

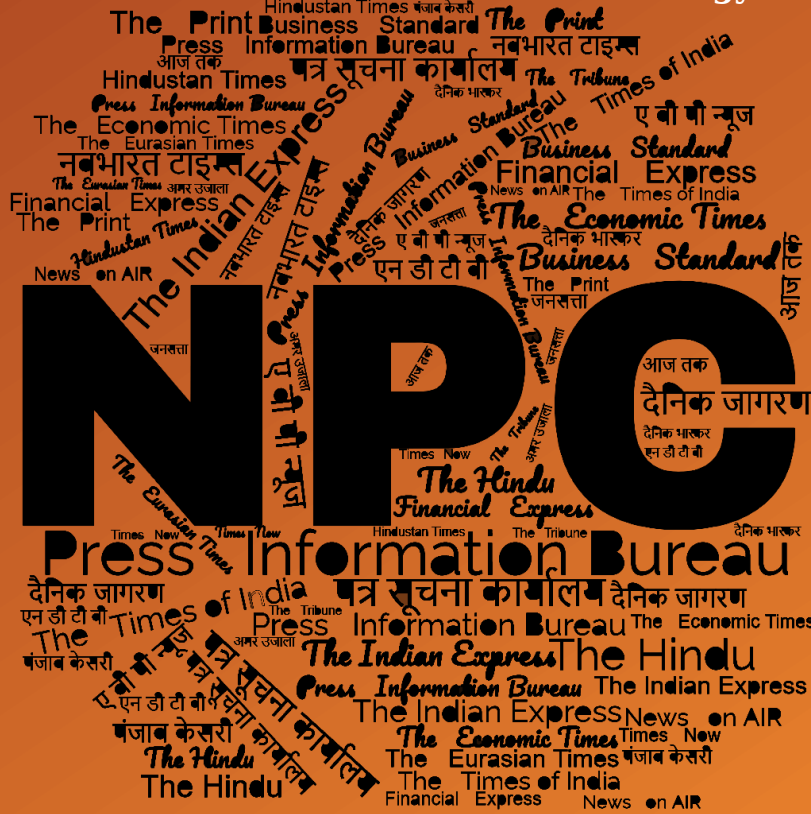
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Press Information Bureau
Government of India

Ministry of Defence

Thu, 23 Nov 2023

Headquarters, Integrated Defence Staff & Council of Scientific and Industrial Research Ink MoU on Joint Research and Development in Field of Defence Technology

A Memorandum of Understanding between the Headquarters, Integrated Defence Staff and the Council of Scientific and Industrial Research (CSIR) was signed on November 23, 2023 in New Delhi for technical collaboration and joint research and development in the field of Defence Technology.

The MoU was signed by Lt General JP Mathew, Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee (CISC), Ministry of Defence (MoD) and Dr. N Kalaiselvi, Director General, CSIR & Secretary, Department of Scientific and Industrial Research (DSIR), Ministry of Science & Technology (MoST).

The MoU between the HQ IDS and CSIR aims to provide an umbrella framework for initiating collaborative interaction between CSIR Labs, HQ IDS and Armed Forces, namely Indian Army, Indian Navy and Indian Air Force, for enhancing scientific understanding of technologies related to defence and undertaking joint research and development in dual use technologies.

The HQ IDS and CSIR both share a common interest to undertake joint research and development in defence technologies for mutual benefit, in the true spirit of 'scientific cooperation in support of Indian Armed Forces'. This partnership will also accelerate the indigenisation efforts of Armed Forces for achieving 'Atma Nirbhar Bharat'.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1979052>



Fri, 24 Nov 2023

Armed Forces Join Hands with CSIR to Intensify Research in Defence Tech

In a bid to boost research and development in the field of defence technology, a Memorandum of Understanding for technical collaboration and joint research was signed between the Integrated

Defence Staff (IDS) headquarters and the Council of Scientific and Industrial Research (CSIR) on Thursday.

“The agreement between the IDS headquarters and CSIR aims to provide an umbrella framework to initiate collaborative interaction between CSIR Labs, IDS headquarters and Armed Forces — namely Indian Army, Indian Navy and Indian Air Force — to enhance scientific understanding of technologies related to defence and undertake joint research and development in dual-use technologies,” the defence ministry said in a statement.

