

# समाचार पत्रों से चयित अंश Newspapers Clippings

दैनिक सामयिक अभिज्ञता सेवा

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## **Exporting missiles**

Defence Minister Manohar Parrikar's announcement that India is willing to export missiles is a radical departure from its long-held defence policy. This change is expected to receive sharp international reaction. In fact, India's Agni missile programme was subjected to international sanctions. India embarked upon Integrated Guided Missile Development Programme as part of its policy of Minimum Credible Nuclear Deterrence. India always used this missile development programme as only a self-defence mechanism.

India has twice tested its nuclear strike capability. But it has imposed a self-restraint by adhering to the 'Nuclear No First Use' principle. However, the nuclear policy doctrine envisages minimum nuclear deterrence to thwart any possible misadventure against India. The acquisition of nuclear capable missiles that can carry nuclear war heads is thus a part of the nuclear deterrence doctrine.

Moving far away from this national consensus-driven policy, now the Defence Minister hints at missile exports, raising several concerns. The United States imposed sanctions on India and Russia when the two nations agreed to share Cryogenic technology used in our space programme. The sanctions were imposed under Missile Technology Control Regime (MTCR) to which India is not even a signatory. The international community may not take the policy change favourably. Perhaps, the government might be emboldened by the strategic shift in its foreign and defence policy toward the United States.

A surge in its defence exports was recorded in nine months to end-2015, with the net value touching almost \$210 million (Rs 1,400 crore). The major destinations for defence exports from India include Afghanistan, Algeria, Belgium, Ecuador, Indonesia, Israel, Myanmar, Nepal, Oman, Romania, Russia, South Korea, Sudan, Vietnam and the UK.

Among the major items being exported are offshore patrol vessels, spares for radars, Cheetal helicopters, turbo chargers and batteries, electronic systems, light engineering mechanical parts and personal protective items, which comprise articles like helmets, bulletproof jackets and other types of clothing. Such defence exports bring India valuable foreign exchange without any implications for its foreign or defence policy.

But, the same is not true with export of missile technology. India already has the experience of facing sanctions on its Agni programme, too. The proliferation of missile technology is seriously viewed by world powers. Besides, it has implications for India's national security, too. What is the guarantee that missiles exported by India do not ultimately land in the hands of nations or non-state actors hostile to India. India's decision to export missiles has the potential to trigger dangerous missile race in the fragile South Asian region, having grave implications for our national security.

India has been fighting against proliferation of nuclear arms. It refused to sign discriminatory treaties on proliferation of nuclear and missile technologies. But, missile exports would raise questions on India's principal position. Foreign and defence policies, especially nuclear and missile policies, cannot be the prerogative of any particular party or any government of the day. National consensus should drive any change in strategic policies.

## **Parrikar seeks to woo global investors with new DPP**

After the thumbs up from India Inc to the Defence Procurement Procedure (DPP), Defence Minister Manohar Parrikar today sought to woo global investors, saying the newly unveiled policy provides a level-playing field for all stakeholders.

“The DPP has raised expectations. I only consider it to be a level-playing field and nothing beyond that. Many of the ideas which could have been executed could not be done so because of the earlier DPP,” he said at a Global Investors' Summit organised here by ASSOCHAM on the sidelines of the ongoing Defence Expo at Betul-Naqueri in south Goa.

The minister told the delegates that the new DPP removes several “shackles” and frees the department from procedural tangles. “The DPP saw around 3,000-4,000 hours of work, which includes reading, rereading,” said Parrikar. The Defence Minister had unveiled the new DPP on the first day of the Defence Expo yesterday and its text is now available online.

The minister said, “DPP is just a warm up, the final game is yet to begin. Through DPP 2016, we have attempted a good draft. Neither do I claim that we are experts in everything, nor is it that everything we work out is perfect.” He told the industry players that their suggestions and recommendations are welcome. “May be after six months, we will see how the new DPP functions.” Parrikar said, “In the absence of new DPP, whatever is in progress is generally under the old DPP.

We have tried to make mini modifications, we have tried to work out solutions to solve the bottleneck. We are for the first time analysing the status of various AONs (Acceptance of Necessity) granted.”

## **Defence Minister Takes Potshots at UPA - DPSUs Won't be Divested, Says Parrikar**

*Defence Minister says over 300 contracts were pending when he took over, the buck now stops with him*

Taking potshots at the UPA, Defence Minister Manohar Parrikar said that the earlier regime would shrug responsibility for key decisions on the armed forces but he is fully in control and now, the “buck stops here“. He also said more than 300 contracts were pending when he took over and an exercise has been carried out to prune the list.

“The confidence that the buck stops here and the final decision is mine and I take responsibility for the decision is probably what was lacking in the earlier regime, today that aspect has been made clear,” Parrikar said, referring to the slow decision making and stalling of modernization projects by the previous government.

Parrikar said that the bureaucracy earlier was hesitant to take any decisions on key matters due to the looming threat of inquiries or questions and stuck to a very bookish line on important matters. Saying that he has taken full responsibility for all decisions, Parrikar said that the change of approach has now created ‘some trust’ within the system.

The minister also said that when he took over charge in 2014, the ministry was clogged with over 300 contracts pending, some of them for over 10 years as the decision making process was not smooth. “The day I took over, there were 326 AONs (acceptance of necessity) the first step on

procurements) worth about 5.09 lakh crore that were pending. Out of which 8 were more than 10 years old' the minister said.

Parrikar shared that several of these contracts had hit a dead end and 'almost 77 were more than five years old. "Some were derailed due to repeated failure of tenders, other because technology has changed," he said, adding that an exercise is underway to prune this list and prioritize only essential items. "We will eliminate items that are out of date or for which the technology is no longer valid. This process is happening probably for the first time," he said. On suggestions that DPSUs should be divested, Parrikar indicated that he ministry is strongly against the move, saying that government run companies are essential to meet the requirements of the armed forces.

"The requirements of the services force us to build capability for certain products the demand for which is not constant. It is only the government that can afford to sustain such facilities on ce created as a requirement may come once every few years. The private sector cannot do this," he said.

