

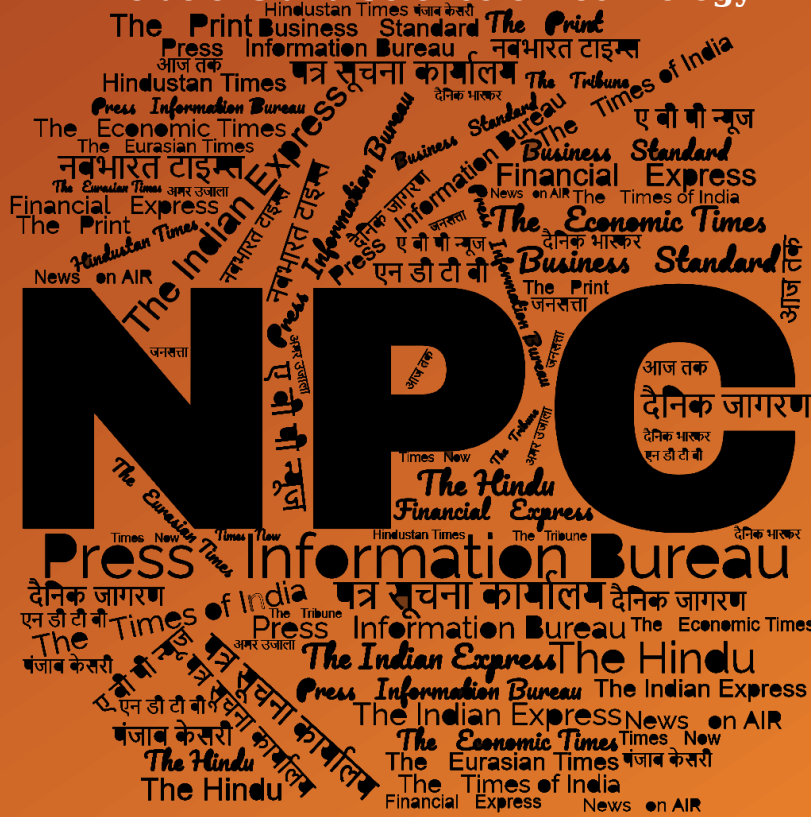
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THE TIMES OF INDIA

Tue, 28 Nov 2023

DRDO Looks to Industry to Build Laser-induced Sensing Tech

The Defence Research and Development Organisation is looking for industries to transfer its laser-induced sensing technology for detection of biological agents developed by its lab, the Laser Science and Technology Center (Lastec).

Pointing out that laser is a powerful technology for homeland security in defence as well environmental sciences and medical sciences, DRDO says that in the present scenario due to increased bio-terrorist activities, threat to military personnel and civilians appears in the form of biological, chemical warfare (BCW) agents and explosives.

“Minimising the impact of such threats requires early detection of the presence of these hazardous agents from a remote or standoff safe distance as well as point distance and early detection and warning systems are one of the most sought after gadgets for homeland security,” DRDO said.

Separately, it is also looking at interested industries for the manufacturing of its 40mm high explosive anti-personnel (HEAP) grenade for under barrel grenade launcher (UBGL).

“HEAP grenade is used with 40mm UBGL and multiple grenade launcher (MGL) in an anti-personnel role. The internally notched warhead and adequate high explosive content ensure anti-personnel lethality up to more than 5m distance from the point of explosion with adequate hit density,” DRDO said.

<https://timesofindia.indiatimes.com/city/bengaluru/drdo-looks-to-industry-to-build-laser-induced-sensing-tech/articleshow/105546171.cms>



Press Information Bureau
Government of India

Ministry of Defence

Fri, 24 Nov 2023

India- Nepal Joint Military Exercise SURYA KIRAN- XVII Commences at Pithoragarh

The Nepal Army contingent comprising of 334 personnel arrived in India to participate in 17th edition of Joint Military Exercise SURYA KIRAN. The exercise will be conducted in Pithoragarh, Uttarakhand from 24th November to 07th December 2023. It is an annual event and conducted alternatively in the two countries.

The Indian Army contingent comprising of 354 personnel is being led by a Battalion from the KUMAON Regiment. The Nepal Army contingent is represented by Tara Dal Battalion.

Aim of the exercise is to enhance interoperability in jungle warfare, counter terrorism operations in mountainous terrain and Humanitarian Assistance and Disaster Relief under United Nations Charter on peace keeping operations. The exercise will focus on employment of drones and counter drone measures, medical training, aviation aspects and also environment conservation. Through these activities, the troops will enhance their operational capabilities, refine their combat skills and strengthen their coordination in challenging situations.

The exercise will provide a platform for soldiers from India and Nepal to exchange ideas and experiences; share best practices and foster a deeper understanding of each other's operational procedures.

Exercise SURYA KIRAN signifies the strong bonds of friendship, trust, common cultural linkages that exist between India and Nepal. It sets the stage for a productive and fruitful engagement, showcasing the unwavering commitment of both nations towards a broader defence cooperation. The exercise aims to achieve shared security objectives and foster bilateral relations between two friendly neighbours.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1979428>



**Press Information Bureau
Government of India**

Ministry of Defence

Fri, 24 Nov 2023

India and UK Conduct Defence Consultative Group Meeting

Defence Secretary, Shri Giridhar Aramane co-chaired the annual India-UK Defence Consultative Group (DCG) meeting in New Delhi on 24 November, 2023, along with his UK counterpart Mr David Williams, Permanent Secretary of the Ministry of Defence.

They discussed a host of regional security issues, reviewed the ongoing defence cooperation activities, discussed the situation and potential cooperation in the Indian Ocean Region, and defence industrial cooperation proposals in missile systems and Electric Propulsion, among other possibilities.

Both sides planned for the increased interactions and joint activities in the maritime domain with focus on joint exercises, Maritime Domain Awareness, and information exchange.

They appreciated the commencement of the India UK 2+2 Foreign and Defence Dialogue, and the increased pace of military to military engagements in all domains.

Mr David Williams later laid a wreath at the National War Memorial and paid homage to the Bravehearts.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1979463>



**Press Information Bureau
Government of India**

Ministry of Defence

Sat, 25 Nov 2023

Prime Minister Visits HAL Facilities in Bengaluru; Appreciates its Growing Capabilities

**Shri Narendra Modi undertakes a sortie in indigenously designed & developed LCA Tejas;
becomes the first Indian Prime Minister to do so**

PM appreciates the capabilities LCA Tejas & production facilities available at HAL

**PM briefed about advanced technology work being done at HAL towards realising the vision
of 'Aatmanirbhar Bharat'**

**Under PM Modi's guidance, India's defence manufacturing is growing by leaps and bounds:
Raksha Mantri Shri Rajnath Singh**

Prime Minister Shri Narendra Modi visited Hindustan Aeronautics Limited (HAL) after his maiden sortie on Light Combat Aircraft 'Tejas' twin-seater aircraft in Bengaluru, Karnataka on November 25, 2023. Shri Narendra Modi became the first Indian Prime Minister who took a sortie in Tejas - an indigenously designed and developed fighter aircraft.

The Prime Minister had a look at production facilities of LCA Tejas aircraft in Bengaluru and was briefed about the technology intensive work being done at HAL towards realising the vision of 'Aatmanirbhar Bharat'. He was apprised about the initiatives being taken by HAL towards ramping capacities and capabilities.

The Prime Minister visited the LCA Tejas Final Assembly and discussed capabilities of the aircraft. He was briefed about the capabilities of Tejas - a lightweight, all-weather multi-role aircraft. Tejas has been operationally deployed with the Indian Air Force and will be the mainstay of the fighter fleet in years to come. The aircraft is capable of undertaking offensive air support role as well as ground attack roles and is quite superior to its contemporaries.

The Prime Minister walked through the production line of LCA Tejas and interacted with the Engineers on the various features of the aircraft. It was explained that the aircraft is presently powered by GE 404 engine which will get upgraded to GE 414 Engine for LCA Mk II which will be manufactured in India with 80% Transfer of Technology arrangement with GE Engines for which the MOU has been signed with GE Engines. This will be the first time that an engine of this class will be produced in India with 80% Transfer of technology. This transfer of technology is likely to bridge the technology gap that exists currently in the aero engine domain of the country.