There has been a long-standing push to conduct research and development in defence technologies in India to offset the country’s dependence on imported arms and equipment. The Integrated Defence Staff is the single-point organisation for collaboration in the Ministry of Defence, which integrates policy, doctrine, war-fighting and procurement.

The CSIR does Research & Development (R&D) in diverse areas involving science and technology. The organisation has a dynamic network of 37 national laboratories, 39 outreach centres, one innovation complex and three units, with a pan-India presence. The CSIR’s R&D wing comprises about 3,521 scientists, supported by about 4,162 technical and support personnel as of March 31, 2022.

Its wide spectrum of expertise in science and technology ranges from oceanography, geophysics, chemicals, drugs, genomics, biotechnology and nanotechnology to mining, aeronautics, instrumentation, environmental engineering and information technology. It provides significant technological intervention in many areas concerning societal efforts, which include environment, health, drinking water, food, housing, energy, farm and non-farm sectors.

R&D expertise

The CSIR has a network of 37 national laboratories, 39 outreach centres, one innovation complex and three units, with a pan-India presence.

<https://www.newindianexpress.com/nation/2023/nov/24/armed-forces-join-hands-with-csir-to-intensify-research-in-defence-tech-2635714.html>



Fri, 24 Nov 2023

Army Chief on 4-day Trip to S Korea, Visits Cyber Command & Drone Centres

Chief of the Army Staff (COAS) Gen Manoj Pande, on a four-day official visit to the Republic of Korea (ROK), was on Thursday briefed at the demilitarised zone about the highly sensitive area. The visit commenced on November 20, a historic day in India-South Korea relations: 73 years back, 60 Para Field Ambulance of the Indian Army landed in Busan on November 20, 1950, to provide much-needed medical support during the Korean War.

“The Army Chief also visited the Cyber Command, where he was briefed on the effective response to the increasingly advanced and sophisticated cyber threats,” the Army said on X. Gen Pande also visited a drone combat unit and also was briefed on the border management and surveillance facility.

The Army Chief's visit is significant from the defence production perspective and the geopolitical shift towards the Indo-Pacific. "The aim is to seek collaboration from South Korea in areas in which they are strong in defence manufacturing," said a defence source.

The Army said the itinerary of the COAS includes interactions with the senior military leadership of the ROK and visits to defence formations and establishments. The highlights of the tour include a bilateral meeting with General Park An-su, Chief of Staff, ROK Army besides a dialogue with General Kim Seung-kyum, Chairman of Joint Chief of Staff of ROK Armed Forces.

The interactions will be aimed at fostering mutual understanding, exchanging views on regional security situations and contributing to strengthening bilateral defence cooperation, said sources. He also interacted with senior officers of the ROK Army and received briefings on issues of mutual interest. The engagements aimed to foster mutual understanding and contribute to the overarching security architecture of the Indo-Pacific region.

Underlining the significance of Indo-Pacific, Vice-President Jagdeep Dhankhar recently said that much was happening among 38 countries in the region, comprising Africa, Asia and Oceania. "This region is home to 64% of the global population and contributes 62% of the global GDP. Half of the global trade and 40% of oil pass through the Indo-Pacific region. In the context of Bharat, 90% of our trade and 80% of our critical freight needs — coal, petroleum & gas, iron ore and fertilizers — pass through the area," he said.

The scheduled visits of COAS included establishments such as Defence Acquisition Programme Administration, the Korean Army Centre for Future and Innovation and the Agency for Defence Development at Daejeon. KARCFI is an organisation equivalent to DRDO in India.

The COAS also paid tributes to the brave hearts in a solemn wreath-laying ceremony at the War Memorial

The bilateral relationship between the two countries was upgraded to a special strategic partnership after PM Modi's visit in 2015. This visit will reinforce the robust defence ties between both countries.

