September 2022

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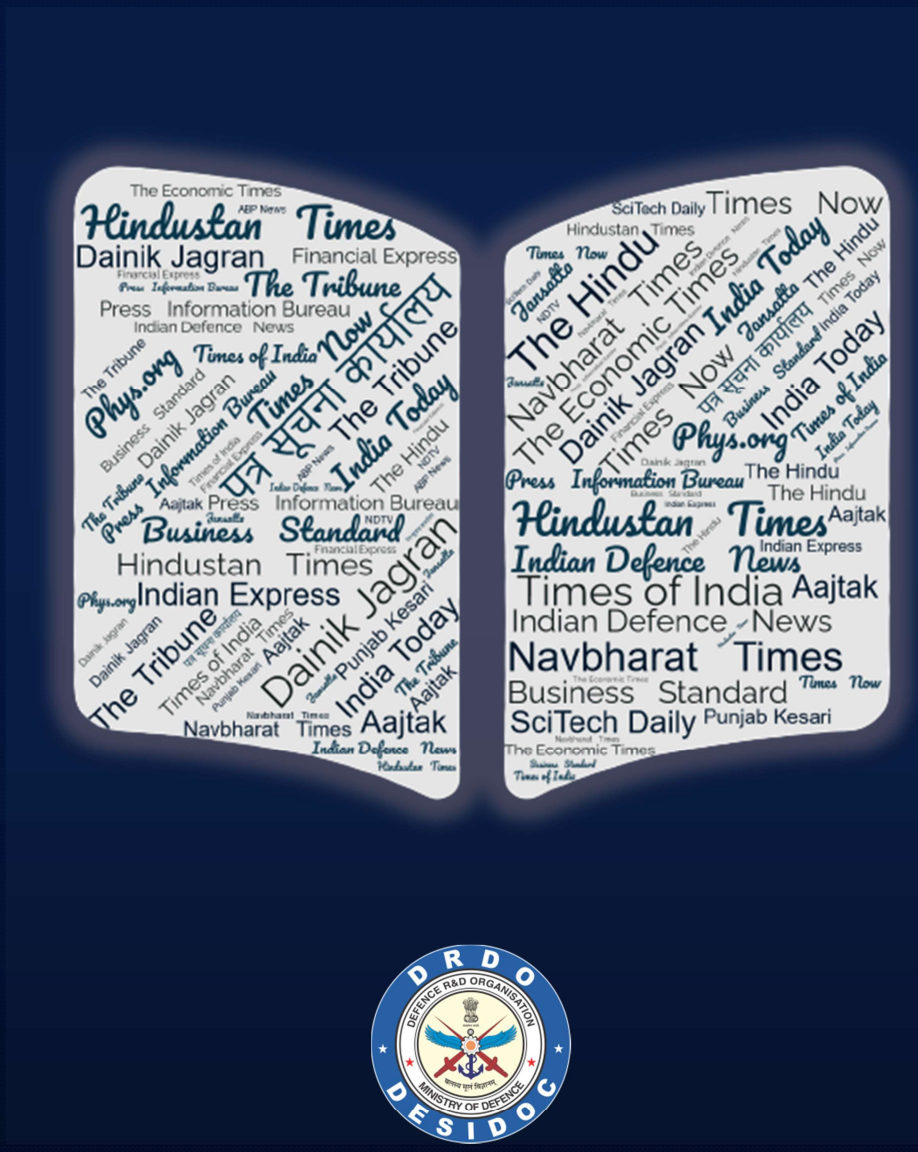

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DRDO News

DRDO Technology News

Sat, 24 Sept 2022

First in India, Radar Installed in North Sikkim to Detect Avalanche within 3 Seconds

The Indian Army and Defence Geoinformatics and Research Establishment (DGRE) have jointly installed the Avalanche Monitoring Radar in north Sikkim. The radar was inaugurated by Lieutenant General Tarn Kumar Aich, AtiVishishtSeva Medal, General Officer commanding TriShakti Corps.This has been positioned at one of the forward posts of the Indian Army deployed at an altitude of 15,000 feet in north Sikkim. This radar, a first of its kind in India, can detect avalanches within three seconds of their trigger and will assist in saving the valuable life of troops and reducing damage to property in super high altitude areas.

Sikkim receives high rainfall throughout the year, mainly during winters and is prone to avalanche. Therefore, this monitoring system will be a great help to the forces.

The avalanche radar was made operational by DGRE of DRDO 7, an organisation which is involved in forecasting and mitigation of avalanche hazards faced by the Indian Army in the Himalayan Region. This radar uses a series of short microwave pulses which are scattered at the target and can detect an avalanche in under 3 seconds. The radar can permanently scan the targeted slope for avalanche release and track the path of the avalanche and its size in case it is triggered.The radar can see through snow, and fog as well as at the night, making it an all-weather solution and covering an area of 2 square km obviating the requirement to place additional instruments in dangerous avalanche-prone areas. The radar is also linked to an alarm system enabling automatic control and warning measures in case an avalanche is triggered. Images and videos of the event are automatically recorded for future analysis by the experts. Besides being used for the detection of avalanches, this radar can also be employed to detect landslides.

In an area where the frequency of triggering of avalanches is high, the installation of the first Avalanche Radar will go a long way in safeguarding the life of troops of the Army deployed in harsh terrain and subzero temperatures while at the same time limiting damage to vehicles and equipment operating at such snowbound high altitudes areas.

https://www.news18.com/news/india/first-in-india-radar-installed-in-north-sikkim-to-detect-avalanche-within-3-seconds-6030697.html

TIMESNOW

Sat, 24 Sept 2022

How do the Dual-role BrahMosMissiles add more Firepower to the Indian Navy?

India has signed aRs 1,700-crore deal with BrahMos Aerospace Private Limited (BAPL) for dual role Brahmos missiles. The deal gives a boost to the Indian Navy's firepower as well as India's Make in India programme. The dual-role capable surface-to-surface BrahMos missiles will be deployed on the warships of the Indian Navy. The Ministry of Defence said in a statement on Thursday: "Providing further impetus to atmanirbharta (self-reliance) in defence production, the Ministry of Defence (MOD) signed a contract with BAPL for acquisition of additional dual-role capable surface-to-surface BrahMos missiles at an overall approximate cost of Rs 1,700 crore under the 'buy-Indian' category. Induction of these dual-role capable missiles is going to significantly enhance the operational capability of Indian Navy fleet assets."

The new generation surface-surface missiles come with an advanced range and capability to take out targets on land as well as anti-ship attacks. The MoD further noted: "This contract is going to give further boost to indigenous production of critical weapon system and ammunition with active participation of indigenous industry." India has put a thrust on indigenous weapon system and ammunition production. The contract was signed under the 'Buy (Indian)' category. According to the MOD's acquisition procedure, the 'Buy (Indian)' category refers to the procurement of products from an Indian vendor meeting one of the two conditions: products that have been indigenously designed, developed and manufactured with a minimum of 50% Indigenous Content (IC) on cost basis of the total contract value; Or products, which may not have been designed and developed indigenously, having 60% IC on cost basis of the total contract value.

What is the BrahMos system?

BAPL is a joint venture between India's Defence Research and Development Organisation (DRDO) and Mashinostroyenia of Russia. The name BrahMos is a combination of the names of Brahmaputra and Moskva rivers. The first test launch of the initial version of Brahmos took place in 2001 and it became the main weapon system of Indian Navy warships. A variety of BrahMos have been developed since then that can be fired from land, warships, submarines and the Sukhoi-30 fighter jets. In May this year, India successfully fired an extended range variant of BrahMos missile from a Sukhoi-30 fighter aircraft. Before that, in February, India successfully test-fired a naval variant of the advanced supersonic BrahMos cruise missile from INS Vishakhapatnam – Indian Navy's stealth guided-missile destroyer.Reports say that an underwater version is also being developed that will not only be inducted into the Indian arsenal but also sold to friendly countries. Last year, Philippines accepted BAPL's Shore-Based Anti-Ship Missile System Acquisition Project for its navy.

Advanced range BrahMos missiles

The BrahMos missile is one of the fastest supersonic cruise missiles in the world, according to the company. It has a maximum range of more 290 kilometers and travels at a speed of Mach 2.8 (which is nearly three times the speed of sound). In May, the extended version of the missile that

was successfully test fired had a range of 450-500 km. The BrahMos missiles were earlier restricted to 290 km to adhere to rules laid down by the Missile Technology Control Regime (MTCR), which restricted missile sales involving a non-MTCR country to a maximum range of 300 km. After India got admitted to the MTCR in June 2016, the Indo-Russian JV is permitted to develop these advanced range missiles.

India is also in the initial stages of preparing to develop an even longer range BrahMos missile. Reports earlier this year said that the air-launched missile would have a range of 800 km. The development comes as India has been upgrading its navy muscle power in the backdrop of Chinese threats in the Indian Ocean. Prime Minister NarendraModi had on September 2 inducted India's first indigenous aircraft carrier – INS Vikrant - into the naval force. With its rising profile in the neighourhood and amid the choppy water s of the Indo Pacific, India needs to ensure it has a strong navy to project power over the important maritime area.

https://www.timesnownews.com/exclusive/how-do-the-dual-role-brahmos-missiles-add-more-firepower-to-the-indian-navy-article-94414772

Business Standard

Mon, 26 Sept 2022

Extended-Range BrahMos Cruise Missile Costs Under $5 Million

Officials of Ministry of Defence and BrahMos Aerospace sign a contract for the acquisition of additional dual-role capable surface-to-surface BrahMos missiles

For the first time, evidence from the Ministry of Defence (MoD) reveals that the latest and most advanced variant of one of India's most closely-guarded weapon systems — the indigenous, dual-role, extended-range BrahMos cruise missile — works out to about Rs 34 crore ($4.85 million) each. On Thursday, the MoD announced that the Navy had ordered the ship-borne version of the supersonic BrahMos "at an overall approximate cost of Rs 1,700 crore under the Buy-Indian category". The announcement revealed that the BrahMos missile systems being acquired were "dual role capable," meaning that they could destroy targets on land, while also having the ability to strike enemy warships.

The MoD did not reveal the number of missiles procured through the latest contract. However, this information was inadvertently revealed through an official MoD photograph that accompanied the announcement. The photograph of the contract document stated that it was an "agreement between (Brahmos Aerospace and the MoD) for supply of 35 combat and 3 practice Brahmos missiles for two Project-15B ships." The two Project-15B warships that will receive these BrahMos systems are being built in Mazagon Dock, Mumbai (MDL). They are the destroyers, INS Visakhapatnam, and INS Mormugao.

Approximately Rs 200 crore would be spent on each destroyer's missile launchers, command centre, and radar, reveal sources in BrahMos Aerospace (BAPL) — the Indio-Russian joint venture (JV) that builds the BrahMos missile. That leaves about Rs 1,300 crore for 38 BrahMos missiles, putting the cost of each missile at about Rs 34 crore ($4.85 million). This is significantly higher than earlier estimations that the Army and Navy paid about $3.2–3.5 million for each of their BrahMos missiles. However, those earlier missile variants had ranges of just 295 kms, while INS Visakhapatnam and INS Mormugao will be armed with longer-range missiles that can strike targets out to 400 kms.