The Prime Minister was briefed about the capacity investments being done by HAL to produce LCA Tejas aircraft in greater numbers. The HAL has established two production lines of LCA Tejas at Bengaluru, which can produce up to 16 aircraft per year. Further, an additional production line is being established at HAL, Nasik to take the production rate beyond 24 aircraft from 2024-25 onwards. HAL is planning to advance the deliveries of current and future order of LCA Tejas to its customers.

The Prime Minister discussed the extent of indigenisation efforts of LCA Tejas. HAL had displayed various indigenously developed and produced systems including the Digital flight control computer (DFCC) and Open architecture computer(OAC) with the support of DRDO, DPSU's and Private industry along with HAL. It was further explained that Flight controls, Fuel systems, Hydraulics, Air-conditioning, Mission and display systems have also been indigenised. Prime Minister was informed that HAL is striving to take the indigenous content of the aircraft beyond 70% in the next 3-4 years under the indigenization drive as part of Aatmanirbhar Bharat vision and take India towards self-reliance into defence and aerospace.

The Prime Minister appreciated the capabilities of indigenously developed LCA Tejas aircraft and production facilities available at the HAL. He was also briefed about the progress on LCA MK1A programme. The production of fighter aircraft against 83 Mk1A order concurrent with its design and development is under progress at HAL. Mk1A variant will be a more lethal aircraft with capabilities such as AESA Radar, BVR Missile capability, EW suite, advance avionics, and maintenance improvements. The deliveries of MK1A aircraft are planned from Feb 2024 onwards to IAF.

Various indigenous helicopters such as Light Combat Helicopter (LCH) Prachand, Advanced Light Helicopter-WSI Rudra and Light Utility Helicopters were also showcased to the Prime Minister.

The HAL briefed the Prime Minister on the combat and performance capabilities of Prachand with emphasis on the high-altitude employability in Leh/ Ladakh and eastern Himalayan sectors. It was informed that the helicopter can fly upto 6 km altitude. He was also briefed that the LCH has already been deployed with the Army and IAF and there is an additional requirement from the defence forces for 156 Prachand helicopters for enhancing the defence preparedness of the nation and its efforts toward Aatmanirbharta.

The electronic warfare system, armament and troop-carrying capability of Rudra (ALH MkIV) helicopter was also showcased. The Prime Minister was briefed on the slew capability of gun to the

target as demanded by the pilots, and he was briefed how the same is achieved either through the electro optical pod or pilot helmet mounted sighting system.

Through a post on X, Raksha Mantri Shri Rajnath Singh stated that the sortie by PM Modi showcased his meticulous attention and appreciation for India's defence systems. Under PM Modi's guidance, India's defence manufacturing is growing by leaps and bounds, he said.

Today, Prime Minister Shri @narendramodi took a sortie in #Tejas which is our indigenously designed and developed multirole Light Combat Aircraft.

By flying in #LCA Tejas PM Modi has become the first Indian Prime Minister to take a fighter aircraft sortie.

This showcases his... pic.twitter.com/Sp724CSLj6

— Rajnath Singh (@rajnathsingh) November 25, 2023

CMD, HAL Shri CB Ananthkrishnan was present during the Prime Minister's visit. He thanked the Prime Minister for his continuous support and encouragement. He said that the Prime Minister's visit has motivated HAL to work towards fulfilling the Aatmanirbhar goals in the Aerospace & Defence domain.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1979832>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 25 Nov 2023

Prime Minister Flies in the Indigenously Designed, Developed and Manufactured Twin Seater Fighter Aircraft LCA Tejas

PM described his experience as memorable and expressed pride in the capabilities of Indian scientists & engineers

This is the first time an Indian Prime Minister has flown a fighter aircraft sortie

A moment of pride for Indian Air Force

A boost to Aatmanirbharta and recognition of growing Indian Defence manufacturing prowess

In a historic milestone, Prime Minister Shri Narendra Modi flew a sortie in the indigenously designed, developed and manufactured Tejas Twin Seat Light Combat Fighter aircraft at Bengaluru today. The Sortie was carried out from the Aircraft Systems Testing Establishment, Bengaluru. During the 30-minute sortie, capabilities of fighter aircraft Tejas were demonstrated to the PM. This is the first time an Indian Prime Minister has flown a fighter aircraft sortie. PM described his experience of flying the sortie as memorable.

PM Modi, who has given a strong impetus to Aatmanirbharta in defence manufacturing applauded the scientists, engineers and flight test crew associated with the designing, development and production of the state of art fighter aircraft. He expressed pride in the capabilities of Indian engineers and scientists.

The LCA trainer is a light weight, all weather, multirole aircraft which can undertake all roles of a single seat Tejas fighter and can also be used as a fighter trainer. This is the first time ever that an indigenous twin seat fighter has been designed, developed and manufactured in India. With an amalgamation of contemporary concepts and technologies such as quadruplex fly-by-wire flight control, carefree manoeuvring, advanced glass cockpit, integrated digital avionics systems and advanced composite materials for the airframe, it is a state-of-the-art aircraft. The fighter aircraft has enhanced the defence capabilities and preparedness of the nation.

IAF test crew have been involved with the Tejas project right from conceptual stage till prototype testing. The first version of the aircraft was inducted into the IAF in 2016. Currently, two squadrons of IAF, 45 Squadron and 18 Squadron, are fully operational with LCA Tejas. An order worth Rs 36,468 Crore for delivery of 83 LCA Mk 1A aircraft has been placed with HAL and delivery is scheduled to begin by February 2024. HAL has current capacity to build 8 LCA aircraft per year. This is being increased to 16 aircraft's every year by 2025 and further to 24 aircraft every year in the next 3 years.

More than Rs 9000 Crore have been sanctioned for the development of LCA Mk 2, an updated and more lethal version of LCA Tejas. To further promote indigenisation, including of the aircraft engine, Transfer of Technology for manufacturing of the GE engine in India has been negotiated with GE during Prime Minister's visit to the US in June 2023. In the coming years, Tejas would be the largest fleet of fighter aircraft to be operated by the Indian Air Force. Today's sortie by the Prime Minister will encourage the aeronautics ecosystem and give a big boost to Aatmanirbharta in defence sector.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1979812>



Sun, 26 Nov 2023

Modi Flies in LCA, Endorses Indigenous Fighter Initiative

Prime Minister Narendra Modi on Saturday flew in the light combat aircraft (LCA) in Bengaluru and described the experience as “incredibly enriching” while also heaping praise on the country's indigenous military capabilities.

The PM's sortie in an LCA Mk-1 fighter jet is being seen as a significant endorsement of the LCA programme.

“Successfully completed a sortie on the Tejas. The experience was incredibly enriching, significantly bolstering my confidence in our country's indigenous capabilities, and leaving me with a renewed sense of pride and optimism about our national potential,” Modi wrote on X (formerly Twitter) after the flight.

The development has turned the spotlight on the locally produced fighter jet that the Indian Air Force is looking at inducting in big numbers and India is also seeking to export. IAF chief Air Chief Marshal VR Chaudhari was in Bengaluru for the PM's LCA sortie.

This is the first time an Indian PM has flown a fighter aircraft sortie, IAF said in a statement.

The development came weeks after Chaudhari announced plans to order 97 more LCA Mk-1As at an estimated cost of ₹67,000 crore. IAF ordered 83 Mk-1A fighters for ₹48,000 crore in February 2021.

“Flying in Tejas today, I can say with immense pride that due to our hard work and dedication, we are no less than anyone in the world in the field of self-reliance. Heartiest congratulations to the Indian Air Force, DRDO, and HAL as well as all Indians,” the PM wrote on X.

The sortie was carried out from the Aircraft and Systems Testing Establishment, Bengaluru. During the 30-minute sortie, capabilities of the fighter aircraft were demonstrated to PM, the IAF statement said.

PM Modi, who has given a strong impetus to Aatmanirbharta in defence manufacturing, applauded the scientists, engineers and flight test crew associated with the designing, development, and production of the state-of-the-art fighter aircraft, it added. “Today’s sortie by PM will encourage the aeronautics ecosystem and give a big boost to Aatmanirbharta in defence sector.”