<https://www.newindianexpress.com/nation/2023/nov/24/army-chief-on-4-day-trip-to-s-korea-visits-cyber-command-drone-centres-2635715.html>

R. REPUBLICWORLD.COM

Thu, 23 Nov 2023

Not just a Jammer, IAF Progresses towards Complete Indigenous Electronic Warfare Suite for LCA Tejas

Indian Air Force officials disclosed that they are actively involved in developing an indigenous jammer pod for the homegrown LCA Mark 1A fighter aircraft, on Saturday November 18.

The officials added, "IAF's Base Repair Depots have been tasked with indigenising much of the equipment required for its fighter, transport aircraft and other weapon systems to cut down on imports." However, it's not just a jammer; the entire Indigenous Electronic Warfare Suite for LCA Mk1A has neared operational readiness.

Sources from the Defense Research and Development Organization (DRDO) revealed that the Consortium for Advanced Systems Development and Integration Center (CASDIC) in Bangalore and the Defense Electronics Research Laboratory (DLRL) in Hyderabad have collaborated on a

joint venture to develop a new Electronic Warfare (EW) suite specifically for the Light Combat Aircraft (LCA) Mk1A.

Components of the electronic warfare suite

This EW Suite comprises a Radar Warning Receiver (RWR) system along with an Advanced Self Protection Jammer (ASPJ) Pod, engineered to bolster the LCA Mk1A against a spectrum of potential threats.

According to DRDO, the Indigenous RWR system will be able to harness Radio Frequency (RF) and digital technologies. This fully digital solution employs real-time signal processing empowered by advanced algorithms, thereby establishing a new standard in electronic warfare systems.

In tandem with the RWR system, the Advanced Self Protection Jammer (ASPJ) Pod, intended for integration onto the LCA's outboard station, serves the crucial role of shielding the aircraft from ground-based acquisition radars, fire control radars, anti-aircraft artillery, and airborne multimode radars. The Utilising Active Phased Array (APA) technology, ultra-wideband Digital Radio Frequency Memory (DRFM), and an in-built cooling system, the ASPJ Pod, as claimed by DRDO, promises state-of-the-art jamming capabilities.

Developmental progress and testing

DRDO previously stated, "The EW system is currently undergoing developmental flight trials on LCA."

Successful completion of Qualification Testing (QT) for several Line Replaceable Units (LRUs) has occurred.

However, the clearance for production awaits the conclusion of developmental trials and the entire QT process.

Role of industry partner and transfer of technology (ToT)

The chosen industry partner responsible for the Transfer of Technology (ToT) is mandated to not only source LRUs, Subsystems, and Components from the DRDO-specified supply chain but also integrate, test, certify, and deliver the EW suite in accordance with the Indian Air Force's requirements. Furthermore, the partner must establish essential infrastructure such as the System Test Rig, Automatic Test Equipment, Ground Handling, and Ground Support Equipment crucial for production and maintenance of the EW system.

Of critical importance is the industry partner's capacity to produce and supply 10-12 EW systems annually, adhering closely to the specifications outlined by the Indian Air Force, as mandated by DRDO.

Additionally, the Defense Avionics Research Establishment (DARE) had previously developed the Trap, Trumpet, Tempest, and Tusker Pod-based jammers utilised in IAF Mig-27s.

However, due to their limitations concerning power consumption, vulnerability to enemy detection, and effectiveness against frequency hopping emitters, these noise jammers coupled with the earlier indigenous Tarang RWR faced significant challenges.

<https://www.republicworld.com/defence/defence-technology/not-just-a-jammer-iaf-progresses-towards-complete-indigenous-electronic-warfare-suite-for-lca-tejas.news>

India Set to Kick off 3 Mega Defence Projects worth Rs 1.4 Lakh Crore

India is now set to give preliminary approval to three mega indigenous projects to manufacture another aircraft carrier, 97 more Tejas fighters and 156 Prachand light combat helicopters, which together will be worth around Rs 1.4 lakh crore.

The Rajnath Singh-led defence acquisitions council is likely to take up the “acceptance of necessity (AoN)” -- the first step in the procurement process -- for the three crucial projects at a meeting slated on November 30, sources told TOI on Thursday.

