman, SAAB, Thales, Rosoboronoexport, Indra (Spain) and Leonardo-subsiidiary Finmeccanica (Italy).

All global bids will be asked to submit price quotations before Feb. 15, and the final selection of 2 systems will be made before April, 2017.

■ **RFI to purchase 15,000 night vision devices (NVDs) for rocket launchers, 5,000 NVDs for medium machine guns, over 125,000 for other small handheld arm**

Indian Army plans to soon place Request for Information (RFI) for the purchase of 15,000 night vision devices (NVDs) for rocket launchers, 5,000 NVDs for medium machine guns and more than 125,000 for other small handheld arms. Indian Army is expected to spend approx. \$3.2bn for the purchases.

In the early part of Dec-2016, Indian Army had already invited global bids for NVDs for long range LMGs and 1,400 Uncooled Thermal Imager based Driver's Night Sight (DNS) with fusion technology for Russian-origin T-90 tanks. Army requires range of detection of human target at minimum 1,000m.

These recently floated RFIs are being considered as highly ambitious, as this technology is not available in India. Ordnance Factory Board (OFB) claims to manufacture Image Intensification night sights for LMGs, whereas Indian Army is seeking thermal image based technology. RFI's clearly tell that DNS as form-fit replacement for existing Image Intensifier Sights currently used in the T-90 tanks. Defense experts point out that, possibly the RFI is over optimistic and at the RFP stage some changes with downward range could be made.

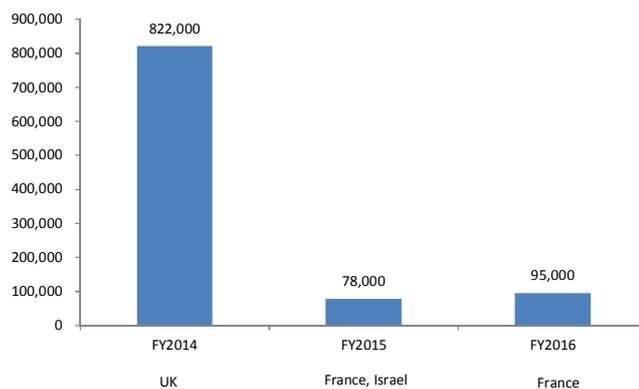
Market Opportunity: In Nov-2016, Indian government approved the army to purchase 464 T-90 main battle tanks from Russia at cost of over \$2.1bn. The T-90 is the premier battle tank of the Indian Army, which plans to have over 2,000 of these by 2020. The tanks will mostly be manufactured at India's OFB, which also produces other Russian tanks like, T-72. The T-90, is currently the most modern tank in the Russian Ground Forces, and will replace Indian Army's ageing fleet of T-72s.

■ **Quotes requested from 7 payers for Electronic Warfare (EW) self-protection suites**

Bids have been invited from 7 Global players, Elbit Systems and Elta Systems (both Israel), Saab (Sweden), Thales (France), Elettronica.p.a (Italy), Raytheon (US) and Indra Systems (Spain). This is after India asked the Russian vendor (Rosoboronexport) to quote for AESA radars but overlooked it while asking for participation in the tender for EW self-protection jammer pods. Value of EW systems tender is worth \$200 mn and the bid winner would be selected by April-2017.

