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Air Force likely to get 123 LCA Tejas by 2024-25

If the present development and capacity enhancement plans go as per schedule, the Indian Air Force will have 123 indigenous Light Combat Aircraft (LCA) Tejas fighter jets in its fleet by 2024-25. To enable this Hindustan Aeronautics Limited (HAL) is in the process of setting up a new assembly line and is also involving the private sector in a big way, said the Chief Managing Director (CMD) of the public sector aerospace major Mr T. Suvarna Raju in a conversation with *The Hindu*. The IAF has placed orders for 40 jets in two batches of which the first 20 are in the Initial Operational Configuration (IOC) while the remaining 20 are in the Final Operational Configuration (FOC). Last July the IAF for operationalised the first Tejas squadron '45 flying daggers' with three aircraft. Two more aircraft will join the squadron shortly. Last November the Defence Acquisition Council (DAC) had given initial clearance for 83 aircraft in the Mk-1A configuration with specific improvements sought by the IAF. Mr. Raju said that about 45 improvements have been implemented in the 1A and HAL has already floated a tender for the Advanced Electronically Scanned Array (AESA) radar and Self-Protection Jammer (SPJ). On the timeline for the development of the 1A, Mr. Raju said that the tender would be opened by March end after which technical evaluation and commercial negotiations would be held. "We will be able to prove it on the 1A by 2018 and start producing by 2019," he observed. Apart from the development, the induction is also delayed by the low production rate of eight aircraft per year. The government has recently given sanction for setting another assembly to increase production rate to 16 per year. "The IAF will get Mk-1A in 2019 by that time our capacity will also go up to 16 aircraft per year," Mr. Raju added. To increase the production of the aircraft HAL has outsourced major parts of the jet. "We are trying to be an integrator rather than a manufacturer, he said. The IAF is in urgent need of new fighters and the LCAs will replace the Mig fighters that are currently being phased out. IAF is scheduled to phase out all 11 squadrons of Mig-21 and Mig-27 fighters by 2024 on completion of their technical life. On the issue of spares and supports which has been an area of constant concern from the services, Mr. Raju said they have now signed long term supply contracts with their vendors and stated that the availability of all platforms manufactured by HAL has now gone "above 65 percent."

Source: http://www.thehindu.com/

CURRENT AFFAIRS

Let the drone industry take off

It has been nearly one year since India's Directorate General of Civil Aviation (DGCA) issued its draft drone guidelines. Given the criticality of these regulations in shaping a relatively young industry in India, several industry bodies and startups had provided feedback and pushed for timely action. That drones have tremendous practical applications can no longer be disputed. Some of India's startups are revolutionising drone applications in areas as diverse as disaster management, precision agriculture and crop insurance, mining, infrastructure projects, and land records. The increasing use of drone-enabled solutions by various state departments and ministries — such as the railways, surface transport, power, and law enforcement — further validates their efficacy. Yet, the Indian regulatory approach has been unfriendly thus far towards drone innovations and applications. For starters, numerous delays have occurred in finalising guidelines even after accounting for usual bureaucratic inertia. Back in October 2014, DGCA issued its first public notice, announcing that no non-government agency, organisation, or individual would be permitted to launch an unmanned aircraft system for any purpose until it issued binding regulations. This mandate continues because the April 2016 guidelines are still in draft stage. A prohibition of 28 months and counting — with private players operating in a grey zone of quasi-permissions by local law enforcement — does not bode well for either innovation or technological adoption. Moreover, while regulation often lags behind innovation, the common default position — acts not expressly prohibited stand permitted — is comforting enough. But with civilian drones, the express prohibition places them at grave risk, providing fodder for law enforcement to officially stall test activities and use cases, and even make arrests. The regulatory tardiness in creating appropriate legal safe harbours will naturally lead to diminishing investor interest and research initiatives.

Several areas of turbulence

The draft guidelines also suffer from serious regulatory gaps and errors, in particular, a haphazard redressal of property and privacy concerns arising from civilian drone operations; indifference to a possible patchwork of rules arising from "drone federalism"; and indifference to evolving technological capabilities in this area. The draft places emphasis, as it should, on security concerns. Hence the elaborate provisions governing verification, training, and granting of permits to drone operators, the express stipulation of suitable atmospheric conditions for operation, and the embargo on drone operations in controlled airspaces. However, it ignores two equally important concerns: property and privacy. Property-related concerns arise because, unlike manned aircraft, civilian drones fly at lower altitudes, gathering data and carrying out aerial remote sensing. Many drone operators offer big data and analytics solutions to utility companies and other sectors, and this market is projected to grow even bigger. But as it grows, conflicts between land owners and drone operators are also bound to rise because of ambiguity in ownership of airspace above land, including possible altitude ranges to which such ownership may extend. Clarity on this issue will determine the possible outcome of any trespass claims against drone operators. In the US, courts have insisted on injurious, rather than mere factual intrusion for arriving at a finding of trespass in the airspace ownership contest. But absent any guidance on this issue by Indian courts and law makers, the uncertainty continues with the guidelines doing nothing to address it.

Privacy concerns

Similarly, the big data business model presents serious privacy challenges. As technology evolves, the ease of capturing superior quality images from higher altitudes will get progressively better. In the absence of a robust privacy law in India, drone-enabled solutions could wreak havoc on the notion of privacy, especially when deployed by journalists and law enforcers. The guidelines ought to have devoted much more attention to putting in place a comprehensive framework that regulates data capture and convincingly addresses privacy violations. Instead, currently it makes a mere cursory reference to privacy by way of Guideline 10.4, irrationally banking on the goodwill of drone operators as an effective safeguard. The guidelines also reveal indifference to the emergence of a potential rules overdrive resulting from "drone federalism." This situation occurs when States enact their own rules, adding to the national regulatory framework. The trespass and privacy concerns are "actionable wrongs" within the law of torts, ie, non-statutory common law claims adjudicated by courts, and hence, part of the Concurrent List in India's federal scheme. So, States can legislate to address them until the Union intervenes. Moreover, rights in or over land are part of the exclusive preserve of States. Thus, the operation of drones could fall within the Union's jurisdiction, the determination of airspace ownership immediately above land within that of the States, and privacy, trespass, and other civil claims within the jurisdiction of both. To avoid a potential excess of rules and rule-making authorities, the civil aviation ministry must harmonise the