*The Indian Express*  
30 Mar, 2016

## **DefExpo 2016: Manohar Parrikar rules out 100% privatisation in defence production**

*However Manohar Parrikar said that he does understand the needs of the private sector and the problems faced by them from government agencies*

On the second day of the DefExpo in Quepem, Goa, Union Minister of Defence Manohar Parrikar argued that it is not able to completely do away with the Ordnance Factory Board (OFB), divest or privatise ordinance manufacturing completely.

"Armed forces are last option for unprecedented eventuality and not used on regular basis. For instance, certain anti-tank missiles and bullets we use once in two years or three, if I give order to private players the moment I cease to give order, he will close down. Only government can afford to maintain (Idol infrastructure) and sustain such kind of capacities for number of years, speculating future requirement. Therefore, its not possible that 100 percent privatization of OFB can be put up in the sector," he said.

However, Parrikar said that he does understand the needs of the private sector and the problems faced by them from government agencies.

"Everywhere, they (PSU's) want tendering, and procedure which is not required in private sector. This is why small units are faster and more innovation takes place, unlike big private companies which are as bureaucratic as government bodies. DPP has tried to address the suggestions keeping in mind the SME's and remove bottlenecks," he said.

At the same time batting for private investment, Reliance ADAG Chairman Anil Ambani, while hailing the Defence Procurement Policy (DPP) for bringing much-needed reforms, insisted that MOD brings clarity so that private players can make long-term plans in Defence production. According to him, the government must include private investors in large defence deals instead of restricting them to micro projects.

"Private sector must be given more opportunities in the future, especially on the role of contracts under Inter Governmental Agreement (IGA) and Foreign Military Sales (FMS) so we could plans our investments better," he said.

In certain cases, he said that the private sectors are being kept away from the large scale manufacturers including the PSUs from major defence deals stating lack of experience. “It is vested interest laid to kill competition,” he said while invoking the legacy of Dhirubhai Ambani.

“He was not a chemical engineer nor technologist not had anything to do with oil sector sector, yet he created world’s largest oil and gas company. There would have been no ‘Reliance’ if experience was the sole yard stick. It’s not just the story of one company including some examples that can be even cited now,” he said.

According to him, he said the Public Sector Undertakings (PSUs) must be encouraged to partner with private players or in joint ventures with foreign players. He insisted that the Ministry of Defence (MOD) must not lay over-emphasis on experience but instead give opportunities to newcomers.

*The Hindustan Times*  
30 Mar, 2016

## **64,000-crore submarine project creates big buzz**

Quepem (Goa): A Rs 64,000-crore project to build high-tech submarines in the country has created a buzz at a military systems’ exhibition here, with foreign manufacturers eyeing alliances with domestic shipyards in hopes of kicking off one of the costliest projects under the Make in India programme.

Six advanced submarines will be built under project P-75I to scale up the Navy’s undersea warfare capabilities and counter the swift expansion of China’s submarine fleet.

Russia, one of the competitors for the project, on Tuesday said it had begun its homework on the project aimed at building a second line of submarines in India.

“Negotiations are on... we are working on different proposals. We are open to cooperating with both public and private and private sector yards Pipavav and Larsen & Toubro.

German conglomerate Thyssenkrupp Marine Systems has offered India its HDW Class 214 submarine. “It’s a very significant project for us. The Class 214 is a proven platform and we are ready to transfer critical technology on which we have spent a lot of money,” Thyssenkrupp managing director Gurnad Singh Sodhi said at DefExpo-2016.

Foreign vendors are waiting for the defence ministry to release its policy on “strategic partners” to allow joint ventures with local firms for building warplanes, advanced submarines and helicopters.

The new submarines will have the capability to operate underwater for several weeks with air-independent propulsion systems, greater strike power against land targets and improved stealth features that make them harder to detect.

## **Denel Eyes a Comeback**

South African arms manufacturer Denel, which faced a CBI probe for alleged kickbacks, is seeking to stage a comeback in the Indian defence market.

Denel is taking part in India's leading military systems' exhibition for the first time after the probe in 2005 for alleged kickbacks for the supply of bunker buster anti-material rifles. The CBI filed a closure report in 2013 as the charges could not be proved. Denel was blacklisted by the defence sector yards under the Make in India plan," said Vladimir Drozhzhov, who heads military technical cooperation for Rostec Corporation. ministry and the ban was lifted two years ago.

"We are back in business and are looking at tapping the potential of the Make in India plan. India is a huge market and there's lots of space to fill," said Vuyelwa Qinga who heads communications for the Denel group.

The products displayed by the firm include the NTW 20 anti-material rifles, GI-30 externally powered canon, Hungwe II unmanned aerial vehicle, GA-1 20 mm canon and PAW 20 assault weapon.

Five Indian shipyards shortlisted by a top government committee for the project are Mazagon Dock Limited, Hindustan Shipyard Limited, Cochin Shipyard Limited.

*Business Standard*  
30 Mar, 2016

## **IDDM will be a game changer in defence production: Study**

The Indigenously Designed Developed and Manufactured (IDDM) category is expected to bring significant investments in R&D and will ensure the scientific talent in India is engaged in cutting-edge technologies in defence, a PwC-ASSOCHAM report said.

According to the report titled 'Make in India: Achieving self-reliance in defence production', foreign OEMs (Original Equipment Manufacturers) have also welcomed the change but with some suggestions.

They feel this category will have implementation issues as OEMs have moved away from manufacturing systems and components in their factories.

OEMs rely on a global supply chain and have limited influence in mandating suppliers to localise in a given country unless economics and technical capability justify the investment.

"While the industry is upbeat about the IDDM category, some OEMs are apprehensive about achieving the indigenous content of 60 per cent," Dhiraj Mathur, Partner, Leader Aerospace and Defence, PwC India, said.

Defence Minister Manohar Parrikar has however said there should be indigenous content of 40 per cent.

According to the report released at the Defexpo here, the industry also welcomes the proposal to identify select Indian private sector defence manufacturers as strategic partners.

These companies would play central roles in developing complex and strategic systems within the country, or receive technology transferred from foreign suppliers in large defence contracts, it said.

While the government has taken several policy initiatives to lower entry barriers and improve ease of doing business, there is a need to also focus on improving infrastructure to create aerospace and defence hubs, it added.

As per the report, creating clusters is particularly relevant for MSMEs (Micro Small and Medium Enterprises), who supply components and sub-assemblies to the defence PSUs, ordnance factories, DRDO (Defence Research and Development Organisation) and private players.