On October 4, Hindustan Aeronautics Limited handed over the first trainer version of LCA Mk-1 to Chaudhari in Bengaluru, with the twin seater set to fill a key training role and double as a fighter if needed. The aircraft is part of an earlier order for 40 Mk-1 jets in the initial operational clearance (IOC) and the more advanced final operational clearance (FOC) configurations --- the first variants of LCA. Of the 40 Mk-1s, IAF has inducted 32 single-seater jets and raised two LCA squadrons. The remaining eight aircraft are trainers. Seven more twin-seater aircraft will be delivered to IAF by March 2024. LCA is set to emerge as the cornerstone of the IAF’s combat power in the coming decade and beyond. IAF, the world’s fourth largest air force, is expected to operate around 350 LCAs (Mk-1, Mk-1A, and Mk-2 versions), with a third of those already ordered, some inducted, and the rest figuring prominently on the air force’s modernisation roadmap and expected to be contracted in the coming years. The newer variants, Mk-1A and Mk-2, will come with significantly improved features and technologies over the Mk-1 aircraft.

HAL has a capacity to build 16 LCA Mk-1As every year in Bengaluru and a new production line in Nashik line will help the firm ramp up production to a total of 24 jets. The first Mk-1A will be delivered to IAF in February 2024, and the last of the 83 jets by 2028 (instead of 2029, the contracted delivery schedule). The new plant in Nashik will help advance deliveries. IAF will deploy LCAs at forward air bases in the western sector to bolster its combat readiness against Pakistan and fill the gap left by the gradual phasing out of the Soviet-era MiG-21 fighter jets, as first reported by HT.

An LCA-Mk 1 squadron based at Sullur in Tamil Nadu is set to be relocated to a frontline fighter base in Gujarat, while the first LCA Mk-1A squadron will be raised at an air base in Rajasthan.

IAF is expected to begin raising the LCA Mk-1A squadron after HAL delivers the first aircraft to it early next year.

<https://www.hindustantimes.com/india-news/modi-flies-in-lca-endorses-indigenous-fighter-initiative-101700937063223-amp.html>

THE TIMES OF INDIA

Sun, 26 Nov 2023

In a First, Army Puts Agniveers to Test to Assess Mental Abilities

The Indian Army has started for the first time a psychometric test for Agniveer candidates on a trial basis, doing so at a recruitment rally in Pune a few days ago. The test aims to assess their mental capabilities, behaviour and personality traits.

“It (the test) is in a primitive stage. It has not become a formal mandate for the Agniveer recruitment process yet,” Lt Gen NS Sarna, Director-General of Recruiting, told TOI on Saturday.

The Defence Institute of Psychological Research (DIPR) of the Defence Research and Development Organisation (DRDO) has developed the test. The psychological analysis is necessary considering the stressful conditions in the force, sources said.

Asked what prompted the test, Lt Gen Sarna said: “We experiment with various new things and technologies at the rallies.”

A select group of candidates appeared for a computer-based psychometric test where they had to answer a set of questions, mostly on psychological aspects. “It was done to gain insights into their aptitude. It will be further vetted by officers and DRDO experts,” another senior officer said.

The recruitment rally was held at the Bombay Engineering Group and Centre in Pune. Other officers pointed out that the army required physical fitness, mental toughness and the ability to work in isolation in stressful conditions. “If one does not have the aptitude for the force, these conditions can severely affect the person’s mental health. The psychometric test will identify this aspect among the aspirants,” a senior officer said.

A senior infantry officer stressed that Agniveers serve on the frontlines in tough conditions. “If a candidate feels he is going to serve only for four years, the individual might not put forth his best. So, it is necessary to understand their psychological aspects,” the officer said.

<https://timesofindia.indiatimes.com/india/in-a-first-army-puts-agniveers-to-test-to-assess-mental-abilities/articleshow/105502980.cms>

THE ECONOMIC TIMES

Sat, 25 Nov 2023

IAF Considering Taking over Three Airstrips in Uttarakhand for Strategic Use: CDS Gen Anil Chauhan

The Indian Air Force is in the process of taking over three air landing strips in Uttarakhand, which will not only be strategically useful for the defence forces but also help in improving the connectivity of the state, Chief of Defence Staff General Anil Chauhan has said.

The three airstrips mentioned by the CDS include Pithoragarh in the Kumaon Hills and Dharasu and Gauchar in the Garhwal Hills.

Addressing the event 'Raibaar-5', the CDS said, "Pithoragarh, Dharasu, and Gauchar are landing grounds in Uttarakhand. These landing strips are made on the land of the state government. The state government wanted the Armed Forces to take over these airstrips which will not only be of strategic use but also help in improving air connectivity for the local people there."

"We have accepted this proposal, and the Indian Air Force is in the process of taking over these three landing grounds. We will expand these strips for strategic use and to help locals," he said.

Listing other measures that the armed forces have taken to help people in forward areas in border states like Uttarakhand, Gen Chauhan said the forces used to buy local produce like milk and fresh food from cooperative societies in states like Sikkim and Arunachal Pradesh and the union territory of Ladakh.

"This was not applicable to the states of Uttarakhand and Himachal Pradesh till now, but it has been made applicable in these two states also. Now the Army will buy local produce from the cooperatives in these two states and help them," he said. The CDS said that the forces have also expanded the scope of Operation Sadbhavna to the border states of Himachal Pradesh and Uttarakhand from last year, and this will help them benefit from these schemes.

<https://economictimes.indiatimes.com/news/defence/iaf-considering-taking-over-three-airstrips-in-uttarakhand-for-strategic-use-cds-gen-anil-chauhan/articleshow/105498156.cms>



Mon, 27 Nov 2023

Milestone Unveiling: Imphal, Cutting-Edge Indigenous Destroyer, Set for Crest Reveal

The crest of Yard 12706 (Imphal), the third in the series of Project 15B guided missile stealth destroyers built at Mazagon Dock Shipbuilders Limited (MDL), is scheduled to be revealed in New Delhi on Tuesday (Nov 28). Imphal, the first indigenous destroyer with an impressively short construction and sea trial period, is slated to join the Indian Navy next month.

In adherence to maritime traditions, Indian Naval ships bear names associated with significant cities, mountain ranges, rivers, ports, and islands. Imphal, named after the historic city, is the latest technologically advanced warship and holds the distinction of being the first capital warship named after a city in the North-Eastern region. This decision was approved by the President of India on April 16, 2019. Designed by the Indian Navy's Warship Design Bureau (WDB) and constructed by MDL, this ship is a testament to indigenous shipbuilding and stands among the most technologically advanced warships globally. With approximately 75% indigenous content, including MR SAM, BrahMos SSM, Indigenous Torpedo Tube Launchers, Anti-Submarine Indigenous Rocket Launchers, and 76 mm SRGM, the ship exemplifies India's capabilities in advanced naval technology.

Named Imphal during its April 2019 launch, the ship was delivered by MDL to the Indian Navy on October 20, 2023. As part of its pre-commissioning trials, the ship successfully fired an Extended Range BrahMos missile, marking a crucial milestone. The Crest Unveiling Event is scheduled to take place in the presence of Defence Minister Rajnath Singh, senior officials from the Ministry of Defence, the Chief Minister of Manipur, and state officials.

<https://www.financialexpress.com/business/defence-milestone-unveiling-imphal-cutting-edge-indigenous-destroyer-set-for-crest-reveal-3319050/>



Sun, 26 Nov 2023

Army Finalises Ammunition Requirement for 10 Years, Banks on Indigenous Manufacturing

Against the backdrop of the Ladakh stand-off and the war in Ukraine, a clear road map is in place for ammunition procurement and the long-term requirement for 10 years has been finalised, defence sources said on the efforts to secure supply chains and avoid any impact on operational

preparedness. Already, about 85% of the ammunition requirement has been indigenised, from both the public and private sectors, sources said.

‘In-house development’

“The aim is to build up ammunition stocks to desired levels, minimise imports and achieve self-sufficiency in the country, have multiple sources of supply, and possess indigenous manufacturing capability,” a defence source in the know said. “First step is to indigenise all import-dependent ammunition — major platforms with long-term requirement.”

As part of this, indigenisation of more than 30 variants, amounting to about ₹16,000 crores, is under way and five or six variants of ammunition have been identified for production through the Indian industry, which will expand the indigenous vendor base, the source said. “Subsequently, next-generation high-tech ammunition based on research and development is being identified for in-house development.”