regulatory framework across India. The compliance woes faced by online cab aggregators in India, due to a similar cluster of rules enacted by different States, strengthens the case for such intervention. Finally, the guidelines proceed on an assumption of static technology capabilities. This is best exemplified by the draft's approach to beyond-line-of-sight operations. The guidelines only permit visual line-of-sight operations, with the remote drone operator maintaining direct, unaided, visual contact with the drone and a distance of not more than 500 meters between operator and drone. Technology is evolving fast to offer sophisticated sense-and-avoid solutions, rendering an absolute mandate on visual line-of-sight too rigid and inflexible. Therefore, conditional permits to such operations based on the technology deployed would have been better. Moreover, the guidelines also provide no window to evaluate technological leaps and mould the regulatory framework accordingly. When regulating fast-evolving technologies, the regulator must necessarily adopt a more facilitative role. One way to do so is through regulatory sandboxes — a concept put to use by regulators in the UK and Singapore. This concept permits innovators to test products, services, and business models in a live environment with appropriate regulatory relaxations as required to execute the innovation without violating the law. Overcoming the present regulatory inertia is important both from the perspective of the civilian drone industry — one capable of leading to multiple technological innovations, high-volume manufacture, and beneficial uses — and the overall economy. Tussles between innovation and regulation are unavoidable but the willingness to resolve them expeditiously is key to attracting both investors and innovators.

Source: http://www.thehindubusinessline.com/

India's first integrated heliport opened in Delhi

The country's first integrated heliport, a dedicated landing facility for helicopters, was opened. The heliport consists of a terminal building with a capacity for 150 passengers, four hangers with parking capacities for 16 helicopters, and nine parking bays. In a statement, the Ministry of Civil Aviation said the Rohini heliport was completed in almost two years at a cost of nearly ₹ 100 crore. The heliport is a joint initiative of the Ministry of Civil Aviation and Pawan Hans Limited (HPL). The heliport will provide all helicopter operational facilities and will de-congest the busy Indira Gandhi International Airport. It will also promote regional air connectivity in the northern part of the country for regular passenger services. The heliport will also have services such as helicopter maintenance, disaster management, helicopter emergency medical services (HEMS) and law-and-order surveillance. Mr Pawan Hans has also prepared a roadmap for connecting major destinations from the heliport, including Shimla, Haridwar, Dehradun, Mathura, Agra and Meerut and industrial hubs such as Manesar and Bahadurgarh. PHL is working on its business diversification and has devised a 'Strategic Plan - 2020', according to which the company will diversify into small fixed wing and seaplane operations; Maintenance, Repair and Overhaul (MRO) business; and developing helipads and heliports. It is working to develop four 'heli-hubs' and the Rohini heliport is the first in this series.

Source: http://www.thehindubusinessline.com/

Re-routing flights could reduce climate impact of contrails

Air travel has officially made clear blue skies a thing of the past. It seems rare to look up these days without finding a crisscross of contrails outlining the solid blue. Even worse, scientists have found that contrails are contributing significantly to global warming by helping to trap infrared energy in the atmosphere. But now researchers at the University of Reading think they have found a solution to both problems. They have shown that by adding a negligible distance to the length of flights, contrails can be significantly reduced and their impact on global warming lessened, reports the BBC. Contrails, or vapor trails, are formed when planes fly through very cold, moist air and the exhausts from their engines condense. Some of them can be extremely long in length, stretching for nearly 100 miles. They can sometimes hang in the air for more than 24 hours before fully dissipating. Research has shown that the negative impact of contrails on global warming is even greater than a plane's carbon emissions. It has long been known that contrails can be limited when planes fly at lower altitudes, but since this increases flying time, it also means burning significantly more fuel. But this leaves open a pressing question: Can the benefits of curbing contrails outweigh the negative impact of burning more fuel? The Reading researchers sought to calculate the answer. Their study found that by simply re-routing flights in strategic ways, the increase in flight length required to significantly reduce contrails could be minor. For instance, avoiding a major contrail on a flight between New York and London would only add roughly 14 miles to the journey. "You think that you have to do some really huge distance to avoid these contrails," said lead author Dr. Emma Irvine. "But because of the way the Earth curves, you can actually have quite small extra distances added onto the flight to avoid some really large contrails." Of course, the precise adjustments required for flights to avoid generating long contrails will depend on the type of aircraft and the specific conditions present on the day of the flight, but these are easy factors to calculate. "The key things you need to know are the temperature of the air and how moist it is, these are things we forecast at the moment, so the information is already in there," explained Irvine. Although there are

a number of legislative measures in place around the world to curb carbon emissions from aircraft, there are currently no measures in place aimed at reducing contrails. This, the Reading researchers claim, is something that needs to change. They hope that their study will help to provide some of the hows and whys such measures should be implemented.

Source: http://www.mnn.com/

University of Hyderabad receives DRDO grant of Rs 113 crore for research

The University of Hyderabad received grant of Rs 113 crore in the third phase from the Defence Research Development Organisation(DRDO) for research on high energy materials. Addressing a press conference, UoH vice-chancellor Mr Appa Rao Podile explained that the grants will be utilised for 30 specific projects-22 in chemistry and 8 in physics will be taken up. “An expert committee recommended the proposals under phase III with 30 specific projects with a budget outlay of RS 113 crores for the next five years,” said Mr Appa Rao Podile. According to a press release issued by the university, research focus will be at gaining deeper insights into the development of new explosive molecules, explosion process and explosives detection techniques. “We will work closely with identified DRDO labs and undertake projects with regular reviews and monitoring. It is a challenging task for the UoH to have heavy focus on applied research but the core and associate faculty members feel that it is possible to realize the set goals,” reads the release. It may be noted that in the first phase, the university received grant of Rs 34.79 crore in March 2005, Rs 57 crore in the second phase in June 2011.