The palpable change in the government's mindset regarding private players as equal partners rather than competitors to defence PSUs was also highlighted in the report.

It also laid down measures such as aligning tax policies to create synergies. Treatment of private sector as equal partners have the potential to further boost industry sentiment, it noted.

*Business Standard*  
30 Mar, 2016

## **OIS Advanced Technology and SAMP Announce Joint Venture for Manufacturing and R & Din India**

OIS Advanced Technology (OIS-AT) and SAMP of France have entered into a Joint Venture agreement where OIS-AT and SAMP have agreed to manufacture proven, advanced Penetrator Bombs in India, and to conduct research and development for India's customized requirements. This will utilize advanced technology from SAMP, which is a proven supplier in this field.

"We are pleased that SAMP has agreed to support establishing a joint venture with OIS-AT to manufacturing, and research and develop a portfolio of advanced penetrator bombs in India. We believe that these also directly support and advance the Government of India's Make In India program", said Sanjay Bhandari, Chairman and Managing Director of OIS Advanced Technology.

"We are pleased with our Joint Venture relationship with OIS-AT to establish an advanced penetrator bomb manufacturing facility, and to establish a research and development facility for customized local requirements. We will provide the necessary technology transfer to OIS-AT and the Joint Venture to develop and manufacture a range of penetrator bombs for Indian requirements to serve the requirements of the Indian military", said Christian Martin CEO of SAMP (France).

Penetrator bombs are specialized weapons use with precision by Air Forces to be able to penetrate hardened enclosures. When coupled with a precision guidance kit, and advanced weapon release technologies, it becomes an effective, and relatively low cost precision weapon for an Air Force to complete missions by limiting collateral damage. In addition, this agreement with SAMP will also lead to the transfer of technology and the manufacturing in India of general purpose bombs of a new type.

*Business Standard*  
30 Mar, 2016

## **Ashok Leyland bags Rs 800 crore order from armed forces**

**The company will supply field artillery tractor, super Stallion vehicles and ambulance**

Ashok Leyland has won orders worth Rs 800 crore from the Indian armed forces. The company will supply field artillery tractor, super stallion vehicles and ambulance. In a press release, Ashok Leyland said the company will supply advanced technology products, 450 units of field artillery tractor 6x6 and other similar super stallion vehicles and 825 units of ambulance 4x4.

Vinod K. Dasari, managing director, Ashok Leyland said that the orders for Field Artillery Tractor (FAT) 6x6 and Ambulance 4x4 are in keeping with the momentum witnessed recently in the area of upgradation of technology and resources by the defence forces.

“It also reaffirms our Company’s credentials as the largest defence mobility manufacturer that meets stringent requirements of the armed forces. We, at Ashok Leyland through the ‘Make in India’ initiative stand committed to partner India's Armed Forces in their endeavor to modernise, scale up performance and increase effectiveness,” said Dasari.

A Field Artillery Tractor (FAT) 6x6 on Super Stallion platform will function as a Common Gun Tower for all artillery guns. This versatile FAT provides the Army unprecedented flexibility in rapid deployment and utilisation of artillery resources. The vehicle can be used for a variety of applications across logistics and tactical segments.

The air-conditioned Ambulance 4x4 will provide enhanced medical support in the immediate aftermath of injuries. A double-walled insulated body maintains inside temperature, while rear air suspension reduces shocks during transportation. All equipment meets Advanced Life Support standards.

*The Times of India*  
30 Mar, 2016

## **Rel Def to join hands with Rafael to build missiles**

Reliance Defence, an arm of Anil Ambani led Reliance group, on Tuesday said it has signed a deal with Israel's Rafael Advanced Defence System to set up a joint venture (JV) company in India to cater to the requirements of the Indian defence sector. Among the equipment this JV will target is air-to-air missiles, air defence systems and large aerostats that will oversee projects worth \$10 billion in ten years, a release from Reliance Defence said. It is one of the largest JVs between an Indian company with any original equipment manufacturer (OEM), the release said. Reliance Defence will hold 51% in the JV with the balance by Rafael.

“The JV company will be located at Pithampur, Indore in Madhya Pradesh and will generate more than 3,000 highly skilled jobs. The project will have an initial capital outlay of more than Rs 1,300 crore, without including the cost of technology,” the company release said.

Rafael is a global market leader in air-to-air missile segment and has world renowned product like Python and Derby. Similarly, for the air defence systems, Rafael’s portfolio includes SPYDER short and medium range, and Barak missiles family of Surface-to-Air missiles in the short and medium range. Also Rafael has already provided large aerostat systems to the Indian Air Force for meeting its surveillance, reconnaissance, communication and intelligence needs.

### **Swedish firm Saab reiterates offer to supply Gripen-E fighter aircraft to India**

Swedish aerospace firm, Saab, has reiterated its offer to supply the next generation Gripen-E fighter aircraft to India through “government-to-government” route.

It has offered to not only make the aircraft in India but also create required manufacturing ecosystem in the country as part of a multi-billion dollar project. “We are not saying don't go ahead with Rafale with France. We know the Indian Air Force has a much bigger requirement than the 36 aircraft being negotiated,” said Saab air systems vice-president Sudhir Varma. “Over the next seven years, the IAF will be down to less than 30 squadrons. We are offering the Gripen through the government-to-government route, which is the best process,” he said.



## **Strategic Partnership Model for Defence Manufacturing Projects - Anil Ambani Unhappy with Restriction Clause**

*The clause restricts one company each to the 10 broad areas of manufacturing like warships, land systems and submarines; however, he welcomes the strategic partner concept*

Anil Ambani questioned the rationale behind a key clause in the defence ministry's strategic partnership model, becoming the first from the industry to publicly raise an issue with the showcase programme that seeks to select private players for major manufacturing projects. He also red flagged the trend of awarding military contracts on nomination basis to public sector units.

Ambani, who is seeking to tap the defence market with his newly set up Reliance Defence unit, welcomed the strategic partner concept, but isn't happy with the clause that restricts one company each to the ten broad areas of manufacturing like warships, land systems and submarines. "Our policies have to be in line with global best practices," Ambani said at the Global Investors Summit at the Defence Expo here. "Suboptimal division or groupings will make the industry inefficient. For instance, the division of shipbuilding into above the water and below the water categories."