The range of earlier versions of the BrahMos was kept below 300 kms, since the Missile Technology Control Regime (MTCR) places this range restriction on sales involving a non-MTCR country. India was admitted into the MTCR only in 2016, after which Brahmos could legitimately build missiles with ranges above 300 kms. A costlier BrahMos variant is the air-launched cruise missile (ALCM), which is carried in an under-belly pod by the Sukhoi-30MKI fighter. Developed by the IAF, Hindustan Aeronautics (HAL) and the Defence R&D Organisation (DRDO), this is half a tonne lighter than the regular BrahMos and shorter by about 50 centimetres.

While the BrahMos ALCM is the lightest and the shortest, it is not the cheapest. In October 2012, the Union Cabinet allocated $1.1 billion to IAF for acquiring 200 BrahMos ALCMs. That puts the unit cost of the BrahMos ALCM at $5.5 million. One reason for the higher cost is that each BrahMos ALCM functions autonomously in its launch and command and control functions, since it would be launched several hundred kilometres from base, out of range of the regular BrahMos command and control centre. Each ALCM launcher has its own command centre, a "peripheral control device", which checks the health of the missile before it leaves the launcher.

Paradoxically, the BrahMos ALCM effectively has the longest range of all the variants: over 1,000 kms. It is carried for several hundred kilometres by the Sukhoi-30MKI. After it is released from the fighter, it can travel another 300-400 kms, under the missile's own propulsion system. India has been promoting the sale of the BrahMos missile system to partner countries in the Indo-Pacific, such as Vietnam. However only the Philippines has actually inked a contract for the BrahMos: A $375 million deal for the anti-ship variant of the BrahMos. With the Pentagon's expenditure figures placing the cost of the latest variant of the US Tomahawk missile at below $2 million, the cost of the BrahMos might just be too much.

https://www.business-standard.com/article/current-affairs/extended-range-brahmos-cruise-missile-costs-under-5-million-122092500670_1.html

Defence News

Defence Strategic : National/International

Press Information Bureau
Government of India

Ministry of Defence

Fri, 23 Sept 2022 04:13PM

Mehar Baba Competition -II

To provide a boost to the growing indigenous drone industry, Hon'bleRakshaMantri had launched the "MEHAR BABA COMPETITION-II" on 06 April 2022 at Air Headquarters (VayuBhawan). The competition is aimed at developing technology for a "Swarm Drone Based System to Detect Foreign Objects on Aircraft Operating Surfaces". The competition is named after the legendary Air Commodore Mehar Singh, MVC, DSO - affectionately also known as MeharBaba. The first edition of the competition was launched in October 2018 and had culminated in October 2021.

All aircraft operators face a challenge in keeping the aircraft operating surfaces clean and clear of Foreign Object Debris (FOD). Very often, this is a labour-intensive task that needs to be repeated over a day. This manpower could be more gainfully employed if personnel could focus solely on their core tasks. Furthermore, visual spotting of FOD in low light conditions becomes rather challenging.

Hence, the IAF is seeking innovative solutions towards detection of FOD without physical employment of manpower on the aircraft operating surfaces. Registration for this competition is open to Indian citizens and Indian registered entities only. The last date for registration is 02 October 2022. All relevant details regarding this competition have been placed at https:/Indianairforce.nic.in/mehar-baba/#.

https://pib.gov.in/PressReleasePage.aspx?PRID=1861733

Press Information Bureau
Government of India

Ministry of Defence

Sat, 24 Sept 2022 01:48PM

Defence Secretary Reviews Preparations for DefExpo 2022 during Apex Committee Meeting at New Delhi

12th DefExpo set to be the first-ever edition exclusively for Indian companies; Promises to be the biggest ever with over 1,000 exhibitors registering for the event; Numbers expected to grow

Defence Secretary Dr Ajay Kumar comprehensively reviewed the preparations of the forthcoming DefExpo 2022 during the Apex Committee meeting at New Delhi on September 24, 2022. Chief Secretary, Government of Gujarat ShriPankaj Kumar and other senior officers of the state government as well as Ministry of Defence attended the meeting.

The 12th edition of DefExpo is scheduled to be held in Gandhinagar, Gujarat between October 18-22, 2022 in a first ever four-venue format which promises to engage the public and inspire them to join the Aerospace and Defence manufacturing sector; for 'Aatmanirbharta' in Defence. During the meeting, the Defence Secretary was briefed of the arrangements by the multiple stakeholders that are being made for the biennial event. Dr Ajay Kumar urged the officials to strive towards making DefExpo22 a grand success with focus on business and export promotion of indigenous defence platforms and products.

The DefExpo 2022 was earlier scheduled from March 10-14, 2022 and was postponed due to logistical challenges being faced by participants at that stage. The new dates (October 18-22, 2022) were announced on August 08, 2022. The forthcoming edition is the first-ever edition exclusively for Indian companies. For DefExpo 2022, Indian companies, Indian subsidiaries of Foreign OEMs, Division of company registered in India, Exhibitor having Joint Venture with an Indian company will be considered as Indian participants.

The theme of DefExpo 2022 is 'Path to Pride' and in semblance with Prime Minister ShriNarendraModi's vision to transform India into a strong and self-reliant nation by supporting, showcasing and forging partnerships for the Indian Aerospace and Defence manufacturing sectors with Indian as well as global customers. The aim is to showcase the might of the domestic defence industry which is now powering 'Make in India, Make for the World' resolve of the Government and the nation at large.

Keeping with 'AzadiKaAmritMahotsav' celebrations, DefExpo 2022 promises to better its previous edition as it is being planned in the largest ever total area of 1+ Lakh sqm (previous edition being 76,000 sqm). The inaugural ceremony and seminars will be held at Mahatma Mandir Convention and Exhibition Centre (MMCEC), Exhibition at Helipad Exhibition Centre (HEC), Live Demonstrations on all five days at Sabarmati River Front (SRF) and ship visits for public by Indian Coast Guard at Porbandar. The biggest drone show by the indigenous IIT Delhi start-up M/s Botlabs (an iDEX winner) has also been organised, which will be another highlight

of the mega-event. The sale of space had commenced from August 15, 2022 and, thus far, over 1,000+ exhibitors have registered and the numbers are anticipated to be the highest-ever recorded during the previous editions of DefExpo.

In the run-up to the event, a nation-wide reach out has been undertaken inviting the States to set-up pavilions and thereby partake in nation building through enhancing indigenous defence manufacturing. Many States have assured of participation as a State pavilion. The enhanced number of State Pavilions, which is presently eight, would also provide the opportunity for Chief Ministers, Industries Ministers, Chief Secretaries etc. to solicit investment and promote their respective States thus cultivating more centres for indigenous aerospace and defence manufacturing within the country. Also, towards greater participation by start-ups and MSMEs, 50 per cent discount on space charges is offered.

In addition, a National Defence MSME Conclave and Exhibition was successfully held for the first time at Kota, Rajasthan during on September 11-12, 2022 with Speaker of LokSabhaShri Om Birla as the Chief Guest and RakshaRajyaMantriShri Ajay Bhatt as the Guest of Honour. A static display by the Indian Army displaying indigenous platforms and drone show by Botlabs was well received by the public in Kota.

The India Pavilion - a marque pavilion of Department of Defence Production, Ministry of Defence - will showcase the maturity of indigenous defence products, start-ups, latest technology, including Artificial Intelligence in defence, and will present India's vision for 2047. It has been named 'Path to Pride'.

DefExpo 2022 will also mark the celebration of one year of the formation of the seven new defence companies, carved out of the erstwhile Ordnance Factories. All these companies will be participating for the first time at DefExpo.

The exhibition will also host the 2nd edition of the India-Africa Defence Dialogue (IADD), with invites extended to 53 African countries. A separate Indian Ocean Region plus (IOR+) conclave with participation of approximately 40 countries is also on the anvil. Intensive interactions and ideation at seminars, planned at the DefExpo 2022 with eminent panellists from Government, Industry, Industry associations, States, Academia, Think-tanks etc., will also provide important learnings/take-aways/action points for further growth of this sector.

https://pib.gov.in/PressReleasePage.aspx?PRID=1861913

Hindustan Times

Fri, 23 Sept 2022

Indian Army Set to Float Tender for Carbines, Bulletproof Vests

The Indian Army has expressed a fresh demand for carbines and sought information from domestic arms manufacturers for the possible supply more than 425,000 guns of prescribed specifications ahead of floating a tender for the purchase in November, officials familiar with the matter said on Friday. The close-quarter carbines will be for frontline soldiers, including the Line

of Actual Control (LAC) with China where the two countries have been locked in a tense standoff since May 2020, the officials said.

The force is looking to acquire 5.56mm carbines with an effective range of at least 200 metre, the army said in their request for information (RFI). The document, published on Thursday, also spells out other desired parameters of the weapon, including accuracy and reliability. The development comes months after the defence ministry cleared indigenous defence purchases worth ₹28,732 crore, including carbines, armed drone swarms and bullet-proof jackets. The army has also issued an RFI for 47,627 bulletproof jackets. The defence acquisition council (DAC) had in July accorded its acceptance of necessity for the military hardware to provide a boost to self-reliance in the defence manufacturing sector.

https://www.hindustantimes.com/india-news/indian-army-set-to-float-tender-for-carbines-bulletproof-vests-101663930705399.html

IDN INDIAN DEFENCE NEWS
Global Defence, Aerospace & Security

Sun, 25 Sept 2022

HAL Exhibits Weapons Package for Light Combat Helicopter at AAD2022

The Indian Air Force (IAF) is set to formally raise its first unit of indigenous Light Combat Helicopters (LCHs) in Jodhpur in the first week of October coinciding with Air Force Day on October 8.

Ten LCHs will be inducted in the first batch completing one unit, a defence official said on Monday. The IAF is still working out the total number of LCHs to be acquired, the official stated.

The IAF operates the older Russian Mi-25 and Mi-35 attack helicopters, of which one squadron has been phased out following the induction of 22 Boeing AH-64E Apache attack helicopters. The existing Mi-35 squadron is in the process of being sent for overhaul which will extend its life by many years, the official stated.

The Africa Aerospace and Defence (AAD) is Africa's only aerospace and defence expo that combines both a trade exhibition and an air show. Held biennially in the City of Tshwane – South Africa's administrative capital, the AAD Expo is one of South Africa's largest contributors to the country's GDP in show years, and is regarded as a national asset.HAL exhibited a complete and formidable weapons package at AAD 2022. It is evident from the above graphic that the LCH has the capability to carry ATGMs, Air-To-Air Missiles and Rockets package and other high-tech defensive systems.

http://www.indiandefensenews.in/2022/09/hal-exhibits-weapons-package-for-light.html

FINANCIAL EXPRESS
Read to Lead

Fri, 23 Sept 2022

IAF to add more Teeth to its Bite! Light Combat Helicopters to be Inducted Next Month

Stage is getting set for the formal induction of indigenous Light Combat Helicopters (LCH) in the Indian Air Force (IAF) next month. According to officials the helicopters will be inducted during a ceremony on October 3, 2022 at Jodhpur Air Base, Rajasthan.These multi-role LCH are indigenously built by state-owned Hindustan Aeronautics Limited (HAL) and are capable of destroying enemy air defence and can also be deployed in combat search and rescue tasks as well as most importantly in counter insurgency operations.