Source: http://timesofindia.indiatimes.com/

ISRO plans to increase India Inc’s involvement

The Indian Space Research Organisation (ISRO) plans to step up the involvement of the Indian industry towards product ionisation of integrated systems and sub-systems for its future launches. The move is part of the efforts by the space agency to scale up capabilities in the growing commercial market for space-based surveillance and communication through the assembly and testing of integrated packages and modules by shortlisted vendors as per ISRO’s design, officials involved in the exercise told The Indian Express. This comes in the wake of ISRO’s success in propelling a record 104 satellites into space through a single launch earlier this month. Hitherto, participation of firms such as Godrej Aerospace, L&T and Avasara Technologies has been limited to the supply of components and systems for launches. Godrej, for instance, has been involved in the manufacture of thrusters for satellites and antenna systems, Avasara has supplied heat pipes to ISRO, while L&T’s Aerospace Business Group made motor casings and honeycomb deck heat shield panels in the latest PSLV-C37 launch. This level of industry engagement is to be ramped up by way of transfer of technology and hand-holding to shortlisted companies to cover the manufacture of integral packages such as space-related hardware, including rocket engine and stages, propellant tanks, spacecraft structures, solar panels, thermal control systems and electronic packages required for satellites and launch vehicles. Alongside this, ISRO has also initiated deliberations with the industry to move towards a consortium approach for the development of two Navic satellites, which are being built to buttress India’s navigation constellation. The consortiums would take up packages such as electrical or software required to build a satellite, as against individual companies supplying individual components. Executives from two private sector firms confirmed to The Indian Express that they had been sounded out on the plans by ISRO to move towards the productionisation of integrated systems and subsystems. ISRO and Antrix Corp, its commercial arm, did not respond to official queries sent by this newspaper. Prior to launch of 101 foreign satellites and three domestic ones in a single launch by its workhorse launch vehicle PSLV, India had put 39 operational satellites in orbit comprising 17 Earth observation (including meteorological), 13 communication, 7 navigational and 2 Space Science satellites, which are being utilised to meet the demands in the area of natural resources management, infrastructure planning, disaster management support, enabling weather forecasting, satellite communication and navigation. According to government officials involved in the exercise, a significant increase in the capacity is needed to ensure continuity of services and to meet various emerging demands in these areas, apart from the potential in the growing commercial market. With successful launch, the total number of customer satellites from abroad launched by the PSLV has reached 180, reaffirming the opportunity ISRO and Antrix, has in consolidating its reputation as a low-cost, high-success launcher of small satellites that weigh up to 500 kg. According to a projection by Space Works Enterprise Inc, a research firm, roughly 5,000 “micro” (10 to 100 kg) and “nano” satellites (1 to 10 kg) need to be put into orbit in 2020. As compared to this, there were just 92 of these launched in 2013. Over 60 per cent of these satellites are expected to on behalf of commercial entities, including communication companies, firms involved

in remote-sensing and weather tracking, providing off-grid internet in remote areas. The move by ISRO to potentially broad-base its vendor options comes at a time when India is also trying to master the re-usable technology for space shuttles, where competitors include aerospace manufacturers floated by global billionaires and supported by NASA, such as the Elon Musk-backed SpaceX and Jeff Bezos's Blue Origin. Both these firms have partially tested re-usable space shuttles, with SpaceX managing to land its Falcon-9 rocket onto a sea-based platform while Blue Origin managed to land its New Shepard rocket on land in Texas last year. In May 2016, ISRO too had launched a 7-metre-sized re-useable prototype, the RLV, from the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh, which flew about 70 km into the atmosphere before it splashed down into the Bay of Bengal after an over 10 minute span from liftoff to splashdown.

Source: http://indianexpress.com/

IISc among world's best 10 varsities

The Indian Institute of Science (IISc.) has been ranked in the top 10 of Times Higher Education's (THE) Best Small Universities-2017 global rankings that looks only at universities with fewer than 5,000 students. At rank 8, IISc. is the only Indian university in the list of 20, and is also the second-highest ranked Asian University. The list is topped by California Institute of Technology (Caltech). In the world university ranking, however, it sits in the range of 201-250 when compared with larger universities also. "While it is good, we want to be in the top five of the global university rankings also. IISc. is a small university in terms of students, and perhaps other universities have an edge when it comes to the large undergraduate programmes they run," said Mr Anurag Kumar, Director, IISc. Around 3,400 students study in IISc., which has a full-fledged postgraduate and Ph.D. programme. Chief Minister Mr Siddaramaiah tweeted: "Hearty congratulations to the faculty, students and patrons of iisc bangalore for this achievement! The state & country stand proud today! Human Resource Development (HRD) Minister Mr Prakash Javadekar has congratulated IISc for the recognition. "It is a good news for us that one of our institutions has been ranked among the world's top 10 universities. This shows our determination to improve quality of education at all levels and increased focus on research and innovation," he said on sidelines of an event here. The Times Higher Education World University Rankings was founded in 2004 by the U.K.-based Times Higher Education (THE) magazine. It provides the definitive list of the world's best universities, evaluated across teaching, research, international outlook, reputation and more. Despite the new high, India has two misses this year. The Indian Institute of Technology (IIT), Guwahati, and Mrs Savitribai Phule Pune University, which were ranked 14 and 18 respectively in the 2016 edition, could not retain their spots in the top 20 this time. IISc, a public university for scientific research and higher education, was established in 1909 with active support from Mr Jamsetji Tata and Sir Krishnaraja Wodeyar IV, the Maharaja of Mysore. In 2015-16, it became the first Indian institute to be ranked among the top 100 in THE World University Rankings for engineering and technology at 99th position.

Source: http://www.thehindu.com/

Haryana announces integrated aviation hub at Hisar, creating lucrative opportunities for private participation

The Government of Haryana is set to scale up aviation infrastructure and expand existing civilian airfields in the state. The Civil Aviation Department (CAD) plans to develop a passenger airport, fixed-base operations (FBO), maintenance-repair-operation (MRO) facilities, cargo, defence manufacturing, aerospace manufacturing, an aviation training centre and university, and a commercial and residential Aerotropolis at Hisar. This Integrated Aviation Hub is expected to put Haryana on the world aviation map and propel economic growth. Frost & Sullivan, growth consulting company and project advisor to the Government, confirmed the suitability of Hisar for the ambitious project. The district has been selected for its proximity to a large consumption base, including the national capital of India – Delhi, and states including Punjab, Rajasthan, Uttar Pradesh, Uttarakhand and Himachal Pradesh. The National Capital Region Planning Board (NCRPB) has also identified Hisar as a 'counter-magnet area' to absorb the migrant population from the NCR and serve as a sub-growth area. "In view of the impending supply-demand gap for airport connectivity and services such as MRO and FBO in India, as well as the significant ramp-up in passenger traffic across the country, the state of Haryana is well positioned to provide the necessary environment for developing an Integrated Aviation Hub," said Mr Mani James, Vice President, Public Sector Practice, Frost & Sullivan. Towards this end, the Government is inviting Indian and overseas companies—as a single entity or a consortium—to undertake the project on a Design, Build, Finance, Operate and Transfer (DBFOT) basis for a concession period of 30 years. Government-owned land, measuring approximately 3,000 acres and adjoining the Hisar airfield, has been earmarked for the development. A pre-Expression of Interest (EOI) meeting will be held on 10 March 2017 at 11 AM (Indian Standard Time) at Haryana Bhawan, Copernicus