While this has been a prevalent view among top defence players, this is the first time that a senior industrialist has openly spoken about it. Top executives from Indian defence companies have criticized the restriction of one company per sector during private conversations, but have not come on record.

An executive from a company that is a direct competitor with Reliance Defence said: "We have made serious investments in several different areas and cannot be expected to restrict ourselves to one category like submarines or warships." This executive spoke on the condition of anonymity.

Raising questions over segment restrictions under the proposed model, Ambani said: "In general, we must consider competition without any intra or inter segment restrictions between air, land and navy in the 10 programmes that have been identified for strategic partnerships." He, however, termed the concept of strategic partnership as a "great advance".

The industrialist, who acquired the Pipavav shipyard and announced plans to set up another strategic yard on the eastern coast as well as an aerospace and land systems park, also red flagged an issue that has been a sore point for the private sector: lack of new competitive tenders that companies can participate in.

Pointing out that a large number of orders cleared in the past two years have been either repeat orders, nominations to PSUs of direct government-to-government purchases, Ambani said the private sector wants more opportunities to compete.

"The practice of making purchases by nomination should be an exception. Where nomination is unavoidable, there needs to be clear guidelines in place so that private players have better visibility regarding future opportunities," he said.

New tenders and procurements have slowed down as the defence ministry was finalising the new procurement policy. With it now more or less complete, several major procurements that had been bunched up over the past year are likely to be made over the next few months.

## **Thales, BTSL to Develop Pharos Fire Radar**

France-headquartered Thales and BEL-Thales Systems Limited (BTSL), the joint venture between Bharat Electronics Limited (BEL) and Thales, have signed a partnership agreement for joint development of PHAROS fire control radar during the ongoing Def Expo in Goa.

“This strategic co-operation contract will allow Thales and BTSL to jointly develop PHAROS, a fire control radar for both gun and missile systems,” the joint statement released here mentions. PHAROS provides defence against small, fast moving and highly manoeuvrable air and surface targets that may also be encountered in littoral missions.

The multiple target tracker is capable of simultaneously controlling in all weather conditions the engagement of these targets with guided ammunition. The joint development will strengthen the cooperation of Thales and BTSL in the field of innovative technologies.

The responsibility of overall system design will be borne by Thales.

*Defense Update*  
26 Mar, 2016

## **Russia Offers Verba MANPADS to India**

*Verba is positioned to compete on the Indian Army requirement for Very Short Range Air Defence (VSHORAD) man-portable air defense (MANPAD) missile.*

Pursuing the Indian requirement for a new very short range air defense weapon, the Russian arms exporter ‘Rosoboronexport’ debuts the latest Man Portable Air Defense System (MANPADS) 9K333 “Verba” at DEFEXPO-2016. The new weapon entered service with the Russian Army in 2014. It was first unveiled in public last year at Arms 2015 expo in Moscow. According to the Russian arms exporter, it is making its international debut this week.

“We are confident that the Verba will provoke interest of Indian militaries and our partners in South East Asia and other regions,” Sergei Goreslavsky, deputy director general of JSC Rosoboronexport said. Goreslavsky expects that, despite the introduction of the new missile, demand for its predecessor, Igla-S, will remain stable since it satisfies the requirements of armies in many countries. In November 2015 the system’s manufacturer KBM Scientific Production Concern completed the delivery of Verba equipment under the first contract awarded in 2013, including four brigade sets for the Army and four division sets for airborne troops.

The missile uses a new tri-band optical seeker, along with modern avionics and improved warhead activated by an adaptive contact/proximity fuze. The missile also uses a new solid rocket motor and heavier explosive charge, compared to its Igla-S predecessor. The missile can hit targets that move at speeds up to 500 m/s, at a distance of more than six kilometres, at altitude from ten to 4,500 meters.

The MANPADS boasts of enhanced capability of engaging small-size targets with low thermal signatures such as cruise missiles and unmanned aerial vehicles.

The Verba MANPADS can be also mounted on various land, maritime and airborne platforms. Joint employment of the 9M336 missiles of the Verba MANPADS, combat control set of equipment and launch modules makes it possible to build on their basis lightweight mobile close-in air defense missile systems, or to include these assets into existing air defence missile and artillery systems.

Verba is positioned to compete on the Indian Army requirement for Very Short Range Air Defence (VSHORAD) man-portable air defense (MANPAD) missile. The new missile looks like its predecessor, the Igla man-portable air-defense system (MANPAD) that is already used by Indian Army, but represents a major improvement in counter-countermeasures and engagement of small and illusive targets at low-level, such as cruise missiles, helicopters and drones.

*The Economic Times*  
30 Mar, 2016

## **Army Setting Up Own Integrated Design Bureau**

*It will be central to its acquisition plans, act as an interface with industry*

The army is setting up an integrated design bureau that will be central to its acquisition plans and will also act as an interface with the industry developing and designing weapon systems domestically. Deputy Chief of Army Staff Lt Gen Subrata Saha said the new bureau, which has got in principle clearance, will be involved in acquisitions from the first stage of formulation of qualitative requirements itself.

“We are looking at a networked style of functioning with a core group based out of Delhi and centers of excellence added to it. Organisations like the Army Technical Board would be networked into a single structure,” Saha said in an industry interaction organized by FICCI at the defence expo.

While the officer did not share a timeline for the setting up of the new structure, he said it would be required at the earliest as the new procurement policy announced recently would necessitate the body at the starting stage of acquisition.

The officer, who leads the acquisition wing of the army, said the new design bureau would also be an interface with the industry on indigenous developed systems. “When the industry suggests a product, they will go to the design bureau that will decide if the case is fit for an acquisition,” Saha said.

He said the army has embarked on a major outreach to industry through seminars in smaller towns and also revealed that it is exploring a partnership with IITs in Chennai and Kanpur for collaboration on future UAV projects.

On the new procurement process, he said the rules are geared towards faster procurement and have emphasis on sticking to timelines. On questions whether acquisitions for major army projects that have a ‘Make in India’ component would be done under the new rules, Saha said a decision on the matter is still to be taken.