On the broad break-up of ammunition procurement between domestic production and imports, sources said that about 85% of the ammunition has been indigenised, with a bulk of it being met by the Defence Public Sector Undertakings and the rest by the Indian industry. Less than 10% is met purely through direct imports and there is also some amount of legacy platforms in small numbers that are in the process of being phased out, a second source said.

The armed forces had undertaken major procurement and stocking of spares and ammunition under the three rounds of emergency financial powers granted by the Defence Ministry — the first time after the 2016 Uri terror attack in 2016, followed by the 2019 Balakot air strikes, and the 2020 stand-off with China in eastern Ladakh. The fourth round of emergency procurement was completed recently. This has ensured enough stocks of critical ammunition and helped offset delays to some extent in deliveries of spares, components and ammunition since the war in Ukraine broke out in February 2022, as reported by The Hindu earlier.

For the Army, most of its armoured fleet is of Russian-origin and the air defence has several legacy systems. About 10 to 12 ammunition categories in over 30 variants are being indigenised on priority, with a particular emphasis on air defence, mechanised infantry, armoured and artillery, the first source stated, adding that these cases were currently undergoing field trials. While earlier efforts to open up ammunition manufacturing to the private sector had not made progress, several Indian private companies are now in the race to manufacture ammunition in the country.

Ammunition stocking is generally done in terms of requirements for intense wars and normal wars and broadly factors in 30 days of intense fighting and 30 days of normal fighting.

<https://www.thehindu.com/news/national/army-finalises-ammunition-requirement-for-10-years-banks-on-indigenous-manufacturing/article67574078.ece>

THE ECONOMIC TIMES

Mon, 27 Nov 2023

Indian Army to Boost Firepower with 200 New Mounted Howitzers, 400 Towed Gun Systems

In a bid to boost its mobile firepower in high-altitude border areas like Line of Actual Control with China the Indian Army is soon going to issue a tender for acquiring 200 new mounted howitzers equipped with 105 mm guns.

A tender is set to be issued soon to Indian firms for this 'Make in India' project to buy 200 new mounted howitzers equipped with 105 mm 37 calibre guns, defence sources told ANI.

This would be the first time that the Indian artillery would have these type of 105 mm mounted howitzers and would add to the strength of the formations deployed in forward positions, they said.

The Indian Army is modernising the artillery through the indigenous route using the capabilities of the Indian firms as the Indian industry has developed capabilities in this field and is now even exporting these systems to foreign countries.

Along with the 200 mounted howitzers, the Defence Ministry is also soon going to take up the case of clearing procurement of 400 new towed guns under the Make in India route.

The proposal for procuring 400 towed artillery gun systems is expected to come up for discussion in the Defence Acquisition Council meeting scheduled for November 30.

Indian Army's Regiment of Artillery is looking to use the expertise of Indian Industry to produce 155 mm/52 calibre Towed Gun System, which will be lighter, versatile and cater for future technological advancements.

The Indian Army has already issued a tender for buying 307 Advanced Towed Artillery Gun Systems (ATAGS) along with one for finding a mounted gun system for its requirements along borders with China and Pakistan.

The Indian Designed, Developed and Manufactured howitzer would mean that it would be totally Indian in all ways. The Army wants the guns to be lighter in weight and easier to deploy in high-altitude areas like the older Bofors guns.

The procurement process is part of the Army plan for Mediumisation with indigenous guns and is likely to be completed by the year 2042. In the last decade, four contracts have been concluded for the procurement of a 155 mm howitzer. These Gun Systems have already been inducted and more Regiments are being equipped with these guns.

These gun systems include Dhanush, Sharang, Ultra Light Howitzer (ULH) and K-9 Vajra Self Propelled Guns. Dhanush Guns are an electronic upgrade of Bofors Guns, while the Sharang Guns have been up-gunned from 130mm to 155mm calibre.

Seven Regiments have already been equipped with ULHs while five have been equipped with self-propelled guns.

<https://economictimes.indiatimes.com/news/defence/indian-army-to-boost-firepower-with-200-new-mounted-howitzers-400-towed-gun-systems/articleshow/105539057.cms>

THE ECONOMIC TIMES

Fri, 24 Nov 2023

Indian Coast Guard, Navy to Buy 15 C-295 Transport Aircraft for Maritime Surveillance

In a major boost for Make in India in the defence sector, the Indian Coast Guard and the Navy will acquire 15 C-295 transport aircraft that are being manufactured in India in a joint venture between Tata Advanced Systems and Airbus. The proposals for the acquisition of these 15 aircraft are at an advanced stage in the defence ministry, in which nine planes would be procured by the Navy while six would be taken by the Indian Coast Guard.

The transport aircraft would be equipped with the required radars and sensors and turned into a maritime patrol plane by the Defence Research and Development Organisation's Centre for Airborne Systems (CABS), defence officials said.

Speaking about his force's projects, Indian Coast Guard Chief Director General Rakesh Pal told ANI, "There are plans for acquiring long-range maritime surveillance aircraft, which the Air Force has taken, and the contracts will be signed with TASL (Tata Advanced Systems Limited), wherein we are about to get six C295 transport aircraft."

He said, "The Ministry of Defence is giving us adequate funds to ensure that our acquisition processes are all fast-tracked."

The Coast Guard chief informed that shortly his force was also set to sign contracts for nine more advanced-light helicopters, the ALH Dhruv manufactured by Hindustan Aeronautics Limited.

The Indian Air Force recently inducted the first C-295 transport aircraft manufactured in Spain.

While the first 16 will come from Spain in fly-away condition, the remaining 40 will be produced in India at a Tata facility in Vadodara, Gujarat.

The order from the Navy and Coast Guard, if approved by the government, will take the Tata Airbus order book to 71 from the existing 56.

The C-295 is being used by some of the operators of the plane in maritime patrol roles.

<https://economictimes.indiatimes.com/news/defence/indian-coast-guard-navy-to-buy-15-c-295-transport-aircraft-for-maritime-surveillance/articleshow/105478698.cms>



Sat, 25 Nov 2023

India's 'Dragon Squad' Jaguar Fighter Jets Practice Maritime Strike Mission Near China Chokepoint

With an eye on China, Indian Air Force's (IAF) 'Dragons' Jaguar Maritime Strike fighter jets took part in a tri-service exercise in Andamans and Nicobar to demonstrate the application of air power in the isles sitting on the entrance to the Indian Ocean Region (IOR) close to Malacca Straits, the chokepoint of China.

The Island chain comprising 572 islands is emerging as an essential piece in India's strategy to balance China's burgeoning dominance in the Indo-Pacific.

Over the past decade, the Chinese Navy's surface ships and submarines in the Indian Ocean have become ubiquitous with their presence.

In light of this, India has already set on the path of developing the military assets on the archipelago of Andaman and Nicobar Islands, which sits on the mouth of the Strait of Malacca, a gateway to the South China Sea and a significant choke point for the Chinese Navy.

The Andaman Nicobar Command, the only tri-service theatre command of the Indian armed forces, is conducting a massive inter-force wargame 'Exercise Dweepshakti-23'. The IAF's No. 6 Squadron, 'The Dragons,' operates from the strategic Car Nicobar base and carries out a maritime strike mission showcasing the strategic application of airpower in the vicinity of Andaman and Nicobar Islands.

The Indian Army, Navy, Air Force, and Coast Guard are participating in the exercise to validate operating procedures and assess the command's operational capabilities.

The exercise is seeing a major convergence of the air assets of the IAF. The IAF's A-50 Phalcon Airborne Warning, Control, and Command System and the frontline Su-30MKIs carried out a long-range deep strike drill from the Islands.

"During Exercise #DweepShakti Air Marshal Saju Balakrishnan, #CINCAN or Commander in Chief of the Andaman and Nicobar Command, takes the lead, flying a maritime strike mission on Su-30MKI. A strategic move against a simulated adversary in Command's southern AoR (area of responsibility)," the Andaman and Nicobar Command said on X.

Located at the confluence of the Indian and Pacific Oceans, the Andaman and Nicobar Islands are said to be one of the world's most strategically located island chains.

The northernmost point of the 572 islands is only 22 nautical miles away from Myanmar, and its southernmost point is a mere 90 nautical miles from Indonesia. The islands control the Bay of Bengal, the Six Degree, and the Ten Degree channels, which over 60,000 commercial vessels use.