Marg, Mahatma Jyoti Rao Phule Marg Area, New Delhi-110001. The CAD, with the assistance of Frost & Sullivan, intends to short-list suitable applicants for the open international competitive bidding process that will follow. Interested parties can send their confirmation by email to cavation@hry.nic.in, ps.india@frost.com along with a letter of authorization to attend the pre-EOI meeting. Or, please click here to fill the form to register for this meeting.

The Haryana Advantage:

- Proven 'ease of doing business' throughout the business cycle, including investor facilitation, simplified land allotment, single window clearance system, reasonable labour laws and environment inspection standards, speedy grievance redressal mechanism, and strong industrial security
- Expertise in aviation - CAD, Haryana was established in 1966 for flight training and certification
- The State has Flying Training Centres under Haryana Institute of Civil Aviation (HICA) at Hisar, Karnal and Pinjore
- Proposed multimodal logistics hub in Nangal Chaudhary (Mahendragarh) covering approximately 1,000 acres of land
- Indian Airforce Station at Ambala and Sirsa
- Industrial influence of Amritsar-Kolkata Industrial Corridor (AKIC) and Delhi Mumbai Industrial Corridor (DMIC) More information about the CAD and project can be found at http://haraviation.gov.in/

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http://www.thehindubusinessline.com/

Defence PSU in technology transfer pact with R&D laboratory

Hyderabad, Mar 6 (PTI) Mishra Dhatu Nigam (MIDHANI), a city-based defence PSU, has signed a transfer of technology agreement with CSIR-National Aerospace Laboratories (NAL). Under the agreement with the Bengaluru-based R&D laboratory, MIDHANI will process nickel?titanium shape memory alloys (NiTi-SMAs) on exclusive basis for engineering and bio-medical applications, a release said here today. Mr D K Likhi, Chairman and Managing Director of MIDHANI, and Dr Jitendra J Jadhav, Director of CSIR-NAL, inked the agreement here on March 4. To tap the emerging potential of NiTi-SMAs in bio- medical sector (medical devices), especially the stent market, the company will manufacture shape memory alloys and market the products for the first time in India with the process technology from CSIR-NAL, the release said. MIDHANI plans to manufacture NiTi-SMAs in wires, strips, rods, springs and plates form. At present, no alloy manufacturer in India is making NiTi shape memory alloys on commercial scale, and their demand is met through import, it added. The indigenous production of shape memory alloys will result in import substitution and help the country become self-reliant in critical raw materials. It will also bring down the market price of SMA bio-medical products/devices, the release said. PTI VVK RSY

Source: http://indiatoday.intoday.in/

India unlikely to purchase more Rafale fighter jets

The government does not seem keen to place a follow-on order to buy twin-engine Rafale fighter planes made by French aerospace major Dassault Aviation even as the Indian Air Force (IAF) faces a depletion of its fleet. The Indian government signed a contract to purchase 36 Rafale fighter jets in fly-away condition on September 23 for a whopping $8.8 billion. The original plan was to buy 126 Rafale jets. However, the plan was trimmed owing to the cost of each aircraft and only 36 were bought after protracted negotiations with France. As a result, it is now unlikely that the government will place any further orders to buy these expensive planes even though it needs additional aircraft, sources in the Defence Ministry told *BusinessLine*. "Follow on orders for the Rafale are a big question mark. Where is the money going to come from? There are much cheaper options available," said a senior official. At present, IAF has 34 squadrons out of the 42 required to guard the skies. This is the lowest count for the IAF in the last decade. Each squadron consists of 18 aircraft. Apart from this, 11 squadrons consisting of MiG-21s, are looking at retirement, which

will pose an additional challenge. So, the demand for fighter jets remains. Even though India chose to buy only 36 Rafales after cancelling the plan to acquire 126, the original requirement still remains. However, sources said the government was now focused on acquiring single-engine fighter jets, the deal size of which is around $12 billion. The frontrunners in this are Saab's Gripen and Lockheed Martin's F-16. Dassault Aviation has already made it clear to the government that it will not be able to go for full transfer of technology and create an industrial ecosystem by manufacturing the planes here under the 'Make in India' programme unless it is given additional orders.

Dassault eyes carriers

However, sources also said that Dassault Aviation is now lobbying with the government on the Indian Navy's plan to purchase 57 Multi-Role Carrier Borne Fighters. But, it seems the MoD will not be opting for Rafale due to its high price. As a result, Boeing and MiG are now eyeing the deal. Boeing has offered its F/A-18 Super Hornet, which is being used by the US Navy. According to sources, the cost of maintaining Rafale jets is also higher than other aircraft offering a similar platform. Eric Trappier, Chairman and CEO, Dassault Aviation had said on the sidelines of the Aero India show last month that the company would set up a plant to manufacture the fighter jets in India only for an order of more than a 100 jets.