*The Times of India*  
30 Mar, 2016

## **Enough of Akash, says Army as it opts for Israeli missiles**

*‘Indian System Does Not Meet Operational Requirements’*

The Army is likely to go for Israeli quick-reaction surface-to-air missiles (QR-SAMs) to take on enemy fighters, helicopters and drones after firmly rejecting any further induction of the much-touted indigenous Akash missiles.

Defence ministry sources said the Army has made it clear that it does not want any more Akash regiments after it gets the first two ordered earlier for Rs 14,180 crore, with six firing batteries and hundreds of missiles each.

This marks a major blow to the 'Make in India' policy , especially since the Navy is turning to France for similar requirements after dumping the Akash missiles for its warships due to "stabilisation problems".

"The Army holds Akash area defence missile systems do not meet its operational requirements for defending its strike corps against enemy air attacks in forward areas. Instead, it wants the global route for procurement of four QR-SAM regiments," said a source.

While missile systems from Israel, Russia and Sweden have undergone extensive field trials conducted by the Army , sources said the Israeli Spyder QR-SAMs has virtually emerged the winner in the race.

IAF, incidentally , is already on course to induct four Spyder units from February 2017 onwards. But the force is also progressively inducting 15 Akash missile squadrons, worth around Rs 10,900 crore, six of which are meant for the northeast to counter China's build-up of military infrastructure across the Line of Actual Control, as earlier reported by TOI.

But the Army contends IAF is inducting Akash squadrons to guard its airbases that are located in "depth areas" inside the country , while it wants QR-SAMs to defend its formations in the "forward tactical battlefield area".

"Neither does Akash have the requisite 360 degree coverage, nor the 3-4 second reaction time the Army wants. Moreover, Akash has a large radar ground signature with several vehicles required for its missile launchers, multi-function radars and the like," said a source.

With an interception range of around 25 km in all weather conditions, Akash is the first advanced tactical (non-nuclear) missile to be made almost fully indigenously . Both the BrahMos supersonic cruise missile developed with Russia as well as the Barak SAM systems with Israel have an import content of 60-65%.

# INDIGENOUS MISSILE POWER: HITS & MISSES

## Nuclear/strategic

### 1 AGNI | SURFACE-TO-SURFACE MISSILE

➤ Agni-I (700km), Agni-II (2,000km) & Agni-III (3,000km) inducted

➤ At least 2 more years for China-specific Agni-IV (4,000km) & Agni-V (over 5,000km) to be inducted

### 2 PRITHVI | SHORT-RANGE SURFACE-TO-SURFACE MISSILE

➤ Prithvi-II & Dhanush (150-350km) naval version inducted

### 3 K-SERIES | SUBMARINE-LAUNCHED BALLISTIC MISSILE

➤ K-15 (750km) tested over a dozen times from submerged pontoons. But not yet from indigenous nuclear submarine INS Arihant undergoing trials

➤ K-4 (over 3,000km) tested twice from submerged pontoons

### 4 NIRBHAY | LAND-ATTACK SUBSONIC CRUISE MISSILE (1,000KM)

➤ All 3 tests since March 2013 have flopped



Akash

## Conventional/tactical

### 1 BRAHMOS | SUPERSONIC CRUISE MISSILE (290KM) DEVELOPED WITH RUSSIA

➤ Army has inducted 3 BrahMos regiments. 10 warships also equipped. Orders worth ₹27,000 crore

➤ 4th Army regiment on way. Also to be tested from Sukhoi-30MKI fighters

### 2 AKASH | SURFACE-TO-AIR MISSILES (25KM)

➤ IAF inducting 15 squadrons for ₹10,900 crore

➤ Army inducting 2 regiments for ₹14,180 crore

### 3 ASTRA | BEYOND VISUAL RANGE AIR-TO-AIR MISSILE (44-60KM)

➤ Will be ready by 2016-17 after huge delays

➤ Astra-II to have 100km range

### 4 NAG | 3RD-GENERATION ANTI-TANK GUIDED MISSILE (4KM)

➤ Not yet operational after over 20 years

➤ Initial Army order for 443 missiles & 13 Namicas (Nag missile tracked carriers)

➤ Helina (7km) version for helicopters being tested

### 5 BARAK-8 | LONG & MEDIUM RANGE SURFACE-TO-AIR MISSILES (70KM) DEVELOPED WITH ISRAEL

➤ Navy to induct missiles for 3 new destroyers & 7 frigates for over ₹11,000 crore

➤ IAF to induct 9 air defence squadrons worth ₹10,076 crore

➤ Army's case for MR-SAM (50km) for ₹10,000 crore stuck in negotiations

## **A policy environment for defence**

*By Ajai Shukla*

Why is the defence ministry bypassing the free market, and opting for governmental judgment about corporate partners?

On Monday, the Defence Procurement Procedure of 2016 (DPP-2016) was finally released, except for a still-disputed chapter on choosing “strategic partners” from the private sector, which would be granted monopolies for manufacturing complex weapons platforms like ships, aircraft and tanks. These monopolies would be identical to those that defence public sector undertakings (DPSUs) have long enjoyed. Clearly, now, a private sector monopoly is superior to a public sector one.

This ill-conceived notion of private sector “strategic partners” originates from the Dhirendra Singh Committee, which the National Democratic Alliance (NDA) government constituted in 2014 to dovetail Prime Minister Narendra Modi’s ‘Make in India’ slogan into a new DPP. The Dhirendra Singh Committee, consisting of defence ministry mastodons, past and present, chose not to throw open the doors to competition, opting instead for governmental discretion, ignoring the lessons of the spectrum and coal allocation fiascos where market forces were abandoned in favour of the government’s discretionary largesse. In the self-procreating manner of government committees, this led to another committee – designated a Task Force, under former Defence Research & Development Organisation (DRDO) chief, VK Aatre – to specify the criteria for selecting private sector companies as “strategic partners” in six technology areas: aircraft/helicopters, warships/submarines, armoured vehicles, missiles, command & control systems, and critical materials. While the Aatre Task Force recommendations remain nominally classified, this newspaper has already reported that it divided the technology areas into two groups. Each of the seven technology areas in Group 1 – aircraft; helicopters; aero engines; submarines; warships; guns and artillery; and armoured vehicles – would have one designated strategic partner. Meanwhile, two strategic partners would be chosen for each of the three technology segments in Group 2 – metallic material and alloys; non-metallic materials; and ammunition, including smart munitions.