The Indian government is developing the islands' military assets as part of a 10-year infrastructure development. The Campbell Bay (INS Baaz) runway in the south will be extended to 10,000 feet to support operations by larger aircraft. Another 10,000-foot runway is planned at Kamorta.

India has been deploying its Sukhoi Su-30MKI and Jaguar Maritime fighter jets in the islands. The Indian Navy's Poseidon submarine hunters P-8Is also operate from here. The military infrastructure development is to enable the permanent deployment of these assets from here.

Besides military assets, India is also developing civilian infrastructure in the islands. A trans-shipment hub planned in Campbell Bay will be close to the Malacca Strait and the East-West shipping route connecting Europe and Africa with Asia.

Its proximity to Bangladesh, Thailand, Myanmar, and Indonesia also gives it a further advantage. Most recently, India inaugurated the Chennai-Andaman and Nicobar undersea internet cable to provide a high-speed internet connection to seven remote island chains.

Quads Stakes In The Archipelago

The naval vessels of partner countries often make a pit stop in the Andaman and Nicobar Islands before entering or exiting the South China Sea. Recently, HMS Spey, a naval vessel of the Royal Navy, made its maiden port call to Port Blair to go through the Straits of Malacca, a narrow stretch of water located off Southeast Asia connecting the South Pacific and the Indian oceans.

"For our inaugural visit to India, we visited Port Blair, the capital city of Andaman and Nicobar Islands, an Indian territory in the Bay of Bengal. Having conducted maneuvers with the Indian Navy, we had the opportunity to explore the Island's rich culture and diversity," the HMS Spey's X handle reads. During its deployment, the Commanding Officer of HMS Spey and British Defense Attache called on CINCAN Air Marshal Saju Balakrishnan.

An Indonesian warship also visited Port Blair for joint patrols to increase inter-operability.

The Quad countries and France have been working with India to develop Andamans and Nicobar to answer China's increasing footprint in the surrounding waters.

Chinese submarines coming to the Indian Ocean are forced to surface in Malacca Strait because it is narrow. Considering only 37 islands out of 572 are inhabited, calls for beefing up security measures around the islands have only increased. There have been reports that India will be installing the Japan-US "fishhook" SOSUS (Sound Surveillance System, a chain of sensors

designed to track submarines), creating a counter-wall against Chinese submarines loitering in the Andaman Sea and deep South China Sea.

It will be a crucial collaboration, as it is said that once up and running, Japan will share intelligence with the United Kingdom, Australia, and India.

“The main driver for these developments is undoubtedly the Chinese naval presence in the Indian Ocean. There has been a surge of anxiety in New Delhi over the recent deployment of PLAN submarines in the IOR.

“Indian observers suspect that in the guise of anti-piracy missions, Chinese subs have been collecting vital information about the underwater operating environment in the sub-continental littorals,” a former Indian Navy chief Admiral Karambir Singh (Retired) told the EurAsian Times.

<https://www.eurasiantimes.com/taming-the-dragon-indian-dragons-jaguar-fighter/>



Mon, 27 Nov 2023

India Korea Relations: Why the Indian Army Chief Visited Seoul?

Indian Army Chief General Manoj Pande recently undertook a four-day visit to the Republic of Korea (ROK), aiming to enhance bilateral defense cooperation, particularly in defense manufacturing. During the visit, he engaged in crucial discussions with high-ranking South Korean military officials, focusing on fostering mutual understanding and contributing to the security framework of the Indo-Pacific region.

Sources within the defense and security establishment highlighted the significance of the visit, emphasizing that General Pande received detailed briefings on security aspects in the joint security area and demilitarized zone. Additionally, he visited a drone combat unit to gain insights into border management and surveillance facilities, contributing to discussions on regional security situations. The primary objective of the visit was to seek collaboration from South Korea in defense manufacturing, involving strategic discussions and bilateral meetings with key figures like General Park An-su and General Kim Seung-kyum. These engagements aimed not only to foster mutual understanding but also to contribute to the overall security architecture of the Indo-Pacific, aligning with the broader geopolitical goals of both nations.

The visit which commenced on November 20, holds historical significance in India-ROK relations, as it marks the day 73 years ago when the Indian Army played a vital role in the Korean War, providing medical support and contributing a Brigade Size Force named ‘Custodian Force’ under the United Nations. This historical connection further solidifies the ties between the two nations.

Why is the visit important and the significance of Nov 20?

Regarding the importance of the visit, Neeraj Rajput, Editor in Chief of Final Assault and a Senior War-journalist, emphasized the humanitarian role played by India during the Korean War.

He says: “The benchmark of Indian and South Korea relationship is the stellar role 60 Para Field Ambulance (Headquartered in Agra) played during the Korean War (1950-53) where the Indian paramedics not only treated soldiers of ROK but also of North Korea. 03 Indian paramedics had even laid down their lives healing the wounded Korean soldiers.”

“South Korea pays homage to Indian soldiers by making a special ‘Bharat’ memorial at the sprawling Korean War Memorial in the heart of the capital Seoul. That is exactly the reason COAS Gen Manoj Pande began his visit to Seoul exactly on 20th November because that was the day 70 years ago when 60 Para Field Ambulance had landed in Busan (port city of South Korea) to participate in war not for fighting but healing the wounded soldiers. This humanitarian approach of India has touched Korea since then.”

Sharing further details, Rajput who has done ground reporting from the Korean Peninsula, shares his views in an exclusive interaction with Financial Express Online. “Indians had again played an important role when the war ended with a cease fire and PoWs (Prisoners of War) were exchanged between two Korean countries. The (Non) Repatriation Commission formed under the aegis of the UN was led by none other than India’s top most military commander since Independence, Maj Gen KS Thimayya (who later became the COAS). “

“The repatriation of the PoWs had taken place from the ‘Bridge of No return’ on the DMZ (Demilitarised Zone) between North and South Korea. The bridge was seen in the ‘02 James Bond flick, Die Another Day. Gen Pande also visited the DMZ during his visit to South Korea earlier this week,” he adds.

Has India procured any weapons from South Korea?

Yes.

“India had procured 100 K-9 Vajra guns from South Korea under Make in India project in the year 2018. Again India is procuring 100 additional indigenously developed K9s built by L&T in conjunction with Korean OEM.”

Also, “ROK has shown interest in Indian Navy’s P75 (I) project under which 06 stealth submarines to be built indigenously again under Make in India. So, in a way India and South Korea are strengthening defence relations too. That could be the reason Gen Manoj Pande visited a Drone Combat unit during his Korea visit.”

Why did the Army Chief visit the Drone Combat Unit?

Explaining further, Rajput says, “See, during the Ukraine war, Russia had to procure Iranian Shahed drones in the middle of the war after Russian armed forces received serious setbacks in the unconventional domain during the early weeks of the aggression. So, maybe India may not be buying Korean drones soon but want to keep them handy in case any major conflict with the neighbouring countries ensues keeping in view the tumultuous past on both western as well as northern borders.”

<https://www.financialexpress.com/business/defence-india-korea-relations-why-the-indian-army-chief-visited-seoul-3318607/>



Mon, 27 Nov 2023

India, US Looking at Finalising MQ-9B Predator Drone Deal by Early Next Year

India is looking at sealing a landmark deal to procure 31 MQ-9B Predator armed drones from the US under a government-to-government framework by March with the US Congress expected to clear the supplies in the next few weeks, people familiar with the matter said.

American and Indian government officials will hold the final series of negotiations on the procurement after Washington responds to India's Letter of Request (LoR) for the acquisition of drones from US defence major General Atomics (GA), they said.

India is procuring the long-endurance 'hunter-killer' drones to crank up the surveillance apparatus of the armed forces, especially along the Line of Actual Control (LAC) with China.

Though the price of the drones will be finalised during the negotiation process, it is estimated that the procurement would cost around USD 3 billion.

The people cited above said New Delhi and Washington will depute their respective teams to firm up the deal including finalising the cost and other nitty-gritty. The aim is to seal the deal by March next year, they said. As part of the laid down process, the agreement will be between the Indian government and American authorities and the Pentagon will convey to General Atomics about the requirement of the Indian armed forces, they added.