The induction of these machines comes following the approval by the Cabinet Committee on Security, chaired by the Prime Minister, for procurement of 15 LCH Limited Series Production (LSP). These helicopters will come at a cost of Rs 3,887 crore and allied infrastructure worth Rs 377 crores.

Out of the 15 helicopters, the IAF will get 10 and the balance five will go to the Indian Army.

Induction ceremony

This will take place at Jodhpur Air Force Base which is closer to Pakistan. Present on the occasion will be defence minister Rajnath Singh, Chief of Air Staff Air Chief Marshal V R Chaudhari, and senior officers of the IAF as well as officers from HAL.

More about the Helicopter

This is a 5.5-tonne class combat helicopter which has been designed and developed by HAL. According to the Ministry of Defence (MoD) the LSP version comes with 45 percent indigenous content and this content is expected to touch 55 percent by the time the Series Production Version starts.

Two Shakti turboshaft engines will power the LCH and will provide a maximum continuous power output of 1,067kW.

It will come with 20-mm turret guns which are mounted on its nose and have the capability to rotate 110 degrees.

Financial Express Online has reported earlier in details about the features of this machine. Because of the tandem cockpit configuration for the pilot and co-pilot gunner, this bird has a narrow fuselage.

As reported earlier this machine comes with the state of the art stealth features due to its low frontal radar cross-sections. It has night attack capability, crash worthy landing gear for better survivability, and armour protection.

Also, the helicopter has bulletproof windshields, self-sealing fuel tanks, has built-in crashworthiness of crew seats, bottom structures, and fuel tanks.

This machine will be equipped with chaff dispensers, infrared suppression systems and flares.

Has extended range, high altitude performance, all weather combat capability, Destruction of Enemy Air Defence (DEAD), Counter Insurgency (CI) operations, maneuverability.

Weapons

Helicopter-launched Nag missiles which are anti-tank guided missiles; and around four French MBDA Mistral short-range air-to-air missiles.

The automated cannon of this helicopter can fire 750 rounds per minute across a range of 2,000 metres.

https://www.financialexpress.com/defence/iaf-to-add-more-teeth-to-its-bite-light-combat-helicopters-to-be-inducted-next-month/2689178

The Tribune

Sat, 24 Sept 2022

Set to join IAF, Light Combat Helicopters can Carry Out Night Operations

The first unit of indigenously made light combat helicopters (LCH) is all set to join the IAF fleet on October 3. Ten LCHs will be inducted in the first batch.The helicopters, with the ability to carry out night warfare, will carry latest weapons, avionics and radars.Powered by two Turbomeca Shakti engines, the copter has a service ceiling of 6,500 metres (21,000 feet), it can go over the highest of the Himalayan passes. The 5.8-tonne helicopter will carry a turret gun, a rocket firing system and air-to-air missiles.

The copter has built-in crashworthiness of landing gear, crew seats and fuel tanks. It will carry an onboard electronic warfare.The rotor blades have advanced technology carbon fibre. Pilots will have modern avionics to work with.

The IAF operates the three-decade-old Russian Mi-25 and Mi-35 attack helicopters. One of the squadrons of the Russian-made copters is to be phased out while another one is going for a midlife upgrade. The process of induction of 22 Boeing AH-64E Apache attack helicopters has been completed.

In March, the Cabinet Committee on Security had approved procurement of 15 Limited Series Production variants of the LCH at the cost of Rs 3,887 crore along with infrastructure sanctions worth Rs 377 crore.

https://www.tribuneindia.com/news/nation/set-to-join-iaf-light-combat-helicopters-can-carry-out-night-ops-434673

THE HINDU

Sun, 25 Sept 2022

With Depleting Fighter Strength, Indian Air Force Looks to Speed Up SU-30 Fleet Modernization

Having taken delivery of all Su-30MKI fighter aircraft and the deal for contracting 12 more Su-30s meant to replace those lost over the years deferred in the back drop of the war in Ukraine, Indian Air Force (IAF) is working to speed up the long-delayed upgrade of these frontline fighters. "The Air Service Quality Requirements for the first upgrade are being finalised. Lot of work is under way on that front," a defence official said. "We are trying to do as much of the upgrade as possible within the country involving the private industry," the official stated. The upgrade process is as much as procuring an aircraft, the official said while explaining that the upgrade is a complex exercise and is being planned in phases. During the early stage of the deliberations, which have been going on for several years now, Russian side had pitched for the entire upgrade to be done in Russia but given the long timelines, India was inclined to do it in phases with a major part of it in the country. The Make in India effort and the war in Ukraine have accelerated that effort.

Effort is on to do basic mission capabilities, fly by wire and flight controls among others within the country, the official stated. The IAF is looking to add new weapons, avionics and sensors and engines on the Su-30MKIs to keep them contemporary for the next few decades. India had procured 272 Su-30s from Russia, majority of which were assembled in India by Hindustan Aeronautics Limited (HAL) and around 11 jets were lost over the years. The IAF has 12 Su-30 squadrons in service, and anywhere between 40-50 aircraft are at HAL for overhaul repairs at any given time, officials said.

A plan to procure 12 additional SU-30MKIs and 21 MIG-29s from Russia has been stuck and with the war in Ukraine and indigenous push, it's been deferred. Even though the Su-30s are only to replace the lost ones, with the ongoing war in Ukraine, the government does not want to be seen as approving major defence deals with Russia, the official said, echoing the views of another senior official. The deal is unlikely to happen anytime soon, both the officials noted. The IAF has an authorised strength of 42 fighter squadrons which currently stands at 32 including two squadrons each of the Rafale and indigenous Light Combat Aircraft. For instance, the IAF has four MIG-21 squadrons in service with one squadron to be phased out per year. As part of it, the No. 51 'Sword Arms' Squadron based in Srinagar of which Gp Capt (then Wg Cdr) Abhinandan Varthaman was part of and saw action in February 2019 during the Balakot air strike is set to be phased out later this month.

With the drawdown plan accelerating as older jets complete total technical life and delays in newer inductions, upgrading the Su-30s has become a priority. It is not possible for the IAF to reach the sanctioned strength of 42 fighter squadrons in the next 10-15 years and the force will remain at 35 squadrons given the current phase outs and inductions, Chief of the Air Staff Air Chief Marshal (ACM) V. R. Chaudhari had said earlier. In addition, IAF is confident that increasing the low availability rates of Su-30 and other fighters in service will offset some of the shortfall in the interim, as an IAF representative informed the Parliamentary Standing Committee

on defence as per a report tabled in March this year. “That is one way Air Force fills that. Serviceability state, you are aware of it, has been low. Once we get that, the existing strength itself we can ramp up before the new aircraft come in. That is the best we are looking at as of now,” the representative added.

In the last seven to eight years, several steps have been taken to increase the serviceability rates of the Russian equipment in use, especially the Su-30MKI fleet which constitutes a significant number in the IAF inventory. Part of the measures are long term spares and support agreements as well as Joint Ventures in India with Russian original equipment manufacturers for faster turnaround.

https://www.thehindu.com/news/national/with-depleting-fighter-strength-indian-air-force-looks-to-speed-up-su-30-fleet-modernisation/article65934607.ece

THE TIMES OF INDIA

Mon, 26 Sept 2022

India Can Scale Up Production of Tejas Fighters for Operational Needs and Exports

By Rajat Pandit

India can scale up production of the indigenous Tejas light combat aircraft to meet operational requirements and export orders, defence ministry officials say, claiming that delays in deliveries are now a thing of the past. The single-engine Tejas fighter is already the frontrunner to bag a Malaysian order for 18 light twin-seat fighter trainers despite strong competition from Chinese JF-17, South Korean FA-50 and Russian MiG-35 and Yak-130 jets. “Moreover, there are also inquiries about the fighter from Argentina, Egypt and the Philippines, among others,” a senior official told TOI.

The current production rate of Tejas by defence PSU Hindustan Aeronautics (HAL) is eight aircraft per year but “additional capacity is now available” to enhance it. “It is not difficult,” the official said. The plan is to progressively scale up the production rate to 16 Tejas per year for deliveries of the 73 “improved” Mark-1A fighters and 10 trainers to the IAF, which are slated to begin In in February 2024 and end by February 2029. The Rs 46,898 crore contract for these 83 Tejas was inked with HAL in February 2021. “The production rate can even be increased to 24 aircraft per year if they are export orders or the IAF needs more. If there are confirmed orders, investments can be made to install additional jigs and fixtures,” another official said. The Cabinet Committee on Security had last month also approved the over Rs 9,000 crore development of a much more capable and powerful Mark-2 version of the Tejas, which will be followed by another mega project for an ambitious fifth-generation stealth fighter, as was then reported by TOI.

The slow production rate of the Tejas, which is now also being armed with the French `Hammer’ air-to-ground precision-guided munitions like Rafale fighter jets, has been a major lingering concern over the years. The two IAF Tejas squadrons, the “Flying Daggers” and “Flying Bullets” at Sulur, have till now inducted only 30 of the original order for 40 Tejas Mark-1 fighters, which

were all slated for delivery by December 2016 under two contracts worth Rs 8,802 crore inked earlier. “Deliveries are now picking up. The first of the eight trainers in the original 40 Tejas is ready. All of the eight trainers will be delivered before the deliveries of the next 83 jets begin in February 2024,” the official said. “Tejas is a very cost-effective aircraft,” he added. The IAF desperately needs these 123 Tejas to add to the strength of its fighter squadrons, which is down to just 32 (each has 16-18 jets) when at least 42 are required for the requisite deterrence against the “collusive threat” from China and Pakistan.

The Tejas Mark-1A fighters will have 43 “improvements” over the Mark-1 jets. They include AESA (active electronically scanned array) radars to replace existing mechanicallysteered radars, air-to-air refuelling, long-range BVR (beyond visual range) missiles and advanced electronic warfare to jam enemy radars and missiles, though the majority of them are designed to improve maintenance. Indigenous content of the jets will also progressively reach 60% by the end of the deliveries. There is acknowledgement in the Indian defence establishment, which has a pronounced `Make in India’ thrust now, that the country cannot ill-afford to keep on buying expensive foreign fighters. While the 36 omni-role Rafale jets are very advanced and capable, they cost a whopping Rs 59,000 crore.

https://timesofindia.indiatimes.com/india/can-scale-up-output-of-tejas-fighters-for-exports-operational-needs-say-officials/articleshow/94440646.cms

THE ECONOMIC TIMES

Sun, 25 Sept 2022

Defence Exports Grew by 334 per cent in Last Five Years: Government

Defence exports have grown by 334 per cent in the last five years and India is now exporting to over 75 countries due to collaborative efforts, the government said on Sunday. The Press Information Bureau (PIB) said in a tweet: "The Indian Defence sector, the second largest armed force is at the cusp of revolution."