All this effort would not be going into selecting “strategic partners” for designing or developing high-tech weaponry for India. These would be mere production agencies that manufactured equipment to blueprints bought under the ‘Buy & Make’ category of procurement. Earlier, the ministry would have nominated a DPSU to build the product under licence; now a private sector “strategic partner” will build it.

In parallel, the design and development of defence equipment in India would take place in the ‘Make’ category, which would see open competition between private and public sector companies, culminating in the selection of two “development agencies” (DAs). Under DPP-2016, the defence ministry will subsidise 90 per cent of the DA’s development costs, and assure the DA of the lion’s share of the production order. It is unclear whether companies participating in ‘Make’ development projects can simultaneously be chosen as “strategic partners” for manufacturing equipment in ‘Buy & Make’ projects. However, the Aatre Task Force mandates, inexplicably, that a company can be chosen as a strategic partner in no more than one technology area. Predictably, this is being strongly contested by private corporations like Larsen & Toubro and the Tata Group, which have built multi-disciplinary capabilities. They say their capability to build a warship should not be a disqualification in building a tank.

Meanwhile, it remains unclear why the excellent option of selecting private sector companies as Raksha Utpadan Ratnas (RuRs) continues to gather dust. This option, which flowed out of the Vijay

Kelkar Committee report in the mid-2000s, requires the defence ministry to select private sector companies as RuRs, based on their financial, technological and infrastructural strengths. These RuRs, which would have the same status as DPSUs, would be eligible to compete for defence ministry contracts to design, develop and manufacture complex weapons systems for the military. The RuR option allowed the ministry adequate assurance of the technological competence and financial strength of defence company aspirants, while also introducing competition into defence contracting. These fully vetted Indian companies could be relied upon to support products through their service lives, providing maintenance, spares, overhaul and upgrade, which add up over decades to 4-10 times the cost of acquisition.

It remains unclear why the defence ministry is bypassing the free market, and opting for governmental judgment. True, all governments tightly control defence industries, since these are national strategic assets. Yet, every defence economist agrees that market forces enhance efficiency and lower costs. Successive Indian governments, however, have remained woolly-headed about their role vis-à-vis defence industry.

A defence ministry's first role is to keep defence industrial policy ahead of evolving trends in the global defence industry. Mr Modi's 'Make in India' policy, which aims at creating large numbers of low-to-medium-skill defence production jobs, is out of sync with global trends. Paradigm changes under way in manufacturing technology are already seeing low-wage assembly lines being replaced by robotic manufacture, in which computerised machines churn out products faster, cheaper and more precisely than low-wage labour. Germany, a technology hub for robotic manufacturing, refers to this as Industry 4.0. The impact of this is being felt in America, which is experiencing a resurgence of manufacture, but without job growth. As the icing on the cake for defence corporations, robotic manufacture and 3-D printing are giving managers major advantages in dealing with labour unions. The foundational logic of 'Make in India' is already sinking.

The defence ministry, therefore, must focus on creating white-collar jobs through a 'Create in India' policy; in which Indian entities do systems engineering, rather than mere systems integration, in which largely foreign components, sub-systems and systems are assembled in India into what remains essentially a foreign weapons platform. For example, in the Futuristic Infantry Combat Vehicle (FICV) project that is now under way, the defence ministry has defined roles so loosely that Indian vendors can "front" for global giants like, say, General Dynamics or BAE Systems, with whom technology partnerships exist. An "Indian" consortium can adopt an existing FICV, engineering it at the periphery to conform to Indian requirements. However, this would remain a foreign platform on Indian soil, no different from the Russian T-series tanks that were designed for colder climes and different operational doctrines.

Instead of wasting policy mind space on monopolistic "strategic partnership" models that are directed towards blue-collar jobs whose future is uncertain, the defence ministry should focus on creating white-collar, high value-add 'Create in India' jobs. A key element of this is to provide the private sector with incentives and subsidies for research and development, and access to low cost capital that is available to overseas defence companies. This would raise technology levels, generate higher salaries, and create truly Indian platforms that can be supported through their service lives without large additional expenditures for each level of overhaul and upgrade.

*The Statesman*  
30 Mar, 2016

## **Defining bravery**

### ***Army Team Returns For Everest Expedition***

Vice-Chief of Army Staff Lt-General MMS Rai today flagged off a 30-member Indian Army Everest Massif expedition to scale Mount Everest and Mount Lhotse, at a ceremony held at South Block here.

A team of five officers, four Junior Commissioned Officers and 21 other ranks is led by Lt-Col R S Jamwal, a reputed climber, who was also the team leader during last year's Everest expedition.

The team will reach Everest base camp on 14 April and make summit attempts between 16 and 30 May. Two members of the team would also be attempting the Everest-Lhotse traverse and five members would be participating in Tenzing Hillary Everest Marathon on 29 May. On completion of the expedition the team will return to Delhi on 10 June.

This is the same expedition team which was located at Everest base camp when a massive earthquake hit Nepal on 25 April last year causing havoc and destruction. The avalanche had struck the base camps of many expedition teams, killing 22 international climbers and local sherpas, and injuring more than 70, some of whom were critical due to severe head injuries.

The Indian Army's Everest expedition camp was also in the path of the avalanche, but its members were safe. The Indian Army team took control of the situation by regrouping themselves and started helping in rescuing people by providing stretcher bearers, as also providing shelter and rations to those in need.

*The Times of India*  
30 Mar, 2016

## **3 Sikh soldiers sue US defence dept**

Three Sikh soldiers on Tuesday filed a lawsuit against the department of defence seeking to serve in the United States armed forces without being forced to compromise with their articles of faith like turbans, unshorn hair and beards.

In the lawsuit, specialist Kanwar Singh, specialist Harpal Singh and private Arjan Singh Ghotra demand that the army accommodate their religious articles of faith, including turbans, unshorn hair and beards, so that each can begin basic combat training with their various units in May. The lawsuit was filed by the Sikh Coalition, the Becket Fund for Religious Liberty, and McDermott Will & Emery, after the US department of defence ignored a written demand letter that was sent on March 23. "We had hoped that we would not have to file a second lawsuit on behalf of three more Sikh American soldiers, who simply want to practice their faith freely while serving their nation," said the Sikh Coalition's legal director, Harsimran Kaur.