It is understood that the issue of India's proposed procurement of the drones figured during US Defence Secretary Lloyd J Austin's talks with Defence Minister Rajnath Singh in Delhi earlier this month.

Asked when the procurement will be finalised, Austin said at a media briefing that it will be announced at the right time. "Well, again, you know, we've — at the right time, we'll announce the (deal). I think the government, the officials in the government are doing everything necessary to make sure that that capability... you (India) get that capability as quickly as possible," he said.

In June, both sides also reached an agreement under which American aerospace major General Electric will partner with Hindustan Aeronautics Lts to produce jet engines for Indian military aircraft in India.

The Sea Guardian drones are being procured for the three services as they can carry out a variety of roles, including maritime surveillance, anti-submarine warfare and over-the-horizon targeting.

While the Navy will get 15 Sea Guardian drones, the Indian Air Force and the Army will each get eight Sky Guardian drones. The high-altitude long-endurance drones are capable of remaining airborne for over 35 hours and can carry four Hellfire missiles and around 450 kgs of bombs.

In 2020, the Indian Navy had taken on lease two MQ-9B Sea Guardian drones from General Atomics for a period of one year for surveillance in the Indian Ocean. The lease period has been extended subsequently.

In their over 50-minute talks on the sidelines of the G20 summit in Delhi, Prime Minister Narendra Modi and US President Joe Biden vowed to "deepen and diversify" the bilateral major defence partnership while welcoming forward movement in India's procurement of 31 drones and joint development of jet engines.

The India-US defence cooperation has been on an upswing in the last few years. In June 2016, the US designated India a "Major Defence Partner" paving the way for sharing of critical military equipment and technology.

The two countries have also inked key defence and security pacts over the past few years, including the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016 that allows their militaries to use each other's bases for repair and replenishment of supplies.

The two sides also signed COMCASA (Communications Compatibility and Security Agreement) in 2018 which provides for interoperability between the two militaries and the sale of high-end technology from the US to India.

In October 2020, India and the US sealed the BECA (Basic Exchange and Cooperation Agreement) agreement to further boost bilateral defence ties. The pact provides for the sharing of high-end military technology, logistics and geospatial maps between the two countries.

<https://www.financialexpress.com/business/defence-india-us-looking-at-finalising-mq-9b-predator-drone-deal-by-early-next-year-3319036/>

Business Standard

Mon, 27 Nov 2023

Airbus to Expand Tata Tie-up to Strengthen India's Defence Supply Chain

Airbus SAS intends to expand its collaboration with Tata Advanced Systems to broaden India's defence supply chain and introduce new products aligned with the country's defence requirements, according to a report by Mint. The news was shared by Jorge Tamarit-Degenhardt, head of the C295 transport aircraft programme at Airbus.

According to the Mint report, the partnership will involve investments in developing capabilities, including raw material acquisition, manufacturing detailed parts, and establishing sub-assembly and assembly facilities. The initiative will unfold in phases, initially focusing on sourcing components like metallic and composite manufacturing technologies.

The primary focus in the early stages will be on metallic and composite manufacturing technologies, with a priority on electric harnesses to strengthen India's supply chain. The objective is to meet the demand for military transport aircraft as India replaces its ageing military transport fleet. In 2021, the Indian Air Force inked an agreement with Airbus for 56 C295 military transport aircraft valued at Rs 21,395 crore. Airbus aims to leverage this supply chain for various defence platforms beyond transport aircraft, as the Indian military requires an estimated 100 aircraft. The collaboration anticipates delivering the first India-manufactured C295 in 2026 from their final assembly line in Vadodara, which will be operational by November 2024.

This strategic partnership further aligns with India's efforts to establish a robust domestic defence supply chain, encouraging global defence companies to invest and manufacture in the country. Initiatives like indigenisation lists, Defence Acquisition Procedure 2020, and defence industrial corridors aim to facilitate foreign firms' entry, support startups, and boost research within India.

https://www.business-standard.com/companies/news/airbus-to-expand-tata-tie-up-to-strengthen-india-s-defence-supply-chain-123112700207_1.html

THE ECONOMIC TIMES

Mon, 27 Nov 2023

Full Potential of India-US Civil Nuclear Deal Remains Untapped: Expert

More than 18 years after India and the US signed a civil nuclear deal, its full potential and promise along with the larger bilateral partnership is yet to be realised, according to a top American expert.

While New Delhi is yet to remove obstacles that prevent its purchase of nuclear reactors from the United States, Washington has not been able to match the policy with vision, Ashley J Tellis, the Tata Chair for Strategic Affairs and a senior fellow at the prestigious Carnegie Endowment for International Peace, said. US President Joe Biden's ambition to finally fructify the 2005 civil nuclear agreement cannot end with the sale of US nuclear reactors to India. Rather, it must extend to revising long-standing US policies that continue to make the existence of India's nuclear weapons programme an insuperable obstacle to deepened technological cooperation, he asserted in an opinion piece published by Carnegie Endowment for International Peace on Monday.

"Where India is concerned, New Delhi is long overdue in removing the obstacles that prevent its purchase of nuclear reactors from the United States, consistent with the written commitments it made during the implementation of the nuclear deal. Where the United States is concerned, a different challenge persists that is no less urgent: matching policy with vision," he added.

Tellis noted that after Biden's visit to India in September, the joint statement declared that the two leaders "welcomed intensified consultations between the relevant entities on both sides to expand opportunities for facilitating India-US collaboration in nuclear energy, including in development of next-generation small modular reactor technologies in a collaborative mode".

Realising this promise, however, will require solutions that have eluded the two sides thus far, said the Indian-American expert.

Westinghouse, the supplier of high-output nuclear power plants, remains skittish about sales to India with the absence of a durable assurance of limited liability in the event of an accident.

At least one other American company, Holtec International, which supplies small modular reactors (SMRs), already operates a components factory in India and is eager to explore SMR sales in the country and across West Asia but these discussions are still in the early stages.

Given the Biden administration's interest in consummating the civil nuclear agreement, as well as India's interest in expanding foreign participation in its nuclear energy programme, it is past time for the Modi government to rectify the nuclear liability problems that it has inherited ironically due to the obstructiveness of Modi's own party, albeit long before he led it, Tellis wrote.

The cleanest solution to the current predicament would be to amend India's Civil Liability for Nuclear Damage Act (CLNDA) to bring it in line with the Convention on Supplementary Compensation for Nuclear Damage (CSC) by channelling all liability in case of a nuclear accident solely to the operator of a nuclear plant, with the operator in turn protecting its interests by relying on an insurance pool for financial safety. India has already moved to create such an insurance pool pursuant to the CLNDA but it has not been fully funded yet, he wrote.

According to Tellis, even as India looks for ways to realise the commercial promise of the civil nuclear agreement -- an objective that the Biden administration must be congratulated for making its own -- the administration still has another bigger and more consequential task arising out of this accord: addressing the issue of India's nuclear weapons programme in the US grand strategy.

Tellis said the inherited nonproliferation rules and how they are implemented not only prevent India from enjoying the full benefits of the agreement but even more importantly, subvert the overarching objective that drove its negotiation -- assisting India's ascendancy to create the Asian multipolarity that balances China's rise. "On this count, both the administration and the US Congress are of one mind. Consequently, it is now time for the executive branch to bring its application of the nonproliferation rules in accord with its core strategic goal of building Indian capabilities to effectively resist expanding Chinese power," he asserted.

<https://economictimes.indiatimes.com/news/india/full-potential-of-india-us-civil-nuclear-deal-remains-untapped-expert/articleshow/105521931.cms>

Can DEWs Be a Boon for India's Strategic Border Defence?

By Huma Siddiqui

In a groundbreaking move, Israel's Rafael Advanced Defense Systems has unveiled the Iron Beam, a cutting-edge laser weapon system reminiscent of sci-fi classics like Star Wars and Star Trek. The technology, showcased at the Singapore Airshow on February 11, 2014, is now under study for potential deployment in response to the ongoing conflict with Hamas.

While initially slated for service deployment in the coming years, the Iron Beam could play a pivotal role in fortifying Israel's air defence amid the current hostilities. This 100kW class High Energy Laser Weapon System (HELWS) is engineered to intercept a diverse array of threats, including Rockets, Artillery, and Mortars (RAM), as well as Unmanned Aerial Vehicles (UAVs). Operating at distances ranging from a few hundred metres to several kilometres, it is poised to become the first operational system in its class, marking a significant advancement in defence technology.