Once the AoNs are accorded, the tendering and commercial negotiations will take place before the three deals are submitted to the cabinet committee on security for the final nod.

All these projects, which will take several years to be executed, are critical for strengthening the country’s operational military preparedness in the backdrop of China’s expanding multi-domain warfare capabilities.

The 97 Tejas Mark-1A fighters, at a cost of around Rs 55,000 crore, will add to the 83 such jets already ordered under the Rs 46,898 crore contract inked with Hindustan Aeronautics (HAL) in February 2021.

These 180 Tejas jets are critical for IAF to boost the number of its fighter squadrons, which is down to just 31 when at least 42 are required to tackle China and Pakistan. The first 83 Mark-1A jets are slated for delivery in the February 2024-February 2028 timeframe.

It will take 8-10 years for the second indigenous aircraft carrier (IAC-2), in turn, to be built at the Cochin Shipyard for around Rs 40,000 crore as a “repeat order” of the 44,000-tonne INS Vikrant or IAC-1.

INS Vikrant was commissioned in September 2022, after being built for around Rs 20,000 crore, but will be fully combat-ready only by mid-2024. The Navy also has the older Russian-origin carrier INS Vikramaditya, the refurbished Admiral Gorshkov inducted in November 2013 under a \$2.33 billion deal with Russia.

The Navy currently has only 40 of the 45 MiG-29K jets, inducted from Russia for another \$2 billion, to operate from carriers. The twin-engine deck-based fighter being developed by DRDO is likely to take at least a decade to become fully operational. In the interim, India is now finalizing the Rs 50,000 crore acquisition of 26 Rafale-Marine fighter jets from France.

The 156 Prachand helicopters (90 for Army, 66 IAF), capable of offensive operations in high-altitude areas like Siachen Glacier and eastern Ladakh, in turn, will cost around Rs 45,000 crore.

They will add to the 15 such choppers (10 IAF and 15 Army) already inducted under the first Rs 3,887 crore contract in March last year. The need for a mountain warfare-capable chopper like the 5.8-tonne Prachand, which is armed with 20mm turret guns, 70mm rocket systems and air-to-air missiles, was first acutely felt during the 1999 Kargil conflict.

The Navy, on its part, initially wanted a nuclear-powered 65,000-tonne IAC-2, capable of carrying a larger aviation complement than the 30-aircraft capacity of INS Vikrant. But budgetary constraints have made it opt for a smaller electric-propulsion IAC-2.

China, incidentally, already operates two aircraft carriers, Liaoning and Shandong, and is fast building two more. The third Chinese carrier, the over 80,000-tonne Fujian, was 'launched' in June last year. The US, of course, has 11 'super' 100,000-tonne nuclear-powered carriers, each of which carries 80-90 fighters and aircraft.

<https://timesofindia.indiatimes.com/india/india-set-to-kick-off-3-mega-defence-projects-worth-rs-1-4-lakh-crore/articleshow/105455212.cms>



Fri, 24 Nov 2023

Arms, Ammo Dropped by Pak Drone Recovered in Jammu

Security forces on Thursday morning recovered a consignment of arms and ammunition dropped by a Pakistani drone along the Line of Control (LoC) in Pallanwala sector of Akhnoor sub-division in Jammu district, officials said.

Defence spokesperson Lieutenant Colonel Suneel Bartwal said, "Forces have recovered one Turkey-made pistol with two magazines, 38 live rounds, nine grenades and a battery operated improvised explosive devise (IED) in Jourian area of Akhnoor sector, which was dropped through a quadcopter flown from across the LoC".

A cop at the Khour police station said that a Pakistani drone dropped the consignment in Lauki Khad (seasonal rivulet).

"We found the consignment wrapped in a packet. A rope to winch down the payload was recovered from the spot," he said.

In a statement issue here, police said, "In a joint search operation launched by Jammu police and army on Thursday morning, a suspicious box was recovered."

"Troops deployed in the forward areas heard quadcopter's noise and a search operation was launched. About 7am, a package along with dropping string was recovered. This has been one of the biggest haul of quadcopter dropped war-like stores in the Akhnoor sector, which is aimed to revive terrorism in Rajouri and Akhnoor sectors," the defence spokesperson added.