"Defence exports grew by 334 per cent in the last five years; India now exporting to over 75 countries due to collaborative efforts," it said.

The PIB India Twitter handle also shared some data in a poster attached with the tweet to underline the indigenisation and boost of production in the defence sector. It mentioned the recent commissioning of India's first indigenous aircraft carrier INS Vikrant in Kochi.

It also mentioned about the indigenous Advanced Light Helicopter Mk-III's squadron being commissioned into the Indian Coast Guard, and successful testing of new generation nuclear-capable ballistic missile 'Agni P'.

Defence Secretary Ajay Kumar, during an interaction held at an event here on Thursday, had said efforts were being made to "unleash the energy" of the Make-in-India initiative as a whole in the defence sector and the country's AmritKaal vision is to see it among the top five countries globally in defence production.

In the last 75 years, India has continued to be one of the largest importers of defence products in the world, and this is the situation the government wishes to change, he had said.

https://economictimes.indiatimes.com/news/defence/defence-exports-grew-by-334-per-cent-in-last-five-years-government/articleshow/94435562.cms?from=mdr

Business Standard

Mon, 26 Sept 2022

12th Edition of Defence Expo to be Held in Gujarat's Gandhinagar: MoD

The Ministry of Defence on Monday announced that the 12th edition of the Defence Expo, India's flagship exhibition on Land, Naval and Homeland Security systems, will be held in Gandhinagar, Gujarat. The event will be held between October 18 and 22, 2022. The theme for this edition is 'Path to Pride' invoking nationalistic pride and encouraging citizens to partake in nation-building through establishing a capable indigenous Defence industry. The five-day event will witness three business days followed by two public days. Live demonstrations showcasing the equipment and skill set of the Armed Forces, DPSUs and Industry will be held on all five days at Sabarmati River Front through active participation and synchronized efforts at all levels, informed the officials.

"The DefExpo 2022 will be held in a three-venue format across an area of 01+ lakh square metres at Helipad Exhibition Centre; inaugural event and seminars at Mahatma Mandir Convention and Exhibition Centre and Live demo at Sabarmati River Front," read a statement by the Ministry of Defence. The exhibition is being planned with events such as Bandhan for forging partnerships between companies; seminars and webinars showcasing start-ups/MSMEs, including cutting-edge technology solutions for future battlefield; Artificial Intelligence in defence; student visits and showcasing Gujarat as an investment destination for aerospace and defence sector, etc. The exhibition is in line with the vision of Prime Minister Narendra Modi to achieve self-reliance in defence and achieve export of $5 billion by 2025. India has successfully established itself as an emerging defence manufacturing hub with numerous international orders being bagged by Indian companies in recent years.

The Indian Defence industry has been keenly anticipating DefExpo-2022 which is Asia's largest event in the defence sector. It was postponed in March 2022 due to logistical problems being faced by the participants. The reforms in defence manufacturing are attracting greater interest from Indian Defence manufacturers and it is therefore anticipated that DefExpo-2022 would attract active participation from Indian companies. At DefExpo-2022, the participants will get an opportunity to showcase their equipment and platforms and also be able to explore the strengths and capabilities of the expanse of the Indian Defence industry for forging Business partnerships. The event will help boost investment, expand manufacturing capacities and capabilities, and discover avenues for technology absorption.

The DefExpo-2022 website (www.defexpo.gov.in) is available to provide online services to exhibitors, besides hosting informative content about the various indigenous defence products

and promoting heritage and leisure at Gujarat. The exhibitor booking would be available for Indian companies which will include Indian subsidiaries of Foreign OEMs, Joint Ventures between Indian and Foreign companies, Defence Public Sector Undertakings, State Pavilions, DRDO and Indian companies.

https://www.business-standard.com/article/current-affairs/12th-edition-of-defence-expo-to-be-held-in-gujarat-s-gandhinagar-mod-122080900101_1.html

THE HINDU

Sat, 24 Sept 2022

At DefExpo 2022, India-Africa Defence Dialogue on the Anvil

The forthcoming DefExpo 2022, scheduled to be held in Gandhinagar from October 18 to 22, will host the second edition of the India-Africa Defence Dialogue with invites extended to 53 African countries. A separate Indian Ocean Region plus (IOR+) conclave with participation of approximately 40 countries is also on the anvil, the Defence Ministry said on Saturday.Defence Secretary Ajay Kumar reviewed the preparations of the Expo at a meeting on Saturday with Gujarat Chief Secretary Pankaj Kumar and other senior officers of the State government and the Defence Ministry.

This edition will see the participation of only Indian companies. The Expo was earlier scheduled to be held in March was postponed due to "logistical challenges" the Ministry had said then as the war in Ukraine began on February 24. For DefExpo 2022, Indian companies, Indian subsidiaries of foreign Original Equipment Manufacturers, Division of company registered in India, exhibitor having joint venture with an Indian company will be considered as Indian participants, the Ministry said.

The theme of DefExpo 2022 is 'Path to Pride' and the aim is to showcase the might of the domestic defence industry which is now powering 'Make in India, Make for the World' resolve of the Government and the nation at large, the statement said.

This edition of the expo is being planned in a total area of 1+ Lakh sqm which would make it the largest so far. The inaugural ceremony and seminars will be held at mahatma mandir convention and exhibition centre, the exhibition at Helipad Exhibition Centre, live demonstrations on all five days at Sabarmati river front and ship visits for public by the Indian Coast Guard at Porbandar. The biggest drone show by the indigenous IIT-Delhi start-up, Botlabs, has also been organised, which will be another highlight of the mega-event, the statement added.

https://www.thehindu.com/news/national/india-africa-defence-dialogue-and-ior-plus-at-defexpo-2022/article65931237.ece

Firstpost.

Sun, 25 Sept 2022

Future Force: How India's Military must Handlethe Change to Theatre Command Structure

By GpCapt Johnson Chacko

Changing the current organisational structures of the Armed Forces to Theatre Command Structure needs detailed analysis involving management experts. The management of change to integrate the Armed Forces which have a large cultural legacy is a formidable task. Any problem that needs a solution starts with analysing the "Presented Problem", then the "Problem as Understood" by the research team after due interactions at desired user levels culminating in the "Problem to be Solved".

Then serious work starts on solving the problem and at the Armed Forces level, the team members would include officers from all the armed forces. Interaction with the stakeholders continues throughout the process. Recommendations are shared with all the stakeholders. Metrics are drawn to assess the enhancement of effectiveness with the re-organised structures. Assessment after implementation is a crucial factor especially in a pilot project. Implementation comes after all these steps. From media reports that emanate this process has not been diligently followed. Unless we approach this in a holistic manner, we cannot come to a conclusion that Theatre Commands with Air Defence Command is the only solution.

Root Cause Analysis: Any management of change to enhance combat effectiveness is based on the objective of the organisation, how it has been functioning so far, analysis of the strengths, weaknesses and areas of ineffectiveness, ideation and formation of a plan to address these, analysis of the effect of these changes on other branches of the organisation and external linkages and addressing them to ensure minimum disruption while maximising combat effectiveness. The root cause that necessitated the change (in this case integration) is addressed so that it does not recur.

Organisational Redesign: If the above does not provide the required results, then we must re-design the organisation de-novo focussing our attention on the goal orientation specified as per the Military Doctrine and the stated objectives of integration, maximising its combat effectiveness etc. that flow from it. Then we need to plan the change over from the current organisation to the new one, addressing issues that may emerge in a pro-active and pre-planned manner.

If neither of the approaches enhances effectiveness, then we need to maintain the status quo. Change for the sake of change without adequate foresight destroys an organisation.

Cognitive Dissonance

There are articles and commentaries by some of our esteemed veteran Generals other than from Army Aviation Corps and Army Air Defence expressing their views on a subject they are not fully aware of. Creation of an Air Defence Command is one such organisation which is being forced down on the country when the writer's exposure to air defence is limited. Theatre

Command is another without adequate knowledge of employment of air power to enhance combat effectiveness of the armed forces as a whole.

Perception: The army perception is that loss of territory is unacceptable and support to ground troops should be the priority and hence the IAF should be subservient to the army. The army may not appreciate that neutralising the supplies meant for the enemy that causes the loss of territory, by the air force is in support of our army. In fact, the entire panoply of roles of air power started with support to army. It expanded to air defence so that the enemy air force does not interfere with our army operation and to ensure that our national assets in depth are secure. Then it extended to Counter Air Operations so that enemy aircraft don't take off to attack our army and other targets in our country.

It expanded thereafter to strategic bombing so that the factories that make the guns for that army and support that nation's economy don't function. To state that loss of territory is unacceptable to the army and so the air force should do only support to the ground troops at the FLOT (Forward Line of Own Troops) is too myopic and goes against the tenet of flexibility and simultaneity as the same aircraft can be used for all the above roles!

Perceptions are different and even an air warrior will not accept loss of territory. We cannot afford to lock up an asset under the Theatre Commander that has the capability to cause harm to the enemy at tactical, operational and strategic levels where the theatre commander's horizon may be just 300 km. The army moves at 2 knots, the navy at 20 knots and I have flown at 2000 kts. There will be a whale of a difference in perceptions and decision-taking capabilities because of this. Procrastination can have fatal consequences for an air warrior. The mindsets in terms of flexibility and many other attributes are vastly different.

Simultaneity: Some of the commentators are not clear as to why the air force continues to harp on simultaneity of operations while unwilling to contribute resources for joint operations under a single commander, responsible for a theatre. Simultaneity means that the omni-role aircraft can be used against tactical, operational or strategic targets including delivery of nuclear weapons across large swathes of geography well beyond the horizon of the theatre commander in a persistent manner. Omni role indicates multiplicity of roles that the aircraft can be utilised for which may be beyond a theatre. Control of such an aircraft by a theatre commander will be gross underutilisation of that aircraft when we don't have adequate number of aircraft.

Lack of Integration: Lack of integration has been quoted by many as the reason for creating theatre commands. History is witness to the fact that the IAF is wholly behind the idea of integration in time and space for effect-based operations. Many times, the air force has been asked "How many sorties can the air force provide?" or "How many aircraft are tasked for army support?" The initiation of planning has been held hostage to the answers for these. When the answers are not forthcoming (as these are not relevant questions), the plan is made without the integration of the air force and air power is treated as an add on bonus.

Wherever the army has integrated the air force at the planning stage with a sincere appreciation of the situation, by stating which targets need to be neutralised at what time or what needs to be transported, the air force has always delivered. Lack of integrated planning destroys the essence of integration. We need to integrate the aim/objectives, integrate ideation and thought process, integrate the time frames and integrate post conflict resolution in emerging scenarios. Communication is the most important process to attain integration. Lack of it reinforces the silos.