The new lawsuit follows the March 4 federal court ruling that the army was prohibited from subjecting a decorated Sikh American soldier, Captain Simratpal Singh, to discriminatory testing.



*The Statesman*  
30 Mar, 2016

## **N Korea Fires Short-Range Projectile into Sea**

Seoul, 29 March:North Korea test-fired a short-range missile or rocket into the sea off its east coast today, South Korea's military said,the latest in a series of launches amid rising tension on the divided peninsula. The North fired the “short-range projectile” from a location near the eastern city of Wonsan around 5:40 pm which flew about 200 kilometres,Seoul's Joint Chief of Staff said in a statement.

“We are closely monitoring the situation and standing ready for any situations,” he said.It was the third such launch by the North in two weeks, as the isolated state stepped up its military threats to protest ongoing SeoulWashington joint army drills being held south of the border. The North last Monday fired five short-range rockets or missiles into the sea off the east coast, days after test-firing two medium-range missiles.

*The Asian Age*  
30 Mar, 2016

## **Japan’s newly-launched X-ray space satellite loses contact**

Japan's space agency says communication has failed with a newly launched, innovative satellite with X-ray telescopes meant to study black holes and other space mysteries.

Japan Aerospace Exploration Agency spokeswoman Izumi Yoshizaki said Monday that efforts to restore communication links since the problem began Saturday afternoon have been unsuccessful, and it was investigating what might have happened to the satellite, which is called Hitomi and was launched Feb. 17.

"We are really doing our best," she said by telephone in Tokyo.

She said the agency was looking into a statement from the Joint Space Operations Center, or JSpOC, the U.S. military organization that tracks and identifies objects in space, that Hitomi may have splintered into several pieces.

Whether that had happened or not is unclear, Yoshizaki said.

Jonathan McDowell, an astronomer at the Harvard-Smithsonian Center for Astrophysics, said he suspected the satellite had suffered an "energetic event," possibly a gas leak or a battery explosion, that sent it tumbling end-over-end. That would mean its antenna isn't pointing where it needs to, which is why the satellite can't communicate with the space agency, he said.

The danger is that in that state, the satellite may not be able to draw the solar energy it needs to its panels and its battery will run down before the space agency can reconnect with the satellite and try to fix it, he said. "Everyone's just gutted," said McDowell, who works with another high-tech space X-ray telescope, Chandra. "To hear that they've run into this piece of bad luck, it's so very sad. I know enough about how the sausage was made to know that this could have easily have happened to us. Space is very unforgiving."

## **For the first time, a drone delivers package in residential area**

A drone has successfully delivered a package to a residential location in a small Nevada town in what its maker and the governor of the state said Friday was the first fully autonomous urban drone delivery in the U.S.

Flirtey CEO Matt Sweeney said the six-rotor drone flew about a half-mile along a pre-programmed delivery route on March 10 and lowered the package outside a vacant residence in an uninhabited area of Hawthorne, southeast of Reno.

The route was established using GPS. A pilot and visual observers were on standby during the flight but weren't needed, Sweeney said.

He said the package included bottled water, food and a first-aid kit.

“Conducting the first drone delivery in an urban setting is a major achievement, taking us closer to the day that drones make regular deliveries to your front doorstep,” Sweeney said.

Nevada Gov. Brian Sandoval congratulated the company “on successfully completing the nation's first fully autonomous urban package delivery.” “I am thrilled that Flirtey is not only testing its cutting-edge technology in Nevada, but also creating jobs through its headquarters relocation to Reno,” Sandoval said in a statement.

NASA is working with the drone industry and the Federal Aviation Administration on a low-altitude air traffic control system to prevent crashes involving drones and other low-altitude aircraft.

Flirtey conducted the first FAA-approved, rural drone delivery in July to a rural health care clinic in Virginia.

The Nevada delivery demonstrates that advanced drone systems allow aerial vehicles to safely navigate around buildings and deliver packages with precision within a populated area, Sweeney said.

The company recently moved its headquarters from Australia to Nevada. It said the recent delivery was filmed for an upcoming ABC-TV documentary.

Hawthorne, a town of about 3,000 residents, is the home of the Hawthorne Army Depot.

Flirtey has been conducting research and development through a partnership with the Nevada Advanced Autonomous Systems Innovation Center at the University of Nevada, Reno. Nevada is one of six states the FAA has designated as unmanned aircraft systems test sites. “This was by far one of the most successful (unmanned aircraft systems) operations we ran and represents an advanced level of test and development ... by Flirtey,” said Chris Walach, director of operations for the FAA-designated Nevada site.

## **Nasa will send fungi to ISS for novel medicine**

For the first time, fungi will be sent to the International Space Station (ISS) in search for novel medicines to be used both in space and on Earth, scientists, including one of Indian-origin, say.

Certain types of fungi produce very important molecules called secondary metabolites that are not essential for their growth or reproduction but can be used to make beneficial pharmaceuticals.

Examples of secondary metabolites include the antibiotic penicillin and the cholesterol-lowering drug lovastatin.

Researchers at the University of Southern California (USC) and Nasa's Jet Propulsion Laboratory (JPL) in US said they will be the first team in the world to launch fungi to the ISS. The stressful environment of the ISS could trigger changes in physiological responses (such as gene expression) and metabolism of a well-studied fungus called *Aspergillus nidulans*, said Clay Wang, a professor at USC. "The high-radiation, microgravity environment in space could prompt *Aspergillus nidulans* to produce molecules it doesn't create in Earth's less stressful conditions," said Wang, who heads the USC-JPL collaborative study.

"We've done extensive genetic analysis of this fungus and found that it could potentially produce 40 different types of drugs," said Wang. "The organism is known to produce osteoporosis drugs, which is very important from an astronaut's perspective because we know that in space travel, astronauts experience bone loss," he said.

Researchers will send specimens of *Aspergillus nidulans* to the ISS aboard the SpaceX CRS-8 mission on April 8. Scientists said molecules from *Aspergillus nidulans* have the potential to be used in anti-cancer, anti-fungal and Alzheimer's disease studies.