Source: http://www.thehindubusinessline.com/

Aviation to become part of multi-modal logistics hubs: Nitin Gadkari

Aviation sector will now be a part of multi-modal logistics hubs in India to promote holistic logistics solutions, union minister Mr Nitin Gadkari said. At present highways, ports, inland waterways and railways are part of the planned multi-modal logistics hubs in India. The new plan projects the logistics sector to grow to $ 360 billion by 2032 from the present $ 115 billion. Development of integrated logistics solutions will be part of the Prime Minister's Flagship 'Make in India' programme, he said at a curtain-raiser event on India's first Integrated Transport and Logistic Summit on May 3-5, 2017. "Government will bring aviation sector this time into multi-modal hubs as it has huge potential in the logistics sector also," he said adding that the summit is expected to attract investments to the tune of Rs 50,000 crore. The minister said that to transform India's logistics from a point-to-point model to hub-and-spoke model is aimed at reducing logistics cost. "A specific programme for development of multi-modal logistics parks, together with multi-modal transport facilities, will be drawn up and implemented. The vision is to transform India's logistics from a point-to-point model to a hub-and-spoke model to achieve reduction in logistics costs and to ensure that multi-modal infrastructure comes up in the country in an integrated manner," he said. India is a growing economy and the high cost of logistics — currently at 14 per cent of GDP — is having a negative effect, he said adding, an effective multi-modal logistics and transport sector will make India's economy more competitive. Efficient transportation solutions are critical to improve the effectiveness of already built infrastructure, with the overarching aim to improve logistics efficiency of the country – cost and time reduction and ensure trackability and traceability of freight movement. He said multiple initiatives to improve logistics efficiency are already underway including building of economic corridors apart from multi-modal Logistics parks. The minister said that the government is committed to connect centres of high economic activity into corridors. "Forty four economic corridors along with numerous feeder routes and inter corridor routes requiring consistent four lane infrastructure covering 55,000 km has been identified," he said. Along with Golden Quadrilateral and North-South-East-West Corridors, these are expected to carry about 80 per cent of India's total freight. The work on building these corridors has already started. Talking about multi-modal logistics parks, the minister said that they will act as hubs for freight movement enabling freight aggregation and distribution, provide multi-modal freight transportation with modern mechanised warehousing space and value-added services. Fifteen logistics parks are planned over the next five years while 20 more are to be developed in the next 10 years. He said that various state governments have come forward to lead this initiative and the Transport Ministry is going to start pre-feasibility study in two cities -– Chennai and Vijayawada. Another initiative — RFID-based Electronic Toll Collection (ETC) — will enhance the efficacy of collection as 3.5 lakh vehicles have already been fitted with ETC tags. The minister said there is a huge domestic freight movement in India which needs to be addressed. Mr Gadkari said that the ministry is ready with a draft policy for development of logistics parks. "The land from logistics parks can come from states, and we will form a SPV with the state government. In case the land comes from private developer, we will form firm guidelines for land usage and implementation," he said. The summit in May will have representation from both Indian and global logistics companies, end-user industries, industry bodies and academia. The summit will see participation from over 120 exhibitors, top global and Indian speakers and over 1,000 delegates. All transportation ministries – road, rail, waterways, shipping, aviation – will come together to create a confluence of ideas.

Source: http://indianexpress.com/

E-NEWS

29 years on, Indian Navy's Tupolev set to fly into the sunset

After guarding the Indian Ocean region for the last 29 years, the Navy's iconic long-range maritime patrol aircraft Tupolev-142M, used for anti-submarine warfare (ASW), is all set to bid goodbye to the fleet. According to a naval official, the Tupolev-142M aircraft, known as one of the most formidable airborne reconnaissance platforms around the world, was part of all major naval exercises and operations of the Navy since its induction in 1988. The Tupolev would be decommissioned in a ceremony at INS Rajali in Tamil Nadu in the presence of Navy chief Admiral Mr Sunil Lanba, a Navy official said. The Tupolev-142M Long Range Maritime Reconnaissance (LRMR) aircraft was inducted in the Navy at Dabolim, Goa, from the erstwhile USSR, in 1988. The aircraft subsequently shifted base permanently to INS Rajali in 1992 and became the most formidable LRMR ASW aircraft of the Navy. A total of eight Tupolev-142Ms were inducted into the Navy though currently only three of them are in operation. The Navy official said the aircraft has done the Navy proud by participating in all major naval exercises and operations with distinction. It saw action during Operation Cactus in Maldives and participated in operational missions off Sri Lanka to provide airborne surveillance. With its four powerful engines, slender fuselage and swept wings, the Tupolev is the fastest turboprop aircraft in the world and reportedly even fighters find it difficult to intercept it. "TU-142M aircraft have had a distinguished service with over 30,000 hours of accident-free flying. During its service life, the aircraft underwent several modifications and retro fitments to keep up with evolving technology and changing requirements of the Navy," the official added. The official further said, "As a result, the aircraft throughout its service life has been participating in and has been a major factor during all naval operations. Despite being in its twilight years, the aircraft performed exceptionally well during the recent Naval Exercise TROPEX in March 2017." The Navy will also celebrate the silver jubilee of INS Rajali, the naval air station synonymous with the Tupolev and its home for nearly three decades. The 'heritage display' of TU-142M would also be inaugurated as part of the ceremony, the Navy said in a statement. The Soviet-era Tupolev will be replaced by a fleet of 12 Boeing P-8I maritime reconnaissance aircraft equipped with harpoon anti-ship missiles, lightweight torpedoes, rockets and new generation sensors and radars.

Source: http://www.newindianexpress.com/

Delhi govt directs immediate implementation of six measures to curb air pollution

Holding a high-level meeting, Delhi Deputy Chief Minister Manish Sisodia directed immediate implementation of six new measures to curb the menace of air pollution in the national capital. The ideas and their proposals stem from scientific reports of Government of India by CPCB, CSIR and NEERI and orders of the National Green Tribunal (NGT). The National Environmental Engineering Research Institute (NEERI), a research institute, created and funded by Government of India, has been given the mandate to design and implement these solutions. In collaboration with the PWD, NEERI will design and execute induced-draft creation units at five major traffic intersections in Delhi. The IDC at IIT Bombay will help NEERI design for these traffic intersections. Such a unit has the potential to reduce carbon monoxide and particulate emission by 40percent to 60percent emission in 20-30 metres of radius during peak hours of traffic. Pilot study executed in IIT Bombay on JVLR Road shows reduction of 55-76per cent for PM2.5 and 73-88 percent for PM10. Air quality sensors, anemometers, camera and counters will be mounted on these units for better mapping which will enable robust data assimilation and analysis. This step will also execute directions of the Central Pollution Control Board (CPCB) to DPCC dated December 29 2015, which requires action on creating green buffers along traffic corridors, and reduce curbside pollution and intervene at road traffic intersections using different technologies, as per the directions. The Deputy CM also ordered that DPCC conduct the five following studies regarding air pollution along with NEERI, which will result in concrete deliverables, which will help the Delhi Government to curb the menace of air pollution High-level meeting attended Environment Minister Imran Hussain and officials from PWD, Environment and Delhi Pollution Control Committee. CSIR NEERI, a science R and D institute of the Government of India, will design and implement the measures. Induced-draft air treatment systems to be installed at five major traffic intersections in Delhi by CSIR NEERI in collaboration with the Public Works Department (PWD) Five design and technical studies for targeted solutions to be conducted CSIR NEERI in collaboration with DPCC. Delhi is expected to witness dense to shallow fog over the next several days. Several flights were also delayed at the Delhi airport morning due to dense fog. As per the forecast, dense fog is expected across the city as well, while both will see moderate fog. While the fog is expected to be shallow, the minimum temperature is expected to reach 9 degrees Celsius. Unfortunately, fog is expected to worsen the air quality of the city which has already touched "severe" levels at many places.