As tensions persist on various fronts, the question looms: Could India harness Directed Energy Weapons (DEWs) for bolstering its border defence? The spotlight on Israel's Iron Beam, a laser weapon system designed to counter missile threats, prompts a consideration of whether India, too, could delve into this realm of advanced defence technology.

What fits the needs for security and border defence?

Globally, the pursuit of Directed Energy Weapons (DEWs) primarily revolves around two main options: High Power Lasers (HPL) and High-Power Microwaves (HPM). Each option presents distinct advantages and considerations in terms of functionality and effectiveness.

High Power Lasers (HPL) are characterised by a narrower beam, which allows for precise targeting but covers a smaller area. This feature makes them particularly suitable for pinpoint accuracy against specific threats. For instance, a laser with an output of approximately 100 kilowatts has the potential to neutralise unmanned aerial systems and artillery, offering a focused response to these types of threats.

On the other hand, High Power Microwaves (HPM) boast a wider coverage area, making them potentially more effective against a salvo of missiles or drone swarms. This broader reach enhances their utility in countering multiple threats simultaneously.

The power levels of these DEWs correlate with their destructive capabilities. A laser beam with an output of around 300 kilowatts could be potent enough to disable small craft, vehicles, and cruise missiles. As the power scales up, with lasers reaching one megawatt, the capability extends to devastating ballistic missiles and hypersonic weapons. The versatility of DEWs, spanning from precision targeting to countering swarms and high-speed projectiles, underscores their potential as a transformative force in modern warfare.

The findings of experts highlight the potential cost-effectiveness and efficiency of Directed Energy Weapons (DEWs) compared to traditional munitions. These advanced systems, utilising lasers, microwaves, gamma rays, and other forms of electromagnetic energy, offer distinct advantages in terms of deployment and operational capabilities.

One key advantage lies in the elimination of the need for mechanical loading, as DEWs can be fired repeatedly without the logistical challenges associated with traditional munitions. Weapons utilising lasers, for instance, can cut through steel and aluminium in seconds, showcasing their rapid and precise destructive capabilities.

The speed of light in a laser beam enables near-instantaneous reach to a target, eliminating the need for calculating intercept courses, as required for interceptor missiles. This rapid response time can be a critical factor in countering fast-moving threats.

India in the DEW race

In a significant revelation, Air Chief Marshal Vivek Ram Chaudhuri announced on March 21, during a public event in Delhi, that India has successfully tested and deployed Directed Energy Weapons (DEWs) and hypersonic weapons. This disclosure marks a notable advancement in India's defence capabilities, although no official declaration has been made to date.

These weapon systems harness the power of concentrated laser, microwaves, or particle beams to deliver lethal force with unprecedented accuracy and speed. The Air Chief highlighted the numerous advantages of DEWs, including their cost-effectiveness per shot, logistical efficiency, and low detectability. Moreover, the lightning-fast delivery of death rays to the target sets them apart from conventional weaponry.

Of particular significance is DEWs' capability to counter the perceived threat of hypersonic missiles, which are often deemed 'unstoppable' due to their extraordinary speed. With their unmatched precision and rapid response, DEWs emerge as a critical solution to address the challenges posed by these high-speed projectiles.

In the intricate web of developing cutting-edge weapon systems in India, pivotal contributions have been made by the Defence Research and Development Organisation (DRDO) and its affiliated institution, the Centre for High Energy Systems and Sciences (CHESS) based in Hyderabad. This collaboration has been instrumental in advancing Directed Energy Weapons (DEWs) technology within the country.

The scope of these initiatives extends beyond DRDO and CHESS, involving several entities such as the Bhabha Atomic Research Centre (BARC), the Army Design Bureau (ADB), and the National Security Council Secretariat (NSCS). Each plays a unique role in different DEWs programs, highlighting a coordinated effort across multiple fronts.

One noteworthy achievement is credited to CHESS, which successfully developed a laser-based anti-drone system, showcasing its capabilities to potential users. This system, integrating radar, jammer, and laser-based hard kill capability, has been both developed and deployed, marking a significant advancement in anti-drone technology.

In the realm of classified defence programs, India has reportedly integrated Directed Energy Weapons (DEWs) into its arsenal, a development attributed to initiatives like KALI (Kilo Ampere Linear Injector) and DURGA (Directionally Unrestricted Ray-Gun Array). According to various open sources, these platforms have been in play for several years, with indications that a significant deployment may occur in 2024.

The classified nature of these programs covers details such as operational range and specific parameters in secrecy, highlighting the strategic importance and sensitivity surrounding these advanced weapon systems. The proposed system, slated for potential induction in 2024, is said to possess the capability to eliminate incoming missiles and projectiles during the terminal phase of their flight, even at ranges of approximately 25 km.

An offshoot of India's DEWs program manifests in the form of an anti-drone system, which has reportedly been deployed for the past two years during Independence Day celebrations in New

Delhi. Developed by the Defence Research and Development Organisation (DRDO) and manufactured by Bharat Electronics Limited (BEL), this state-of-the-art anti-drone system offers both hard kill and soft kill options. The intense and concentrated beams generated by DEWs serve to disrupt or disable communications, command and control systems, positioning, navigation, and timing systems in the target—a technique known as a soft kill—or potentially destroy the target in a hard kill.

A retired Indian Army Lt Gen. who wishes to stay anonymous states that “As technology advances in India’s neighbourhood, our nation must be vigilant against potential vulnerabilities. It is imperative for India to not only bolster its defensive capabilities but also contemplate the development of an offensive edge in response to emerging threats.”

Other side of the coin

Despite the promise of Directed Energy Weapons (DEWs) on the battlefield, significant obstacles remain. One major challenge is the substantial energy requirement for their operation. The high costs associated with the research and development of DEWs pose financial barriers, and the practical applicability of several of these weapons remains uncertain.

DEWs face inherent vulnerabilities. Laser beams, a common type of DEW, can be attenuated by water vapour and dust, diminishing their effectiveness. Additionally, many DEWs have limited ranges, and their impact significantly weakens with increased distance between the weapon and the target.

The financial investment required for the development and construction of DEWs may not always be justified by their performance in specific scenarios. Reflective materials and other countermeasures can also be employed to mitigate the effectiveness of DEWs.

Furthermore, the development of DEWs by one government often triggers an arms competition among other nations, escalating tensions and potentially leading to an arms race. These challenges underscore the complex considerations surrounding the practical deployment and effectiveness of DEWs in real-world military scenarios.

The bottom line

The effectiveness of Directed Energy Weapons (DEWs) in addressing geopolitical challenges, such as the Galwan standoff and broader Indo-Pacific tensions, remains a nuanced and evolving consideration. While DEWs offer distinct advantages in terms of precision, repeatability, and potential accuracy, significant obstacles must be navigated.

The Galwan standoff and Indo-Pacific challenges present multifaceted scenarios that demand a comprehensive approach to defence. The energy demands, cost implications, and uncertainties regarding the practical applicability of DEWs underscore the need for a balanced assessment. The vulnerabilities of DEWs to countermeasures, limited ranges, and potential high development costs further complicate their widespread adoption.

In the face of evolving challenges, the integration of DEWs into military arsenals should be approached with a discerning eye, weighing their advantages against the complex realities of contemporary conflicts. As technology continues to advance, ongoing research and development will likely refine the capabilities and limitations of DEWs, shaping their potential role in addressing future security concerns in the Indo-Pacific region and beyond.

<https://www.financialexpress.com/business/defence-can-dews-be-a-boon-for-indias-strategic-border-defence-3318633/>

Pakistan to Acquire Anti-tank Guided Weapon Systems from Turkish Maker, Co-production also on Cards

Cementing defence ties further, Pakistan is in the process of buying anti-tank guided weapon systems (ATGWs) from its long-term ally Turkey, ThePrint has learnt.

According to sources in the defence and security establishment, Islamabad is also considering co-production of the ATGWs along with the Turkish weapons manufacturer Roketsan.

Designed to destroy an adversary's tanks and other armoured vehicles, anti-tank guided weapon systems or missiles can be short, medium or long-range.