<https://www.hindustantimes.com/cities/chandigarh-news/arms-ammo-dropped-by-pak-drone-recovered-in-jammu-101700767405242.html>



Fri, 24 Nov 2023

Airbus Completes Auto'Mate Autonomous Aerial Refuelling Tests

Airbus Defence and Space has completed trials of its autonomous air-to-air refuelling (AAR) of unmanned aerial vehicles (UAVs), the company announced on 22 November.

Trials that were launched in March involved a modified A310 Multi Role Tanker Transport (MRTT) aircraft and DT-25 target drone UAVs. Designated Auto'Mate, the autonomous AAR is the

first step towards Autonomous Assets Air-to-Air Refuelling (A4R) and Autonomous Formation Flight (AF2) capabilities for tankers using technologies developed by Airbus UpNext.

“Auto'Mate successfully completes the second and final flight-test campaign. Airbus, for the first time ever, tested the technologies for autonomous air-to-air refuelling based on controlling and guiding multiple drones from Multi Role Tanker Transport aircraft,” the company said.

The Auto'Mate demonstrator technology focuses on three pillars. These are accurate relative navigation to precisely ascertain the relative position, speed, and attitudes between the tanker and the receiver; intra-flight communication between platforms to allow information exchange among the different assets, increasing the autonomy of the system of systems; and co-operative control algorithms to provide guidance, co-ordination, consensus, and collision-avoidance functionalities to the tanker and the receiver(s).

During flight tests, the unmanned receiver aircraft were sequentially controlled and commanded by artificial intelligence (AI) and co-operative control algorithms without human interaction. The different receivers were controlled and guided until a minimum distance of around 45 m from the tanker using light detection and ranging (LIDAR) and the Global Positioning System (GPS) sensors. Collision avoidance algorithms were tested in the second test campaign.

<https://www.janes.com/defence-news/news-detail/airbus-completes-automate-autonomous-aerial-refuelling-tests>



Thu, 23 Nov 2023

Iran Unveils Jet-powered Shahed-238 Drone: a New Concern for Ukraine?

Iran has recently revealed its latest iteration of the Shahed 'kamikaze drone,' named the Shahed-238, featuring a shift from its previous piston-propeller arrangement to a more advanced jet engine. The unveiling took place during an aerospace exhibition organised by the Islamic Revolutionary Guard Corps (IRGC) in Tehran.

Enhanced capabilities and varied guidance systems

This upgraded drone, derived from the Shahed-136 extensively used by Russia in Ukraine, comes with increased speed, faster transit times, and an array of guidance systems including radar and electrooptical/infrared options.

Displayed in three variations showcasing different guidance modules, speculation surrounds the inclusion of an anti-radiation seeker capable of targeting hostile radio-frequency transmitters, particularly air defence radars. This capability suggests potential for suppression/destruction of enemy air defences (SEAD/DEAD) missions.

However, while the drone's guidance systems promise versatility, their full capabilities and tested functionalities remain unverified. Reports indicate potential applications for anti-surface/anti-ship missions but raise questions about target recognition and engagement protocols.

Covert features

Images depicting a Shahed-238 test launch from a moving pickup truck suggest potential operational adaptability. These matte black drones have sparked speculation about radar-defeating

coatings or paints, hinting at possible use in nighttime operations, complicating visual detection and challenging air defences.

Jet propulsion advancements & potential global implications

While specifics regarding the Shahed-238's specifications are undisclosed, the adoption of jet propulsion ensures increased speed, critical for targeting time-sensitive objectives. However, the impact on range and payload due to the jet engine remains a subject of interest, potentially affecting operational capabilities. Despite potential cost increases compared to its piston-engine predecessors, the Shahed-238's affordability in comparison to sophisticated missiles could facilitate mass deployment. This possibility raises concerns for defence systems reliant on costly interceptors.

Furthermore, the possibility of Russia's involvement due to their escalated use of drones, combined with advancements in Shahed-type drone technology, fuels concerns about potential attacks on Ukrainian critical infrastructure in future. Prior Reports from Defense Ministries' around the world suggest that most of the subcomponents in the Shahed series drones may have Western origins, possibly sourced by Iran via the black market.