Assets Under Control: It is a fallacy to believe that unless the army commander has air assets under his exclusive control (making him a Theatre Commander) no integrated operation can be planned. With such a mentality, Balakot would have never happened, where aircraft from the squadrons based at three different Commands of the IAF integrated to carry out the strike successfully in radio silence. There is a difference between the two. If effective integration has to take place the air force needs to be taken into confidence on the evolving situation which has not been forthcoming as experienced in the past. When the air force is needed, then the true extent of the issue is revealed and the question that is asked is can the air force do something? Kargil has been quoted as an intelligence failure. Be that as it may, the air force discovered the air defences that the Pakistanis had after losing a few aircraft and one of them bringing back an un-exploded Stinger missile it its jet pipe. Can the nation accept this in the age of satellites that can be used for monitoring our borders? Instead of trying to get assets under control, integrated planning and frank communication is the key.

Budgetary allocation to armed forces

There is a perpetual debate on the subject of "Guns Vs Butter". This issue was settled by Chanakya a long time ago and that empire had the largest India-centric land area under its control. He had stated that one sixth of the kingdom's revenue/expenditure needs to be spent on its protection. There were no pensions at that time. Have we ever spent that kind of resources (without pensions) on our defence? If we had spent that kind of money we would not be in this sorry state. This issue needs to be resolved by the military and political leadership before we can embark on grandiose plans of Theatre Commands so that the armed forces have adequate assets, may be a full-fledged army, navy and air force for each Theatre.

DMA Tasking

It is apparent that the DMA tasking has been resorted to without the above-mentioned due diligence. To quote "…to facilitate the restructuring of military commands for optimal utilisation of resources by bringing about jointness in operations, including through the establishment of theater/ joint commands". It jumps from facilitation of restructuring to establishment of theatre commands with a reference to optimal utilisation. It is an impossible task to achieve if the above-mentioned steps have not been followed diligently.

The tasking on the lines of two land theatres, a maritime command and an air defence command effectively reduces the Indian Navy to a Maritime Command and the Indian Air Force to an Air Defence Command with all other air assets being distributed among the land-based Theatre Commands. If all naval assets are placed under the Maritime Command, then the Chief of Naval Staff may become redundant. Similar is the case in the IAF where the Chief of Air Staff may become redundant. The flexibility available for simultaneity of air operations in the tactical, operational and strategic levels will be curtailed. The potential of the omni-role aircraft will be limited as it will either be assigned to the air defence role or close air support role that the army desires. This does not enhance organisational effectiveness of the armed forces as a whole as the potential of our own assets will be intentionally curtailed which will be advantageous to our enemies.

The suggested solution

There is a need to address the cognitive dissonance caused by the prevailing mindsets and lack of communication (trust) for integration to succeed. Training at joint service institutions should

include the operations methodology of the other services and this needs to be assessed. This may reduce the cognitive dissonance. The need of the hour is integration and not disintegration by implementing ill thought-out plans to change the organisational structures that impinge on the overall organisational effectiveness of the armed forces. It can be anticipated that a Theatre Commander will have a Chief of Staff and under him will be the various staff officers of which one will be from the IAF. This is a sure-fire way to waste the air resources placed under the Theatre Commander.

Taking a lead from the published article on the suggested, rudimentary, indigenous Indian Military Doctrine at http://www.indiandefencereview.com/news/indian-military-doctrine-an-analysis/, it would be saner to have the same Area Of Responsibility (AOR) for the army, navy, and IAF commands which will be much larger. We may continue with the current practice of C-in-C. For example, we may call them GOC–in-C (West), FOC-in-C (West) and AOC-in-C (West). During peacetime they carry out all the peace time tasks as of now. We also need to have a Joint Force Commander of the region, JFC (West), who will be senior to all three and have no troops under command during peacetime. He could be from any service. These four carry out joint/integrated planning based on the capabilities they have and plan for capabilities that are needed if they do not have them integral to their Commands.

During war they move in under the JFC (West) and become Army/Navy/AF Component Commanders while retaining their appointments as C-in-C. It goes without saying that the JFC has staff from all three services who do the detailed planning and staff checks. This would ensure that the Cs-in-C can concentrate on training for combat readiness and administration while being involved in joint/integrated planning. JFC will also be tasked with many more functions, the prime among them being inspections of units for operational readiness as he has to ultimately deliver as head of the Joint Force. The same could happen at the centre with the Permanent Chairman of COSC becoming JFC (India) and staff of the IDS HQ with Chiefs becoming component commanders. For a lower level of task other than war, an integrated task force can be set up with a nominated Commander for the task under the JFC and the units return to their Commands after the task.

Legal Authority

Besides the doctrinal base there needs to be a legal authority like an Act of Parliament to authorise such changes. Authority to direct, control, reward and punish implies legitimate power. In a society subscribing to democratic values, the legitimacy of power wielded in any organisation finds its origin in the elected government. This has many ramifications since service in the armed forces is voluntary.

Conclusion

We have been addressing issues as and when they crop up or based on the threat posed by our adversaries because of lack of goal orientation percolating down to the National Security Policy (Guide to Action). Goal orientation defined by the national leadership is absolutely essential as a start point. This basis should not be compromised. The reorganisation of the armed forces to enhance effectiveness needs to be a well thought out exercise. There are many factors that need to be considered as stated above which includes analysis of the evolution of current organisational structures, design of a better structure, managing the change from the old to the new with adequate foresight to address all the issues that will arise besides activities at the macro

level such as a legal framework, goal clarity, norms for budgetary allocations and many more issues.

The suggested solution may ensure that the strengths of each service are retained, no disruption of Service Doctrines and promote joint/integrated application of military force, enhancing overall combat effectiveness. Appointments mentioned may be renamed without affecting the tasks. There will be a need for fleshing out the suggested solution, trying it out in the small Northern Command as a pilot project and designing the interlinkages between the and army and air force. These could be extended to the higher defence organisations.

Creation of an Air Defence Command and Domain-specific Theatre Commands and then addressing the issues that may crop up as crisis management is not a solution and will have disastrous consequences. The solution needs to complement basic values, traditions and leadership principles prevalent in each of the armed forces for enhancing combat effectiveness of the armed forces as a whole as personnel deliver results and they need to be taken on board. Let us choose the harder right than the easier wrong as the adverse consequences will be detrimental to the integrity of the nation.

https://www.firstpost.com/opinion-news-expert-views-news-analysis-firstpost-viewpoint/future-force-how-indias-military-must-handle-the-change-to-theatre-command-structure-11306621.html

The Tribune

Mon, 26 Sept 2022

INS Satpura Exhibits Skills in Australia

- The INS Satpura participated in the recent 14-day exercise ‘Kakadu-22’ organised by the Royal Australian Navy

- The warship, which reached Darwin on September 12, performed various drills involving anti-submarine warfare
- It showcased precise target destruction capability during gun-firing exercises; ‘Kakadu’ is Australia’s flagship biennial international activity since 1993. TNS

About the warship

- Indigenously built
- 6,000 tonne weight
- Guided missile stealth frigate
- Frontline unit of Vizag’s eastern fleet

https://www.tribuneindia.com/news/nation/ins-satpura-exhibits-skills-in-oz-435346

Sun, 25 Sept 2022

India's Stealth Warship's Lethal Show in Australia Exercise

India's indigenously designed and built naval ship INS Satpura has showcased her prowess during the ongoing multinational Exercise Kakadu-2022, hosted by the Royal Australian Navy.

INS Satpura and P-8I Maritime Patrol Aircraft had reached Darwin in Australia on September 12 to take part in the exercise, the Defence Ministry had earlier said. "The ship participated in various anti-submarine warfare exercises, anti-ship warfare exercises, manoeuvres and has also showcased her precise target destruction capability during gun firing exercises," a Navy official said on Sunday.

The participation in Exercise Kakadu-2022 is aimed at "enhancing mutual understanding and interoperability at sea among navies of friendly foreign countries," the Indian Navy said.

INS Satpura is an indigenously designed and built 6000-tonne guided-missile stealth frigate.

The ship is a frontline unit of the Eastern Fleet of the Navy, based at Visakhapatnam, and is currently on one of the longest deployments by the Indian Navy in the 75th year of India's Independence, officials said.

"The two-week-long exercise, both in harbour and sea, involves ships and maritime aircraft from 14 navies. During the harbour phase of the exercise, the ship's crew will engage in operational planning interactions and sports activities with participating navies," the ministry had said in a statement on September 13.

https://www.ndtv.com/india-news/indias-stealth-warship-ins-satpuras-lethal-show-in-australia-exercise-kakadu-2022-3376097

the pioneer

Sat, 24 Sept 2022

US: F-16s Supply to Pak not Designed as Message to India

Days after Defence Minister Rajnath Singh expressed India's concern to his US counterpart Lloyd Austin over supply of F-16s to Pakistan, the US has said "it is not designed as a message" to New Delhi for its neutral stand on Russia regarding the ongoing Ukraine conflict. Making his country's stand clear regarding the issue, Ely Ratner, Assistant Secretary of Defence for Indo-Pacific Security Affairs, said late Thursday its decision to provide a USD 450 million sustenance package for Pakistan's F-16 fleet is associated with America's defence partnership with Islamabad which is primarily focused on counterterrorism and nuclear security.

He also said the US has a limited security partnership with Pakistan. However, New Delhi says Pakistan's F-16s are not used for counter-terrorism operations and instead pose a threat to India. The US official's reaffirmation came in the backdrop of Rajnath on September 14 talked about India's apprehensions about the F -16 deal during his telephonic talks with Austion. It was the first ministerial level objection registered by India. "I conveyed India's concern at the recent US decision to provide sustenance package for Pakistan's F-16 fleet. Look forward to continuing dialogue with Secretary Austin to further consolidating India-US partnership," Rajnath tweeted after talks. Earlier, the ministry of external affairs reportedly expressed its concern during meeting with US Assistant Secretary of State Donald Lu.

He was here to take part in the Quad Senior Officials Meeting (SOM). On September 8, the Biden administration approved the 450 million dollar F-16 fighter jet fleet sustainment programme to Pakistan, reversing the decision of the previous Trump administration to suspend military aid to Islamabad for providing safe havens for the Afghan Taliban and the Haqqani network. In a notification to the US Congress, the State Department made a determination approving a possible foreign military sale for sustainment and related equipment arguing that this will sustain Islamabad's capability to meet current and future counterterrorism threats by maintaining its F-16 fleet.

Responding to a question, Ratner, said the recent US action with Pakistan on F-16 is not designed as a message to India as it relates to its relationship with Russia. "The decision inside the US government around the F-16 issue was made predicated on US interests associated with our defence partnership with Pakistan which is primarily focused on counterterrorism and nuclear security and as the (Defence) Secretary Lloyd Austin made clear to (Defence) Minister Rajnath Singh during their call last week, this case did not include any upgrades or munitions," he said. "We have been engaging with our Indian counterparts, both in advance of the announcement to preview it and during my visit with Assistant Secretary (Donald) Lu in Delhi as well. So we thought it was quite important to be as transparent as we could with Indian counterparts both in advance and during that decision and it provided a good opportunity to have a healthy exchange on both the US rationale for its limited security partnership with Pakistan as well as a good opportunity to hear India's concerns about that," Ratner said.