Roketsan offers a range of anti-tank weapon systems including the man-portable KARAOK, a short-range fire-and-forget anti-tank guided missile with an imaging infrared seeker. Other ATGWs part of its catalogue include the OMTAS, a medium-range anti-tank weapon system, and UMTAS — a long-range anti-tank missile system developed primarily for integration with attack helicopters, according to Roketsan's website.

Though Pakistan has had long-standing defence ties with Turkey, the two countries have in recent years forged closer military cooperation through co-production of combat jets and missiles.

In August this year, reports hinted that Pakistan was poised to join the programme for development of Turkish Aerospace Industries' (TAI) 5th-generation Kaan fighter aircraft, also known as TF-X. Nearly 200 Pakistani officials and engineers were reportedly involved in the development of the fighter programme even before the two governments decided to make it official. The stealth aircraft made its first taxiway earlier this year and likely has a takeoff weight of 27,000 kg and a top-speed of Mach 2.

“Pakistan and Turkey are preparing for first flight of the fifth-generation fighter jet. They are working to conduct the first flight of the fifth-generation fighter aircraft TF-X by December 2023,” said one source.

In November last year, the then Pakistani Prime Minister Shehbaz Sharif and President Recep Tayyip Erdogan of Turkey jointly inaugurated the corvette warship PNS Khyber. This was the third of four corvette ships being built by Turkey for the Pakistani Navy as part of a strategic cooperation programme.

Back in 2018, Turkish state-owned defence contractor Savunma Teknolojileri ve Mühendislik (STM) bagged a contract for a mid-life upgrade of one of three of Pakistan Navy's Agosta 90B-class (Khalid-class) diesel-electric attack submarines.

Pakistan is also among the first buyers of Turkish defence manufacturer Baykar's Kemankes cruise missile, equipped with an AI-supported autopilot system.

Islamabad has at least three Turkish-made UAVs in its inventory, namely Bayraktar TB2, Bayraktar Akıncı and Bayraktar TB3. In 2021, Pakistan's National Engineering & Scientific Commission (NESCOM) and TAI signed an agreement to produce Anka UAVs in Pakistan.

Over the past few years, Pakistan's dependence on Turkey for maintenance and upgradation of its weapon systems has increased owing to its strained relations with the West.

TAI reportedly upgraded as many as 41 F16 aircraft in service with the Pakistan Air Force (PAF) as part of a contract signed in 2009. The last of these aircraft, made by American defence manufacturer Lockheed Martin, were delivered in 2014. Besides avionics and structural modernisation, TAI also reportedly imparted training to PAF's F16 pilots.

Furthermore, it is learnt that the Pakistan Army has also signed a contract for the procurement of an Electronic Intelligence (ELINT) system, under the scope of project AGILE, with Italian defence manufacturer Elettronica. The Integrated Site Acceptance and Testing (ISAT) for this system will likely be carried out in Pakistan. ELINT systems gather and analyse information such as radar transmissions using electronic sensors.

<https://theprint.in/defence/pakistan-to-acquire-anti-tank-guided-weapon-systems-from-turkish-maker-co-production-also-on-cards/1857449/>



Mon, 27 Nov 2023

Taiwan Initiates Mass Production of Sky Sword II Air-defence System

Taiwan's state-owned National Chung-Shan Institute of Science and Technology (NCSIST) has started the mass production of its land-based short-to-medium-range air-defence capability known as the Sky Sword II (locally termed Tien Chien II), a Republic of China Army (RoCA) officer told Janes on 27 November.

The mass production has begun in order to meet the RoCA requirement for six Sky Sword II systems, the officer said.

A Sky Sword II system comprises one CS/MYS-951 Battle Management Center (BMC), one CS/MPQ-951 radar unit (RU), and four to five missile firing units (MFUs), the officer added.

The MFU can carry up to four Sky Sword II missiles, and the RoCA procurement of six Sky Sword II systems comprises six BMCs, six RUs, 29 MFUs, and 246 missiles, according to the officer.

The RoCA's Sky Sword II programme is worth TWD14.3 billion (USD453 million), with each missile costing around TWD20 million, the officer added.

Janes reported in mid-September that the RoCA plans to order land-based Sky Sword II air-defence systems to counter China's fixed-wing aircraft, rotorcraft, unmanned aerial vehicles (UAVs), and cruise missiles.

In the National Defense Report 2023, Taiwan's Ministry of National Defense (MND) also said it plans to acquire the Sky Sword II for the RoCA. According to Janes Land Warfare Platforms: Artillery & Air Defence.

<https://www.janes.com/defence-news/news-detail/taiwan-initiates-mass-production-of-sky-sword-ii-air-defence-system>



Press Information Bureau
Government of India

Ministry of Science & Technology

Sat, 25 Nov 2023

ANRF to Bring Synergy between Government and Private Sector in Science Research: SERB Secretary

Dr Akhilesh Gupta, Senior Advisor, Department of Science and Technology and Secretary, Science and Engineering Research Board (SERB) highlighted that Anusandhan National Research Foundation (ANRF) will bring major transformational changes in the way research is supported and done in India, at a conference of science journalists organised in New Delhi on November 24, 2023.

“It will bring synergy between government, academia and private sector in science research and elevate its importance to the global level, Dr Gupta said during his fireside chat at the conference of Science Journalists Association of India (SJA) on strengthening science journalism in India.

He added that the country currently excels in basic science education, with most Indian R&D institutes focusing on fundamental science. The ANRF aims to support innovation and translational research by leveraging private-sector contributions alongside government funding. The three key components of the Anusandhan National Research Foundation (ANRF) include continuing with the SERB mode funding without any disruption, allocating additional funds for profound scale research, and providing innovation funding for public-private partnerships and industry collaborations.

He pointed out that the areas of top priority are Climate change, Clean Energy, Semiconductor, Artificial Intelligence (AI), robotic cyber security, Quantum, and other new and emerging areas were getting private sector to invest R&D will help blending of govt support with private support for research.

“India's scientific ecosystem stands out, with premier institutions like IITs and IISERs exhibiting high research quality, advanced infrastructure, and faculty expertise. While state-level universities have substantial potential with their army of young researchers, there is a need for attention and development. It is this potential that ANRF will try to harness,” Dr Gupta elaborated.

With the new structure of ANRF, scientific research in India will take a quantum jump in terms of scale, scope and quality.

He also stressed that as per the draft Science, Technology and Innovation Policy under consideration, it is proposed that every institute establishes a science communication wing to address concerns about potential misquotations, focusing on educating the media on scientific matters.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1979756>

Aditya-L1 Solar Probe Expected to Enter L1 Orbit on January 7, Says ISRO Chairman

The Indian Space Research Organisation (ISRO) expects its Aditya-L1 solar probe to enter into orbit around Lagrangian point L1 on January 7, the chairman of the space agency, S. Somanath, said in Thiruvananthapuram on Saturday.

Mr. Somanath, who was here for the 60th-anniversary celebrations of the first rocket launch from Thumba, said the Aditya-L1 mission is now in the final phase of its long journey to L1 point. “The current date for entering into orbit around L1 is January 7,” he said.

One of the five Lagrange points or ‘equilibrium points’ in the Sun-Earth system, L1 is about 1.5 million kilometres from the Earth between the planet and the Sun. ISRO plans to place in a halo orbit at this vantage point in space to carry out studies with its seven scientific payloads.

ISRO had launched the Aditya-L1 mission aboard the PSLV-C57 on September 2.

First G-X mission likely in the first half of 2024

ISRO expects to launch the the G-X unmanned orbital demonstration flight ahead of the Gaganyaan manned mission in the first half of 2024. The mission is likely to have on board ‘Vyommitra’, the humanoid designed and developed by the ISRO Inertial Systems Unit (IISU), Mr. Somanath said.

The cryogenic stage for the LVM3 launch vehicle which will be used for the mission will be ready before December this year.

The space agency also hopes to have the first flight of a Polar Satellite Launch Vehicle (PSLV) realised end-to-end by the industry in October 2024. The HAL-L&T consortium, which has bagged the contract, is in the “process of building” the rocket, Mr. Somanath said.

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<https://www.thehindu.com/sci-tech/science/aditya-l1-spacecraft-is-nearing-its-final-phase-says-isro-chief/article67572683.ece>