Source: http://zeenews.india.com/

TECHNOLOGY

SpaceX says it will fly two space tourists around the moon in 2018

Mr. Elon Musk, the founder and CEO of the rocket company SpaceX, says that two private individuals have hired his firm to fly a manned mission around the moon in late 2018. Musk said that the two individuals had not given his company permission to release their names, but that they knew each other and have placed a "significant deposit" with the company. The individuals won't pilot the spacecraft themselves; it will be controlled by autonomous systems and from the ground. Musk did say if something went wrong, they might have to intervene using the machine's controls. They will begin a special program of health and safety training. The mission would take approximately a week, as the rocket loops around the moon into deep space and returns to earth, a distance of approximately three to four hundred thousand miles. The mission will be flown on the Dragon 2 spacecraft that SpaceX is developing to carry NASA astronauts to the International Space Station. SpaceX made a point of thanking the space agency in its official blog post on the news. SpaceX's moon mission—unlike the ISS flight—will be launched on the as-yet-unflown Falcon Heavy rocket that the company intends to launch for the first time this summer. "The Dragon 2 and the Falcon Heavy are the enablers," Mr Musk said in a conference call with reporters. "This should be a really exciting mission, that will get the world really excited about deep space." The Dragon 2 is currently scheduled to fly its first unmanned mission late in 2017, and to fly astronauts for the first time in the second quarter of 2018, though government auditors fear that any unexpected delay could throw off that schedule. Mr Musk's tweet announcing the announcement prompted breathless speculation of what news the ambitious space company would deliver. The news is the second major moon mission in the news this month, after NASA said it is considering accelerating plans to fly humans around the moon forward into 2019, a decision prompted by the Trump administration. Commercial space operators have been anticipating a return to moon missions since the transition. SpaceX's decision to announce a mission with a similar profile to NASA's moon orbit, but at much lower cost, may only be a coincidence, but Mr Musk made clear he was ready and willing to take it on for the US government. He said the mission will cost about as much as one of the company's crewed trips to the International Space Station. "If NASA decides to have the first mission of this nature be a NASA mission, of course NASA would have priority," Mr Musk said. "[The space agency] would have priority in any lunar orbit mission." Mr Musk stressed that this mission would, like the rest of the company's work, play into its long-term goal of inter-planetary exploration. "We'll have to invest in deep space communication technology and that's going to be important for future missions to Mars," he said.

Source: https://qz.com

India test-fires indigenous supersonic interceptor missile

India successfully test-fired an indigenously developed supersonic interceptor missile capable of destroying any incoming enemy missile at low altitude, a feat which reflects the country's Ballistic Missile Defence prowess. The Defence Ministry said all the mission objectives were successfully met during the test-firing of the endo-atmospheric missile from Dr Abdul Kalam Island in Odisha. This the second time that the missile has been test-fired in less than a month and is part of an effort to put in place a multi-layer missile defence system. "The endo-atmospheric missile, capable of intercepting incoming targets at an altitude of 15 to 25 km successfully destroyed the incoming missile. All the mission objectives were successfully met," the Defence Ministry said. Defence Minister Mr Manohar Parrikar congratulated DRDO on the successful launch. "The launch has proved the Ballistic Missile Defence (BMD) prowess of the country," the Ministry said. Scientific Advisor to the Defence Minister and Director General (Missiles and Strategic Systems), DRDO Dr G Satheesh Reddy monitored the launch operation along with other top officials. The Ministry said the complete event including the "engagement and destruction" was tracked by a number of electro-optical tracking systems using infrared imagery. Radars and telemetry stations tracked the target and the interceptor till the destruction of the target. "Today's test launch was conducted in order to validate various parameters of the interceptor in flight mode," a defence official said, adding it was a low altitude trial. The interceptor was engaged against a target which was a Prithvi missile launched from launch complex 3 of the Integrated Test Range (ITR) at Chandipur near Balasore, taking up the trajectory of a hostile ballistic missile. The target missile was launched at about 10.10 hours from Chandipur. After about four minutes the interceptor, Advanced Air Defence (AAD) missile positioned at Dr Abdul Kalam Island in the Bay of Bengal, getting signals from tracking radars, roared through its trajectory to destroy the incoming hostile missile in mid-air, in an endo-atmospheric altitude, the official said. "The mission was excellent and it was a direct hit," said a scientist of the Defence Research Development Organisation (DRDO). The interceptor is a 7.5-m-long single stage solid rocket propelled guided missile equipped with a navigation

system, a hi-tech computer and an electro-mechanical activator, the official said. The interceptor missile had its own mobile launcher, secure data link for interception, independent tracking and homing capabilities and sophisticated radars, the official added. On February 11, an incoming hostile ballistic missile target was successfully intercepted at high altitude, above 50 km of the earth's atmosphere by an exo-atmospheric interceptor missile off the Odisha coast. Earlier, a low altitude (endo-atmospheric) test of AAD missile was successfully test launched on May 15, 2016 from the same base.