India's defence ties with Russia go back several decades. A large portion of Indian military hardware has been of Russian-origin, though in recent years India has bought US equipment and aircraft.

The US official said his country recognises that India has a long and complicated history in terms of its security partnership with Russia and has been in the process over last many years of diversifying its arms and imports as well as prioritising its own indigenous development, and "we want to support them." "We want to support India on both fronts and are doing so. We think trend lines are heading in right direction. We are deeply engaged in conversations on exploring opportunities for co-development and co-production. We are also looking for ways to support India's own indigenisation which we know is a huge priority for Prime Minister Modi and in military there," said senior Pentagon official. Responding to another question, he said US is taking a hard look at co-development and coproduction under Defence Trade and Technology Initiative.

https://www.dailypioneer.com/2022/india/us--f-16s-supply-to-pak-not-designed-as-message-to-india.html

The EurAsian Times

Sun, 25 Sept 2022

India, China, Russia Test Their Versions of Switchblade Drones as Ukraine War Makes Loitering Munitions Popular

The new drone, known as the ALS 50, was developed by a team of young engineers at Tata Advanced Systems Limited (TASL) and is designed to be a vertical take-off and landing (VTOL) platform.

The ALS 50 has already proven its ability to operate from high-altitude areas during tests earlier this year in Ladakh.

The recent test occurred at the Indian Army's Pokhran Firing Range in Jaisalmer, Rajasthan. The drone accurately hit the ground target with an explosive warhead during trials, reported ET citing sources.

> Loitering Munitions (unmanned aerial vehicles hitting targets on the ground with war heads) were successfully tested in Pokhran today.
>
> The Munition ALS50 is designed for Vertical Take Off and Landing (VTOL). pic.twitter.com/kAm4cIPxDa
>
> — Pralhad Joshi (@JoshiPralhad) September 23, 2022

The drone can take off as a quadcopter and then transition into a fixed-wing mode during flights for long-distance trips.

Thanks to its VTOL capability, the ALS 50 can navigate confined spaces such as vessel decks, fortified mountain positions, small jungle clearings, and narrow valleys. It has an autonomous targeting system that can accurately identify and home in on a pre-determined target.

Also, its range and payload capacity can be increased per the customer's requirements. Drones' future development can include artificial intelligence integration and swarming capabilities.

According to the ET report, the ALS-50 will soon be inducted into the Indian armed forces.

Ukraine War Makes Loitering Munitions Popular

The Indian military has been seeking a range of loitering munitions or 'kamikaze drones' that can be used for precise strikes against high-value targets such as command posts, missile launchers, enemy armor, etc.

This is a common theme among the drone capabilities sought by armed forces of several countries, particularly after the onset of the Russia-Ukraine war, where kamikaze drones, especially the American-made Switchblade loitering munitions, are quite favored.

This has led countries like Russia and China to develop their versions of Switchblade drones, and it seems that India, with its ALS-50 drone, could be considered the latest addition to that list.

China unveiled its FH-901 suicide drone two weeks ago by releasing a video showing a tank target being attacked and destroyed in a top-attack profile by what appears to be an FH-901 drone.The Chinese state-owned media touted the drone as China's counterpart of the American Switchblade.

Before that, in late August, Russia also developed a drone similar to the US-made Switchblade but "twice as powerful."

According to the fact sheet of the drone, called the LAOP-500, which has been circulating on social media, it can hit targets at a range of up to five kilometers and has an endurance of up to 20 minutes.

Milestone For Indian Drone Indian Drone Industry

The latest successful test of the ALS-50 drone marks another milestone for the Indian Unmanned Aerial Vehicles (UAV) industry which continues to grow its base of drone manufacturers and exporters due to the policy initiatives created by the Indian Government.

While India began exploring military drones as early as the 1990s with the Defense Research and Development Organisation (DRDO) developing the Nishant Unmanned Aerial Vehicle (UAV) for reconnaissance and surveillance.

However, three of the four systems built by DRDO crashed, and India decided to import a wide range of Israeli-made drones, such as the medium-altitude long-endurance (MALE) Heron I, the Searcher MK II, and the Harop loitering munition.

India has continued to depend on foreign countries, mainly Israel, for military drones, but that has begun to change slowly in the past few years.In 2018, AdaniDefense& Aerospace and Israeli firm Elbit Systems, in a joint venture (JV), started an advanced drone manufacturing unit in Hyderabad which produces carbon composite structures for the Hermes 900 and Hermes 450 UAVs.This is the only production facility for the Hermes MALE UAV outside Israel. It began by catering to international markets and supplying to the Indian Armed Forces.

Apart from that, there is a JV between Adani Group's subsidiary, Alpha Design, and Elbit Systems that has a manufacturing unit in Bengaluru that produces multi-rotor low-altitude VTOL UAVs called the Thor tactical mini-UAVs, also commonly known as the Skylark, and a tactical loitering munition known as Sky Striker.

Azerbaijan used the Sky Striker drone in its conflict with Armenia in 2020 to strike mobile targets such as armored personal carriers (APCs).

In September 2021, the Indian Army, Navy, and Air Force signed multiple contracts worth over Rs 500 crore (more than $61.5 million) related to drone technology, focusing on Indian companies.

Indian Army secured the most contracts among the three services, including three separate deals with a combined worth of over Rs 300 crore.

Of these, the first contract worth over Rs 100 crore (more than $12.3 million) was awarded to the joint venture between Israeli Elbit System and Adani Group's Alpha Design for a total of 100 SkyStriker kamikaze drones.

The two deals worth over Rs 200 crore (more than $24.6 million) were signed for Swarm drones with Indian startups – Bengaluru-based NewSpace Research and Tech, run by former Indian Air Force (IAF) officer Sameer Joshi, and a Noida-based company, Raphe.

The Indian Army also began using its first indigenously produced ISR (intelligence, surveillance, and reconnaissance) UAV last year, called the SWITCH drone, made by 'ideaForge,' a Mumbai-based private drone manufacturer.

https://eurasiantimes.com/india-china-russia-test-their-versions-of-switchblade-drones-as-ukraine-war/

ThePrint

Sun, 25 Sept 2022

Russia Replaces Deputy Defence Minister Amid War in Ukraine

Russia has replaced Dmitry Bulgakov as Deputy Minister of Defence, with 60-year-old Colonel General Mikhail Mizintsev, days after the military mobilisation in the country.The Defence Ministry in Moscow on Saturday said that Army General Dmitry Bulgakov has been relieved of the post of Deputy Minister of Defence, Al Jazeera reported.

While Russian news agency TASS reported citing the ministry's statement that Colonel General Mikhail Mizintsev, chief of Russia's National Defense Management Center, was appointed as deputy defence minister for logistics.

"Colonel General Mikhail Mizintsev was appointed as deputy defence minister for logistics. Colonel General M. Mizintsev previously held the post of chief of Russia's National Defense Management Center," the ministry said.This comes after Russian President Vladimir Putin has signed a decree toughening penalties for voluntary surrender to enemy forces, desertion and

refusal to fight by up to 10 years in prison, just days after ordering a partial mobilisation of 300,000 reservists to fight in Ukraine.

Russia launched its military operation in Ukraine on February 24.

Meanwhile, Moscow's mandatory military draft sparked protests on Saturday. Citing an independent monitoring group OVD-Info, Al Jazeera reported that more than 700 people have been detained in 32 cities across the country.

On September 21, President Vladimir Putin announced that he had signed a decree on partial mobilization in Russia amid the ongoing war in Ukraine, asserting that the purpose of the West is to weaken, divide and ultimately destroy Russia.

"In order to protect our homeland, its sovereignty and territorial integrity, to ensure the security of our people and people in the liberated territories, I consider it necessary to support the proposal of the Ministry of Defense and the General Staff to conduct partial mobilization in the Russian Federation," he said during a national address today, CNN reported.

The US and the G7 nations and European Union (EU) have imposed severe and immediate economic costs on Russia for its "atrocities in Ukraine, including in Bucha".

https://theprint.in/world/russia-replaces-deputy-defence-minister-amid-war-in-ukraine/1142159/

THE ECONOMIC TIMES

Mon, 26 Sept 2022

US will 'Respond Decisively' If Russia Uses Nuclear Weapon On Ukraine, Warns Jake Sullivan

US national security adviser, Jake Sullivan warned President Vladimir Putin of "catastrophic consequences" if Russia launches a nuclear attack on Ukraine and said that America will "respond decisively" to such an action. While speaking on NBS's "Meet the Press" show, Sullivan said, "Let me say it plainly: If Russia crosses this line, there will be catastrophic consequences for Russia," The Hill reported. "The United States will respond decisively," he continued. "Now, in private channels, we have spelt out in greater detail exactly what that would mean, but we want to be able to have the credibility of speaking directly to senior leadership in Russia and laying out for them what the consequences would be without getting into a rhetorical tit for tat publicly," he added. During the interview, Sullivan said the United States is working with the International Atomic Energy Agency, which sent representatives to the plant, and Ukrainian energy regulators to avoid a meltdown catastrophe.

"It is actually still being operated by the Ukrainian operators who are essentially at gunpoint from the Russian occupying forces, and the Russians have been consistently implying that there may be some kind of accident at this plant," Sullivan said as quoted by The Hill. Talking about Moscow's referendum in the four Russian-occupied areas of Ukraine where voting began on joining the country, Sullivan said that these referenda are not signs of strength or confidence. What you see inside Russia right now, this call-up of troops, the sham referenda that they're trying to run in the occupied territories, these are definitely not signs of strength or confidence," Sullivan said on ABC's "This Week."

"Quite the opposite," Sullivan added. "They're signs that Russia and Putin are struggling badly." Ukrainian forces, in recent weeks, had regained thousands of square miles of territory, which is occupied by Russia since it started its military operation in Ukraine. Putin on Wednesday responded by calling up 300,000 reservists and warning the West about Russia's nuclear weapons, reported The Hill. "This is not a bluff," Putin said. "And those who try to blackmail us with nuclear weapons should know that the weathervane can turn and point towards them." Meanwhile, on CBS's "Face the Nation," Zelensky warned that Putin's threat "could be a reality."

https://economictimes.indiatimes.com/news/international/world-news/us-will-respond-decisively-if-russia-uses-nuclear-weapon-on-ukraine-warns-jake-sullivan/articleshow/94442144.cms

THE ECONOMIC TIMES

Sun, 25 Sept 2022

South Korea Says North Korea Test-Fired Missile Toward Sea

South Korea's military says North Korea has fired at least one unidentified allistic missile toward its eastern sea. South Korea's Joint Chiefs of Staff on Sunday did not immediately say what type of missile it was or how far it flew. The launch came a day after South Korean officials said they detected signs that North Korea was preparing to test a missile designed to be fired from submarines. North Korea has dialed up its testing activities to a record pace in 2022, testing more than 30 ballistic weapons, including its first intercontinental ballistic missiles since 2017, as it continues to expand its military capabilities amid a prolonged stalemate in nuclear diplomacy.