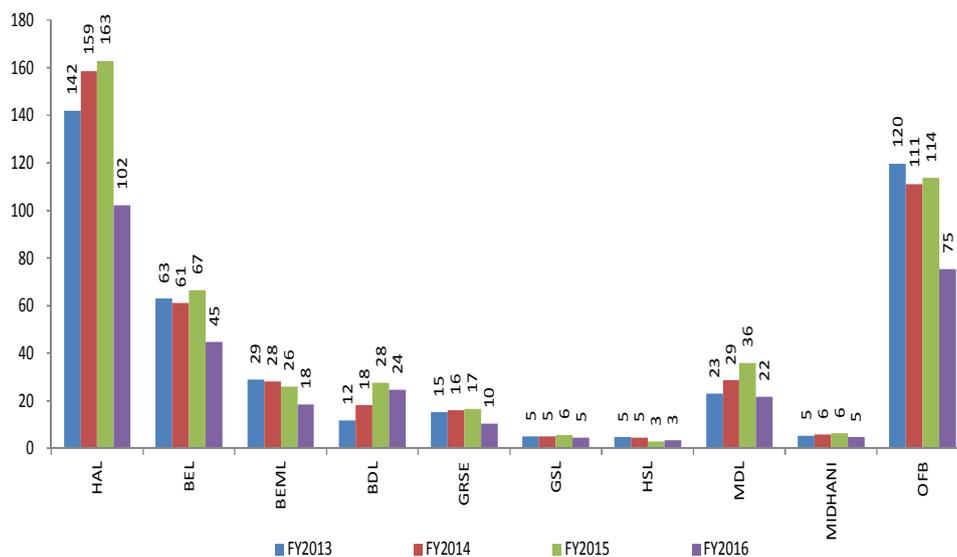
Hindustan Aeronautics Limited (HAL), the designated local assembler of Tejas, will purchase a total of 83 EW suites for series production that is expected to start from 2019. The tender has strict conditions for transfer of technology and local manufacturing. India has also sought exclusive worldwide sales and product support rights for the LCA MK1A aircraft or its variants fitted with the EW suite. It will also have the right to use the suite or its adapted versions on any other airborne platform designed or produced by HAL for use by Indian defense customers.

FDI flow in Defense (in \$)



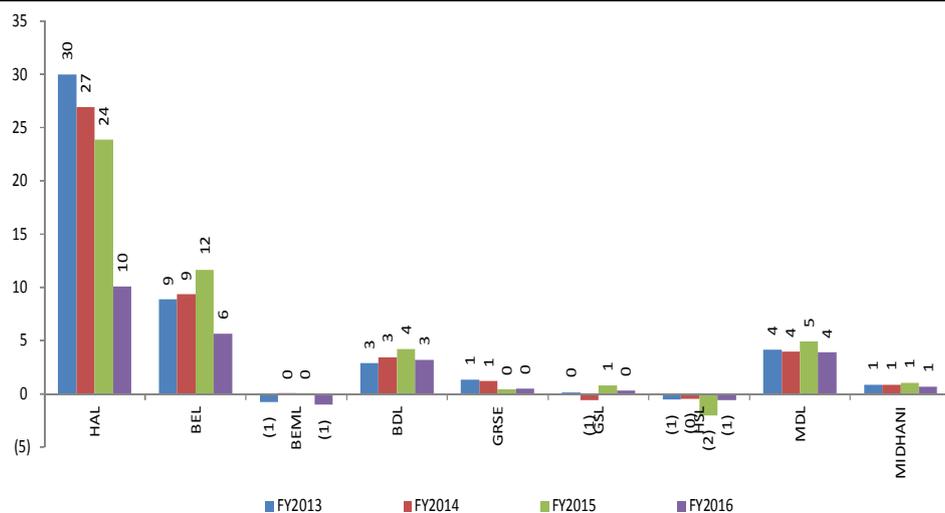
Source: IndiaNivesh Research, MOD

DPSU's - Value of Production (Rs bn)



Source: IndiaNivesh Research

DPSU's - PAT (Rs bn)



Source: IndiaNivesh Research

Benefits of Off-set Clauses likely to flow from FY2017E onwards

Sl.No.	Project Details	Country	Off-set Clause
1	Rafale Deal (deal value- Rs 600bn)	France	50% offset clause to be implemented (value at Rs 300bn)
2	145 M777 Howitzer Guns (deal value- Rs 50bn)	USA	To the extent of \$200mn (i.e. at ~Rs 14bn)

Source: IndiaNivesh Research

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