"Drugs have an expiration date. Nasa's human mission to Mars is expected to last anywhere from one to three years," Wang said. "Not all drugs are going to be stable in that time period, so the ability to make drugs in space will enable us to go further away from Earth and will also benefit future space explorations," he said. Kasthuri Venkateswaran, senior research scientist at JPL, said the new compounds that might be produced in space could be valuable for humankind. Four different *Aspergillus nidulans* strains will be stored at 4 degrees Celsius and placed in the payload of SpaceX CRS-8.

Once the spacecraft reaches the ISS, the fungi will be placed in ideal growth conditions at 37 degrees Celsius.

*The Hindu*  
30 Mar, 2016

## **India's case on its solar policy**

The Centre is without doubt justified in saying it will contest the ruling in the World Trade Organisation against India's policy of local sourcing of components as part of the Jawaharlal Nehru National Solar Mission. The U.S. had taken to the WTO its case against India's policy of favouring domestic inputs in solar cells and solar modules, arguing that it amounted to a discriminatory trade practice and distorted the game. The verdict, which came last month, is a setback for India's Solar Mission, seen as the bedrock of efforts aimed at ensuring energy security and meeting the country's commitment to the collective global plan to limit global warming. In fact, over the last year India has scaled up its solar power ambitions, with the Narendra Modi government increasing fivefold the target set in 2009 to 100,000 MW. The WTO ruling obviously threatens the financial viability of the plan. India did offer to modify its stand on the issue, and agreed to apply the domestic content requirement only for buying solar panels used for government sector consumption. It even assured Washington that power generated from such subsidised panels would not be sold for commercial use. The U.S., however, did not agree. The challenge before the government is to sort out trade practice concerns in a manner that keeps the Solar Mission firmly on track. How it resolves the issue — and it would be well-advised to avoid standing on ego — will have repercussions not only on the country's green energy aspirations, but also on its capacity to negotiate sectoral roadblocks to its global-level "Make in India" lobbying.

The trade rift and the WTO ruling on the solar issue have yet again brought to the fore the absurdity of seeking a level playing field in an imperfect, highly unequal world. Nations often raise protection walls in some form or the other to suit their convenience or to further their political interests. The U.S. is no exception. At least nine States in that country have programmes that provide protection to domestic manufacturers. In this inter-connected environment, the challenge really lies in balancing global trade obligations with domestic social compulsions. If the U.S. cannot have other countries engaged in practices that disadvantage American workers and American businesses, as President Barack Obama said, India too cannot wish away the job concerns of its people. By providing a 'green angle' to its solar power programme, India has added a new dimension to the ongoing dispute. As countries across the world race to take steps to limit climate change, concerns like these will test international organisations and rule-making to work out solutions that do not obstruct, or even delay, these efforts. The world indeed requires a spirit of accommodative co-existence for the larger global good.

*The Times of India*  
30 Mar, 2016

## **Protein that reverses cardiac fibrosis identified**

Scientists have identified a key protein that may reverse cardiac fibrosis, an abnormal thickening of the heart valves which can lead to heart failure. Cardiac fibrosis occurs when healthy cardiac cells are replaced with fibrous connective tissue. CCN5, a matricellular protein, has been found to reverse cardiac fibrosis in heart failure models, according to a study led by Roger J Hajjar, professor at the Icahn School of Medicine at Mount Sinai, and Woo Jin Park, professor in South Korea.

*Deccan Herald*  
30 Mar, 2016

## **US company designs smartphone-shaped gun**

*Houston: A US company has designed a two-shot pistol resembling a smartphone that will be virtually "undetectable" in its locked position.*

The gun is a double-barrelled .380 caliber folding pistol and will be available for purchase later this year at a price of USD 395, said the company that specialises in concealed weaponry.

"The idea follows the present-day demand for handguns that people can carry on a day-to-day basis, in a manner that makes carrying a gun easy," said the Minnesota-based company Ideal Conceal which has designed the gun.

"Smartphones are everywhere, so your new pistol will easily blend in with today's environment. In its locked position it will be virtually undetectable because it hides in plain sight," it said.

Kirk Kjellberg, CEO Ideal Conceal, said the prototype will be done in June and will likely be manufactured in October. He said his product is for those who want to carry a gun, when they need to "and not have to engage other people about why they're carrying that gun".

"We don't want anything sinister to go on with it either. it's just made for mainstream America, not criminal enterprise," he said.

"From soccer moms to professionals of every type, this gun allows you the option of not being a victim," the company said.

Marketing for the gun has begun and it has generated great interest with more than 4,000 requests, including from law enforcement, said.

"No one wants to be in a dreadful situation that may require you to defend yourself with the use of deadly force. It's better to have a gun and not need one, than to need a gun and not have one," the company said.

Americans are deeply divided over gun rights between those who say carrying firearms is necessary for self-defence and others who support better gun control to end shooting deaths in the country.



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30 Mar, 2016

## In new metal alloys, promise of longer lasting reactors



**PAPER  
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**NUCLEAR INFRASTRUCTURE**

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HIGH-TECH metal alloys are widely used in important materials such as the cladding that protects the fuel inside a nuclear reactor. But even the best alloys degrade over time, victims of a reactor's high temperatures, radiation, and hydrogen-rich environment. Now, a team of MIT researchers has found a way of greatly reducing the damaging effects these metals suffer from exposure to hydrogen.

The team's analysis focused on zirconium alloys, which are widely used in the nuclear industry, but the basic principles they found could apply to many metallic alloys used in other energy systems and infrastructure applications, the researchers say.

Hydrogen, which is released when water molecules from a reactor's coolant break apart, can enter the metal and react with it. This leads to a reduction in the metal's ductility, or its ability to sustain a mechanical load before fracturing. That in turn can lead to premature cracking and failure.

In nuclear power plants, "the mechanical integrity of that cladding is extremely important," MIT Associate Professor Bilge Yildiz says, so finding ways to improve its longevity is a high priority.

But it turns out that the initial entry of the hydrogen atoms into the metal depends crucially on the characteristics of a layer that forms on the metal's surface.

A coating of zirconium oxide naturally forms on the surface of the zirconium in high-temperature water, and it acts as a kind of protective barrier.

If carefully engineered, this layer of oxide could inhibit hydrogen from getting into the crystal structure of the metal. Or, under other conditions, it could emit the hydrogen in gas form.

— MIT NEWS