The launch came as the nuclear-powered aircraft carrier USS Ronald Reagan and its strike group arrived in South Korea for the two countries' joint military exercise to show their strength against growing North Korean threats. The North Korean threat is also expected to be a key agenda when U.S. Vice President Kamala Harris visits South Korea next week after attending the state funeral in Tokyo of slain former Japanese Prime Minister Shinzo Abe. The office of South Korean President Yoon Suk Yeol earlier said that he was briefed on possible North Korean preparations for a submarine-launched ballistic test before his flight back home from a visit to Canada.

On Wednesday, 38North, a North Korea-focused website, said its analysis of commercial satellite imagery shows multiple barges and other vessels gathered at the eastern port of Sinpo, where North Korea has a major shipyard building submarines. The report said the North was possibly preparing to launch a new submarine capable of firing ballistic missiles. North Korea has been pushing hard to acquire an ability to fire nuclear-armed missiles from submarines, which it sees as a key piece in building a nuclear arsenal that can viably threaten its neighbors and eventually the American homeland. Such weapons in theory would bolster North Korea's deterrent by ensuring retaliation after absorbing a nuclear attack on land. Ballistic missile submarines would also add a new maritime threat to the North's growing collection of solid-fuel weapons fired from land vehicles, which are being developed with an apparent aim to overwhelm missile defense systems in South Korea and Japan.

Still, experts say the heavily sanctioned nation would need considerably more time, resources and major technological improvements to build at least several submarines that could travel quietly in seas and reliably execute strikes. South Korea's military in March detected the North flight-testing a ballistic missile from a submarine in March that flew 600 kilometers (372 miles) before landing in waters between the Korean Peninsula and Japan. The March launch was North Korea's first testing of a submarine-launched ballistic missile system since October of last year, when it fired a new short-range missile from the 8.24 Yongung - its only known submarine capable of launching a missile. The October underwater launch was the North's first in two years.

https://economictimes.indiatimes.com/news/defence/south-korea-says-north-korea-test-fired-missile-toward-sea/articleshow/94426968.cms?from=mdr

THE ECONOMIC TIMES

Fri, 23 Sept 2022

US Aircraft Carrier USS Ronald Reagan Arrives in South Korea for Joint Drills

The nuclear-powered aircraft carrier USS Ronald Reagan arrived in the South Korean port of Busan on Friday ahead of the two countries' joint military exercise that aims to show their strength against growing North Korean threats. The joint drills will be the first involving a U.S. aircraft carrier in the region since 2017, when the U.S. sent three aircraft carriers including the Reagan for naval drills with South Korea in response to North Korean nuclear and missile tests. The allies this year have revived their large-scale military drills that were downsized or shelved in previous years to support diplomacy with Pyongyang or because of COVID-19, responding to North Korea's resumption of major weapons testing and increasing threats of nuclear conflicts with Seoul and Washington.

The South Korean navy said its combined training with the Reagan battle group is meant to boost the allies' military readiness and to show "the firm resolve by the Korea-U.S. alliance for the sake of peace and stability on the Korean Peninsula." The North Korean threat is also expected to be a key agenda when U.S. Vice President Kamala Harris visits South Korea next week after attending the state funeral in Tokyo of slain former Japanese Prime Minister Shinzo Abe. The Reagan's arrival in South Korea comes after North Korean leader Kim Jong Un told Pyongyang's rubber-stamp parliament this month he would never abandon his nuclear weapons and missiles he needs to counter what he perceives as U.S. hostility.

North Korea also passed a new law that enshrined its status as a nuclear power and authorized the preemptive use of nuclear weapons over a broad range of scenarios where the country or its leadership comes under threat. Sung Kim, the Biden administration's special representative for North Korea, met with South Korean counterpart Kim Gunn in Seoul on Thursday where they expressed "serious concern" over the North's escalating nuclear doctrine spelled out in the new law, South Korea's Foreign Ministry said. The diplomats reaffirmed the U.S. commitment to defend South Korea in the event of a nuclear war with the full range of its military capabilities, including nuclear. The allies also maintained their months-old assessment that North Korea is

gearing up to conduct its first nuclear test since 2017 and discussed "stern" countermeasures to such an action, the ministry said.

North Korea has dialed up weapons testing to a record pace in 2022, launching more than 30 ballistic weapons including its intercontinental ballistic missiles since 2017, as it exploits a divide in the U.N. Security Council deepened over Russia's war on Ukraine. While North Korea's ICBMs garner much of U.S. attention because they pose a potential threat to the American homeland, the North has also been expanding its arsenal of nuclear-capable, shorter-range missiles designed to evade missile defenses in South Korea. North Korea's expanding arsenal and threats of preemptive nuclear attacks have triggered concerns in South Korea over the credibility of the U.S. "nuclear umbrella" protecting its allies in the event of war.

South Korean President Yoon Suk Yeol, a conservative who took office in May, has vowed to enhance South Korea's conventional missile capabilities and work with the Biden administration to develop more effective strategies to deter North Korean attacks. Senior U.S. and South Korean officials met in Washington this month for discussions on the allies' deterrence strategies and issued a statement reaffirming that "any (North Korean) nuclear attack would be met with an overwhelming and decisive response." The statement said the United States reiterated "its ironclad and unwavering commitment to draw on the full range of its military capabilities, including nuclear (one)" to provide extended deterrence to South Korea. North Korea has so far rejected U.S. and South Korean calls to return to nuclear diplomacy, which have been stalled since 2019 over disagreements in exchanging the release of U.S.-led sanctions against the North and the North's disarmament steps.

North Korea has harshly criticized Yoon for continuing military exercises with the U.S. and also for letting South Korean civilian activists fly anti-Pyongyang propaganda leaflets and other "dirty waste" across the border by balloon, even dubiously claiming the items caused its COVID-19 outbreak. South Korean activists have continued to launch balloons after North Korea last month warned of "deadly" retaliation, triggering concern North Korea may react with a weapons test or even border skirmishes. South Korea's Unification Ministry, which deals with inter-Korean affairs, pleaded for activists to stop, citing safety reasons. Lee Hyo-jung, the ministry's spokesperson, also said Friday that South Korea was prepared to sternly respond to any North Korean retaliation over leafletting.

https://economictimes.indiatimes.com/news/defence/us-aircraft-carrier-uss-ronald-reagan-arrives-in-south-korea-for-joint-drills/articleshow/94389348.cms

ThePrint

Sun, 25 Sept 2022

16 Chinese Military Aircraft, 4 Naval Ships Cross Taiwan Strait

China’s 16 military aircraft and four ships crossed the median line of the Taiwan Strait on Saturday, as per the Taiwanese Ministry of National Defense.

The Ministry of National Defense said it had tracked 16 aircraft and four ships from China's military around the country by 5 pm on Saturday, reported Taiwan News.

"One unmanned drone and two planes entered the southwest sector of Taiwan's air defense identification zone (ADIZ)," the ministry tweeted.

The drone was a Harbin BZK-005, while the two planes were a Shaanxi Y-8 anti-submarine aircraft and a Shaanxi Y-8 reconnaissance plane, it said.

Taiwan issued radio warnings, tasked aircraft and naval vessels, and deployed land-based air defense missile systems to monitor and respond to Chinese activities, said the Taiwanese military, reported Taiwan News.

China's recent incursions come as the US showed interest in helping Taiwan and approved USD 1.1 billion arms package to the self-governed nation.

The deal covered Harpoon anti-ship missiles, Sidewinder short-range air-to-air missiles, and radar equipment.

China's embassy in Washington threatened counter-measures if the US did not revoke the latest weapons agreement, while Taiwan's Presidential Office and Ministry of National Defence expressed gratitude for the Biden administration's support for the country's defence needs, reported Taiwan News.In the recent past, China has increased its use of gray zone tactics by routinely sending aircraft into Taiwan's ADIZ, with most occurrences taking place in the southwest corner.

In 2021, Chinese military planes entered Taiwan's ADIZ on 961 instances over 239 days.

Gray zone tactics are defined as "an effort or series of efforts beyond steady-state deterrence and assurance that attempts to achieve one's security objectives without resort to direct and sizable use of force."

Taiwan has faced the threat of invasion ever since the end of the Chinese Civil War in 1949, when Chiang Kai-shek's defeated Nationalists fled there to set up a new government, having been chased out of the mainland by Mao Zedong's Communist Party.

More than 70 years later, the Communist Party continues to view Taiwan as something akin to a breakaway province that must be "reunified" with the mainland at all costs — and it has made clear it is prepared to use force, if necessary, to fulfill that objective.

If China were to invade, the Kinmen islands — most of which have been controlled by Taiwan since the end of the war — would make a tempting first target. Lying just a few miles from the mainland Chinese city of Xiamen — and hundreds of miles from Taiwan's capital Taipei — they are acutely vulnerable, reported CNN.

For Taiwan, the problem is that the nature of that invading force is changing. The Kinmen islands' proximity to the mainland puts them well within the range of commercially available drones, which are cheap and plentiful in China, home to the world's second-largest market for the machines and no shortage of potential operators among its population of 1.4 billion.

https://theprint.in/world/16-chinese-military-aircraft-4-naval-ships-cross-taiwan-strait/1142859/

Press Information Bureau
Government of India

Ministry of Science & Technology

Fri, 23 Sept 2022 04:12PM

India's Science and Technology Minister, Dr Jitendra Singh says, Decarbonizing of Cities and Buildings should be the Highest Priority for the Public and Private Sectors and it Needs to be done at Scale, Pace, and by using an Integrated and Digitalized Approach to bring Systemic Efficiency

Dr Jitendra Singh addresses the Roundtable on "Net Zero Built Environment with Connected Communities" at Global Clean Energy Action Forum-2022 at Pittsburgh, in the United States

India calls for actions like a global Memorandum of Understanding (MoU) with respect to enhancing the R&D, and Deployment, Knowledge and technology sharing related to demand driven solutions, a tailored financing plan for feasible funding sources to address these challenges

Ministry of Science and Technology has supported research development and deployment of technologies with an investment of 34.3 million USD during the last decade: Dr Jitendra Singh

India's Science and Technology Minister, Dr Jitendra Singh, who is leading a high-level Joint Ministerial Delegation of S&T and Ministry of Power, New & Renewable Energy today said that Decarbonizing of cities and buildings should be the highest priority for the public and private sectors and it needs to be done at scale, pace, and by using an integrated and digitalized approach to bring systemic efficiency.

In his address at the Roundtable on "Net Zero Built Environment with Connected Communities" at Global Clean Energy Action Forum-2022 at Pittsburgh, in the United States, Dr Jitendra Singh said, we cannot solve climate change without transforming our cities and buildings and this requires massive efforts from the private and public sectors, but it is possible with today's technologies.