Source: http://indianexpress.com/

ISRO to now launch 3 sats for int'l group

Exactly 24 hours after India broke a world record with the successful deployment of 104 satellites on February 15, 2017, an international aerospace organisation, Sky and Space Global, firmed up a deal with the US department of defence relating to the launch of three of its nano satellites by ISRO later this year. The pact with the US department of defence, signed on February 16, 2017, takes into account India's success, adding that Sky and Space Global's nano satellites "are confirmed aboard the next PSLV (Polar Satellite Launch Vehicle) launch". The understanding with the US department of defence focuses on the safe operation of Sky and Space Global nano satellites. The agreement will be facilitated through the US Strategic Command Joint Space Operations Centre, according to a recent announcement by Sky and Space. The Israeli satellite, which was part of the 104 satellites launched on February 15 by ISRO, belonged to Sky and Space. Its CEO, Mr Meir Moalem, has been quoted as saying: "The successful launch (of 104 satellites) is very encouraging for Sky and Space and validates our choice of the launch partner (ISRO)." The three nano satellites which Sky and Space will launch using the PSLV , are part of a 200-satellite constellation, which it hopes to operationalise by mid-2018. TOI has learnt that the record-breaking mission has encouraged many foreign countries to knock at ISRO's door to launch their satellites.

Source: http://epaperbeta.timesofindia.com/

NASA Scientist Plans To Launch A Giant Magnetic Shield Around Mars To Make It Habitable

A NASA scientist proposes a plan of launching a giant magnetic shield around Mars to make it potentially habitable. The magnetic shield could protect the planet Mars from high-energy solar particles. This could shield the astronomers and humans that will explore the Red Planet in the future. Mr Jim Green, NASA's Planetary Science Division Director, spoke at the Planetary Science Vision 2050 Workshop at NASA headquarters in Washington, D.C. The talk is titled *A Future Mars Environment for Science and Exploration.* Green said that although Mars is an arid and cold world with a very thin atmosphere and frozen water resources, it is thought the planet could once have had deep, liquid oceans and a warmer climate. He further said how launching the shield in the space between Mars and the Sun could hypothetically shield the Red Planet in the extended magnetotail that trails behind the protective field, according to News Talk. The "magnetic shield" will be launched in a stable orbit between Mars and the Sun, which is referred to as Mars L1. The shield consists of a large dipole, which is a closed circuit powerful enough to produce an artificial magnetic field. It could make Mars protected by the magnetotail of the magnetic field generated by the object. This could restore gradually the Mars' atmosphere, according to Popular Mechanics. The shield could also help Mars attain half the atmospheric pressure of Earth in just years, according to simulation models. The frozen CO2 at Mars' polar ice caps would start to transfer into gas from a solid with the protection from solar winds. Then, the greenhouse effect will fill the thin atmosphere of Mars and warm the planet particularly the equator, in which the huge amount of ice is stored under the poles will melt and flood the world with water.

Source: http://www.scienceworldreport.com/

China developing stealth drones to evade anti-aircraft missiles

China's largest missile maker is developing military drones with stealth abilities that can evade anti-aircraft weapons, the official China Daily said, in another advance for the country's ambitious military modernization program. "Drones have become an indispensable weapon in modern warfare because they can play an important role in high-resolution reconnaissance, long-distance precision strikes, anti-submarine operations and aerial combat," Mr Wei Yiyin, deputy general manager of China Aerospace Science and Industry Corp, told the English language newspaper. Insisting it has no hostile intent, China is investing billions of dollars to update ageing equipment and develop new weapons, including

stealth fighters and aircraft carriers. Its heavy defense spending, however, has unnerved a region already on guard over Beijing's more assertive approach to disputes in the South and East China Seas and over self-ruled Taiwan, claimed by China as a wayward province. Wei told the newspaper his company was also developing near-space and long-range endurance drones. The paper described China Aerospace Science and Industry Corp as the country's sole producer of cruise missiles, and said the drones also resembled cruise missiles. China has stepped up research into military drones, hoping to take market share from the United States and Israel with its cheaper technology and willingness to sell to countries that Western states are reluctant to deal with.

Source: http://www.reuters.com/

India sets new targets with Brahmos extended range

India has reaped the first benefit of being in the MTCR club, as scientists successfully tested a Brahmos cruise missile with an extended range of 450 km. Because of the restrictive missile technology control regime (MTCR), the cruise missile that was developed with Russian collaboration had a maximum range of 290 km, as export of missiles having a range of more than 300 km was prohibited under MTCR rules. In June 2016, Foreign Secretary Mr S Jaishankar signed the instrument of accession to the 34-member MTCR, which is the first multilateral export control regime that opens its door for New Delhi. The Brahmos missile was successfully tested, within nine months of the accession being inked, from the Integrated Test Range at Chandipur Odisha. "The formidable missile system once again proved its mettle to precisely hit enemy targets at much higher range than the current range of 290 km with the supersonic speed of 2.8 Mach. The land attack version of the missile met its mission parameters," Brahmos Aerospace said in a statement. Senior Army officials witnessed the launch. "With the successful test firing of Brahmos Extended Range (Brahmos-ER), Indian armed forces will be empowered to knock down enemy targets far beyond 400 km," said Mr Sudhir Mishra, chief executive officer and managing director of Brahmos Aerospace. The first announcement on the new Brahmos was made by the DRDO Director General Dr S Christopher at the Aero India 2017 last month.

Source: http://www.deccanherald.com/

Biofuels can cut jet engine pollution by half: NASA

Using biofuels to help power jet engines can reduce particle emissions in their exhaust by as much as 50 to 70 per cent, according to a new NASA study that bodes well for airline economics and Earth's environment. "We show that, compared to using conventional fuels, biofuel blending reduces particle number and mass emissions immediately behind the aircraft by 50 to 70 per cent," researchers said. The observations quantify the impact of biofuel blending on aerosol emissions at cruise conditions and provide key microphysical parameters, which will be useful to assess the potential of biofuel use in aviation as a viable strategy to mitigate climate change, they said. During flight tests in 2013 and 2014 near NASA's Armstrong Flight Research Centre in California, data was collected on the effects of alternative fuels on engine performance, emissions and aircraft-generated contrails at altitudes flown by commercial airliners. Contrails are produced by hot aircraft engine exhaust mixing with the cold air that is typical at cruise altitudes several miles above Earth's surface, and are composed primarily of water in the form of ice crystals. Researchers are most interested in persistent contrails because they create long-lasting, and sometimes extensive, clouds that would not normally form in the atmosphere, and are believed to be a factor in influencing Earth's environment. "Soot emissions also are a major driver of contrail properties and their formation," said Mr Bruce Anderson, project scientist at NASA's Langley Research Centre. "As a result, the observed particle reductions we have measured during ACCESS should directly translate into reduced ice crystal concentrations in contrails, which in turn should help minimise their impact on Earth's environment," said Mr Anderson. That is important because contrails, and the cirrus clouds that evolve from them, have a larger impact on Earth's atmosphere than all the aviation-related carbon dioxide emissions since the first powered flight by the Wright brothers, NASA said. The tests involved flying NASA's workhorse DC-8 as high as 40,000 feet while its four engines burned a 50-50 blend of aviation fuel and a renewable alternative fuel of hydro processed esters and fatty acids produced from camelina plant oil. A trio of research aircraft took turns flying behind the DC-8 at distances ranging from 300 feet to more than 32 kilometres to take measurements on emissions and study contrail formation as the different fuels were burned. "This was the first time we have quantified the amount of soot particles emitted by jet engines while burning a 50-50 blend of biofuel in flight," said Mr Rich Moore, lead author of the study published in the journal Nature.