<https://www.republicworld.com/defence/global-defence-news/iran-unveils-jet-powered-shahed-238-drone-a-new-concern-for-ukraine.news>

THE TIMES OF INDIA

Thu, 23 Nov 2023

US Fears Putin Outsourcing Missiles from Iran to Use against Ukraine

The US has expressed apprehension that Iran and Russia, two of its biggest rivals, might possibly be entering into a ballistic missile deal that would favour Moscow in its ongoing war against Ukraine.

The White House, the official residence of the US President, has stressed that Russian President Vladimir Putin may be sourcing ballistic missiles from Iran.

National Security Council (NSC) Spokesperson John Kirby has claimed that Moscow has reportedly been receiving support from Iran in the ongoing conflict with Ukraine.

The assistance, he said, includes Shahed drones, guided aerial bombs, and artillery ammunition.

Addressing a press, Kirby asserted that the Kremlin may now be working to secure ballistic missiles from Tehran.

"We are therefore concerned that Iran is considering providing Russia with ballistic missiles now for use in Ukraine," said Kirby.

Kirby said that Russia would be offering Iran "unprecedented defence cooperation, including on missiles, electronics and air defence."

Substantiating its claim and concern, the White House also referenced a September gathering where Iran hosted Russian Defence Minister Sergei Shoigu, showcasing a variety of ballistic missile systems.

"In total, Iran is seeking billions of dollars worth of military equipment from Russia to strengthen its military capabilities. Russia has also been helping Iran develop and maintain its satellite collection capabilities and other space-based programmes," he added.

As the conflict between Russia and Ukraine enters its 638th day, the relationship between Russia and Iran has become increasingly intertwined, primarily driven by Iran's sophisticated drone technology. In reciprocation, Moscow is anticipated to provide Iran with advanced fighter jets and other weaponry.

The Washington's caution coincides with US President Joe Biden's advocacy for a \$61 billion emergency funding initiative to aid Ukraine.

This Ukrainian assistance plan is a component of a broader funding appeal aimed at providing defence support to Israel, Taiwan, and US security operations along the Mexico border.

<https://timesofindia.indiatimes.com/world/us/us-fears-putin-outsourcing-missiles-from-iran-to-use-against-ukraine/articleshow/105451107.cms>

Science & Technology News



Thu, 23 Nov 2023

ISRO Invites Scientists, Engineers and Academia for Capacity Building in Space-based Disaster Management Support

The Indian Space Research Organisation (ISRO) has issued an announcement of opportunity (AO) for capacity building in space-based disaster management support.

The agency has invited proposals on capacity-building programmes in different areas of space-based disaster management support from scientists, engineers, and faculty members from centres and units of ISRO, Department of Space, and R&D institutions and recognised academic institutes in India for financial support by ISRO under its Disaster Management Support Programme (DMSP).

"In the Indian sub-continent, nearly a billion people suffer yearly from natural and man-made disasters. Rapid population growth, unprecedented development, extreme climatic events along with complex geo-environmental settings contribute to the increasing effect of disasters. The frequency and impact of natural disasters are increasing day by day. Therefore, there is an urgent need to use both technology and suitable administrative measures along with a societal response to mitigate or reduce the impact of disasters," stated the AO.

This AO invites proposals for 2023-24. ISRO added that its DMSP has been actively supporting the Central and State governments by providing operational services during pre-disaster, disaster, and post-disaster time-frames, including experimental forecasts, using space systems. "Capacity building in space technology for disaster management has been identified as a key element of sustainable and effective disaster management. However, it is a challenging task considering the diverse backgrounds of stakeholders and the different types of disasters to deal with. Further, it

becomes challenging as the issue of disaster management is interwoven with activities related to development, socio-economic conditions, adaptation to climate change scenarios, etc,” ISRO said. The last date for submission is December 20.

<https://www.thehindu.com/news/national/karnataka/isro-invites-scientists-engineers-and-academia-for-capacity-building-in-space-based-disaster-management-support/article67565561.ece>