Dr Jitendra Singh pointed out that increasingly, cooling is recognized as a developmental need that is linked with achieving many Sustainable Development Goals. He said, Demonstration and Deployment, investment, technology are the key challenges to achieve net zero connected communities at a global level.

Dr Jitendra Singh pointed out that the development of a robust R&D innovation ecosystem will, inter alia, involve further development of scientific manpower in the area, requisite academic and R&D institutional capacities, support for R&D activities on various facets of cooling, including but not limited to refrigerants, cooling equipment, passive building design interventions, not-in-kind technologies and new emerging technologies; and industry preparedness to assimilate new technologies.

India called for important actions to address these challenges like a global Memorandum of Understanding (MoU) with respect to enhancing the R&D, and Deployment, Knowledge and technology sharing related to demand driven solutions, a tailored financing plan that would look into feasible funding sources and aggregating member countries' demand for the potential designing of a global tender/ procurement process.

Dr Jitendra Singh informed the Ministers and Delegates that his Ministry of Science and Technology has actively engaged several industry players, especially for demonstration and deployment and today we have over 78 industries participating in the Building Energy Efficiency and Smart Grid Program.

The Minister, however, acknowledged that the decarbonization of cities is a multifaceted challenge and requires a holistic approach and systemic efficiency. He said, alongside buildings, the electrification of private and public transport plays a pivotal role in not only achieving net zero emission targets, but also improving urban air quality. The public and Private sectors need to work closely to ensure the implementation of research outcomes, the Minister added.

Dr Jitendra Singh said that three major actions for which public and private sectors can come together to achieve planning and demonstrations of net zero connected communities are- Catalysing effective capital reallocation and new financing structures, including through scaling up climate finance, Lowering technology costs with R&D, nurturing industrial ecosystems, collaborating across value chains to reduce cost, and Establishing compensating mechanisms to address socioeconomic impacts, through economic diversification programs, reskilling and redeployment programs.

Highlighting the measures taken by India, Dr Jitendra Singh concluded that the Ministry of Science and Technology has supported research development and deployment of technologies with an investment of 34.3 million USD during the last decade. We have strengthened the R&D infrastructure and forced bilateral and multilateral collaborations through R&D programs in the field of Building Energy Efficiency and Smart Grids, the Minister emphasised.

https://pib.gov.in/PressReleasePage.aspx?PRID=1861734

Press Information Bureau
Government of India

Ministry of Science & Technology

Fri, 23 Sept 2022 11:04AM

India announces the launch of the "Innovation Roadmap of the Mission Integrated Biorefineries" developed by co-leads and active inputs from Brazil, Canada, EC and the UK at Global Clean Energy Action Forum-2022 at Pittsburgh, in the United States

Dr Jitendra Singh, leading a high-level Joint Indian Ministerial Delegation of Ministry of Power, New & Renewable Energy and Ministry of Science & Technology makes the announcement at the 1st Roundtable on "Sustainable Bioenergy and Bio-refineries" in Pittsburgh

The Mission aims at greater international collaboration and the need for increased financing for Energy Research, Development, and Demonstration (RD&D) during the next five years through public-private investment: Dr Jitendra Singh

India's 1st indigenous plant of 10 Tons/day capacity with integrated enzyme production for ethanol is being set up at Panipat Haryana by December 2022: Dr Jitendra Singh

Dr Jitendra Singh, who is leading a high-level Joint Indian Ministerial Delegation of Ministry of Power, New & Renewable Energy and Ministry of Science & Technology at Global Clean Energy Action Forum at Pittsburgh, Pennsylvania in the United States has announced the launch of the "Innovation Roadmap of the Mission Integrated Biorefineries" developed by co-leads and active inputs from Brazil, Canada, EC and the UK.

The Minister said, the Mission aims at greater international collaboration and the need for increased financing for Energy Research, Development, and Demonstration (RD&D) during the next five years to kickstart this objective and unleash a virtuous cycle of public and private investment.

Dr Jitendra Singh was speaking at the 1st Roundtable on "Sustainable Bioenergy and Bio-refineries" at the Global Clean Energy Action Forum – the joint convening of 7th Mission Innovation and 13th Clean Energy Ministerial -2022.

Dr Jitendra Singh said, "Innovation Roadmap of the Mission Integrated Biorefineries" aims to fill the void by identifying gaps and challenges in current biorefining value chains, prioritising Eight key actions to support the Mission, and guiding the Mission's overall path in achieving its goal. He said, it also provides policymakers with a strategy framework to establish a rising RD&D portfolio over the next five years, specific financing proposals across the entire spectrum of vital Biorefinery technologies, and rapid action suggestions.

Addressing the Ministers & CEOs, Senior representatives of (US DoE, Mission Innovation Steering Committee (MISC) and Mission Innovation Secretariat, Senior representatives from MI Member countries and partner organisations, Dr Jitendra Singh said, Clean Energy Meet offers India an opportunity to present Prime Minister NarendraModi's climate and clean energy vision before the world. The Minister said, he is extremely happy to be present at this meet, where the global energy community has come together to share and collaborate towards a successful global green transition.

Dr Jitendra Singh informed the Delegates that India is continually working towards transforming the energy landscape of country with significant clean energy share and added that by 2030, India agreed to reach 500-Gigawatt non-fossil energy capacity, shift 50% of energy requirements to renewable energy, lower overall anticipated carbon emissions by one billion tons, reduce carbon intensity of the economy by 45% over 2005 levels, and achieve net zero emissions by 2070.

Dr Jitendra Singh shared with pride that a pilot plant of 10 Tons/day capacity plant with integrated enzyme production is being set up at Panipat Haryana, which will be commissioned by December 2022. This will be the 1st indigenous technology for on-site enzyme production. The Minister pointed out that Indian Oil Corporation Limited (IOCL) has also planned to supply this indigenous enzyme to commercial 2G ethanol plant of 100 KL/day expected to be commissioned by Q2 of 2024. Further, lignin valorization process is also being developed to produce value added products from waste lignin. He said, it's successful demonstration will give an indigenous technology to the nation and will contribute to Self-Reliant India and reduce carbon foot print from transport sector.

Dr Jitendra Singh underlined that sustainable biofuels play key role to reduce Green House Gas (GHG) emissions from the transport sector. He said, India, through the Department of Biotechnology, has been supporting R&D innovations in Advanced Biofuels and Waste to Energy technologies. He also shared with Delegates that India has established 5 Bioenergy Centers, where interdisciplinary team is working on advance sustainable biofuels using modern biotechnology tools.

The Minister concluded by saying that recently, when India hosted the MI Annual Gathering in New Delhi, the Mission Integrated Biorefineries was launched with co-leads from the Netherlands, uniting key members, international organisations, the corporate sector, academic institutions, and civil society to accelerate innovation for renewable fuels, chemicals, and materials for a low-carbon future.

https://pib.gov.in/PressReleasePage.aspx?PRID=1861671

THE ECONOMIC TIMES

Sat, 24 Sept 2022

Agnikul to Launch AgnibaanRocket before 2022

Private sector rocket maker Agnikul Cosmos is pushing itself hard to have its first test launch before the end of 2022, said a top official."We are planning to test launch our rocket Agnibaan before 2022 end. Our plan is to launch the rocket from a mobile launch pad. The test launch will

happen from India's rocket port Sriharikota belonging to Indian Space Research Organisation (ISRO), SrinathRavichandran, Co-founder and CEO, Agnikul Cosmos told IANS.

Queried about the payload to be carried, Ravichandran said it will be a dummy payload. Agnibaan is a two stage rocket with 100 kg payload capacity to orbits around 700 km high (low Earth orbits) and enables plug-and-play configuration.

The company recently opened its first 3D printed rocket engine factory located at the IIT Madras Research Park.

The factory has been designed keeping in mind the ability to produce two rocket engines per week for its rocket Agnibaan.

When queried about plans to have the test launch sometime next month S.R. Chakravarthy, Professor and Head, National Centre for Combustion Research and Development, IIT Madras and Advisor to Agnikul told IANS: "We have been working towards it all the while but nothing is fixed yet."

According to Ravichandran, the plan is to have the test launch before the end of 2022.

He also said the ISRO is rendering great help to Agnikul.

The Agnikul and ISRO have signed a Memorandum of Understanding (MoU) last year, enabling access to the former to ISRO facilities and expertise towards the development and testing of subsystems/systems of Space Launch Vehicles.

https://economictimes.indiatimes.com/tech/startups/agnikul-to-launch-agnibaan-rocket-before-2022/articleshow/94417175.cms

THE HINDU

Sun, 25 Sept 2022

ISRO Eyeing 200th Successful Launch of RH-200 Sounding Rocket in a Row

In a few weeks' time, the Indian Space Research Organisation (ISRO) hopes to achieve a remarkable feat — the 200th successful launch of the Rohini RH-200 sounding rocket in a row. The 3.5-metre-tall RH-200, a trusted member of the Rohini sounding rocket family used by the ISRO for atmospheric studies, has completed 198 consecutive successful flights, according to the Vikram Sarabhai Space Centre (VSSC), Thumba. The 199th launch, from Thumba, will happen on October 7 during the World Space Week celebrations. The 200th will take place either towards the end of October or the beginning of November, VSSC Director S. Unnikrishnan Nair told The Hindu on Saturday.

''When RH-200 was first introduced, we were taking our baby steps in rocketry. So there was focus on aspects such as spin-stabilisation and solid motors, in addition to atmospheric studies. Sounding rockets have since been used for a variety of experiments, including those on phenomena related to eclipses," Dr. Unnikrishnan Nair said. RH-200 is a two-stage rocket capable of climbing to a height of 70 km bearing scientific payloads. The first and second stages

of RH-200 are powered by solid motors. The '200' in the name denotes the diameter of the rocket in mm. Other operational Rohini variants are RH-300 Mk-II and RH-560 Mk-III. Sounding rockets have an important place in the ISRO story. The first sounding rocket to be launched from Thumba was the American Nike-Apache - on November 21, 1963. After that, two-stage rockets imported from Russia (M-100) and France (Centaure) were flown. The ISRO launched its own version - Rohini RH-75 - in 1967.

The sounding rocket programme ''was indeed the bedrock on which the edifice of launch vehicle technology was built", the space agency has noted. Today, these small rockets are launched both from the Thumba Equatorial Rocket Launching Station (TERLS) and the Satish Dhawan Space Centre, Sriharikota. The ISRO has launched more than 1,600 RH-200 rockets so far. The rocket celebrated its 100th consecutive successful mission on July 15, 2015. Over the years, the rocket has served as a flexible platform for experiments and testing out new technologies. For years, the RH-200 rocket had used a polyvinyl chloride (PVC)-based propellant. The first RH-200 to use a new propellant based on hydroxyl-terminated Polybutadiene (HTPB) was successfully flown from the TERLS in September 2020.

https://www.thehindu.com/news/national/kerala/isro-eyeing-200th-successful-launch-of-rh-200-sounding-rocket-in-a-row/article65931221.ece