Source: http://www.deccanherald.com/

Next PSLV mission in May to use improved third stage

The 50th high performance motor case for the third stage of PSLV that is capable of handling more pressure and carry more weight will be used in the next PSLV mission in the month of May; said Mr K Sivan, director, Vikram Sarabhai Space Centre(VSSC). Sivan said the third stage is one of the very efficient and cost effective stages. The rocket uses a solid motor in its third stage and the 50th high performance motor case for the stage was recently rolled out of VSSC. Mr Sivan was talking at the 25th convocation of Dr MGR Educational and Research Institutewhere he was conferred an honorary degree. “The third stage uses a solid motor. This stage has a combination of high performance, mass reduction and cost reduction. We will use it in our next PSLV mission,” he said. ISRO had earlier said the PS3 motor case was initially made with aramid (synthetic fibres) and epoxy through a filament winding process. But the design and processing parameters followed in making the PS3 motor case was modified after they made certain observations during burst tests of the cases. The processing parameters of the PS3 motor case were optimised to augument the payload capacity of PSLV to meet the future requirement of ISRO. PSLV is ISRO’s most reliable launch vehicle, having placed 226 satellites in orbit as of February 2017. This includes missions like Chandrarayaan-1, Mars Orbiter Mission and NavIC.

Source: http://timesofindia.indiatimes.com/

BUSINESS

Boeing to set up first overseas factory in China

US aircraft giant Boeing will set up its first overseas factory in eastern China aiming to deliver 100 Boeing 737 planes a year, official media reported today. Boeing and Chinese aviation manufacturer Commercial Aircraft Corporation of China Ltd (COMAC) will start to build a Boeing 737 completion centre in Zhoushan by the end of March, scheduled to make its first delivery in 2018, state-run *Xinhua* news agency reported. This is Boeing’s first overseas facility as part of its 737-production system, and designed to deliver 100 Boeing 737 planes a year. The plant is being set up amid forecast by Boeing that China will need 6,810 new aircraft in the next 20 years at an estimated cost of USD 1 trillion. A report on Boeing’s annual current market outlook released last September said China is expected to become the world’s first trillion-dollar aviation market within 20 years. Airbus, the French plane manufacturer has already established its assembly line factory in 1994 in Tianjin city located close to Beijing. Airbus had delivered 153 aircraft to Chinese operators in 2016, its seventh consecutive year of more than 100 deliveries, Airbus China said earlier this year. In the joint-venture completion centre, Boeing’s 737 aircraft will be installed with flight entertainment systems and seats. The plant in Zhoushan, 287 km southeast of Shanghai, also provides services such as coating, repair and maintenance of Boeing aircraft. Boeing and COMAC signed an agreement in October 2016 to set up the Zhoushan plant, which will consist of two parts: the 737-completion centre, a joint venture of Boeing and COMAC, and the 737 delivery centre owned by Boeing. Construction of the delivery centre will also start at the end of March. To accommodate aircraft manufacturing in Zhoushan, Putuoshan Airport in the city is undergoing a 750 million yuan (USD 108 million) expansion to become an international airport. In addition to supporting Boeing, the aviation base in Zhoushan will also develop an entire industrial chain for aircraft manufacturing, with the capacity of assembling, delivering and modifying 600 aircraft a year by 2025. Zhoushan is an archipelago and island city in Zhejiang Province, which has the largest fishery in China and boasts strong shipbuilding, tourism and service industry.

Source: http://www.thehindubusinessline.com/

AWARD

3 ISRO women scientists, NGO get Nari Shakti Award

Mrs Subha Varier, Mrs B Codananyaguy and Mr Anatta Sonney—three women scientists with the Indian Space Research Organisation (ISRO), who played important roles in various space missions, were conferred the Nari Shakti Award by President Pranab Mukherjee. Karnataka’s Sadhana Mahila Sangha, which works towards the dignity and violence-free right to life for “street-based” women workers and children, and Mrs Pamela Gale Malhotra, co-founder of SAI (Save Animals Initiative) Sanctuary, also received the Nari Shakti Award at a function organised at Rashtrapati Bhavan. The President presented the prestigious award to 33 women in recognition of their efforts in rendering “distinguished services” for the cause of women, particularly the vulnerable and marginalised. Varier, who joined ISRO

in December 1991 and is currently heading the Video Systems Development Section in Avionics Entity, was “instrumental” in inducting and globalising onboard video systems in all ISRO launch vehicle programmes, according to the award citation. About Codananyaguy, the citation said, “Her specific contributions for PSLV C37 included all the solid motors for the PSLV C37 launch vehicles. The readiness and performance of instrumentation and control systems has been ensured by her group by strict adherence to laid-down procedures and also implementation of recommendations by various review committees.” Mrs Sonney participated in orbit determination of Chandrayaan-2 mission to aid in precise landing on the Moon. “She is the recipient of the Astronautical Society of India team award for her contribution towards Mars Orbiter Mission and ISRO Team Excellence award for Chandrayaan-1 Payload Instruments, Science Data Centre and mission operations,” the citation said. Addressing the gathering, Mr Mukherjee took note of the rising rate of violent crimes against women and called for giving “greater emphasis” on early sensitisation of children and youth to inculcate in them respect for women. “It is inexcusable that women in India do not feel as secure and safe as they should. The government is concerned at the rising rate of violent crimes against women.”

Source: http://www.deccanherald.com/

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