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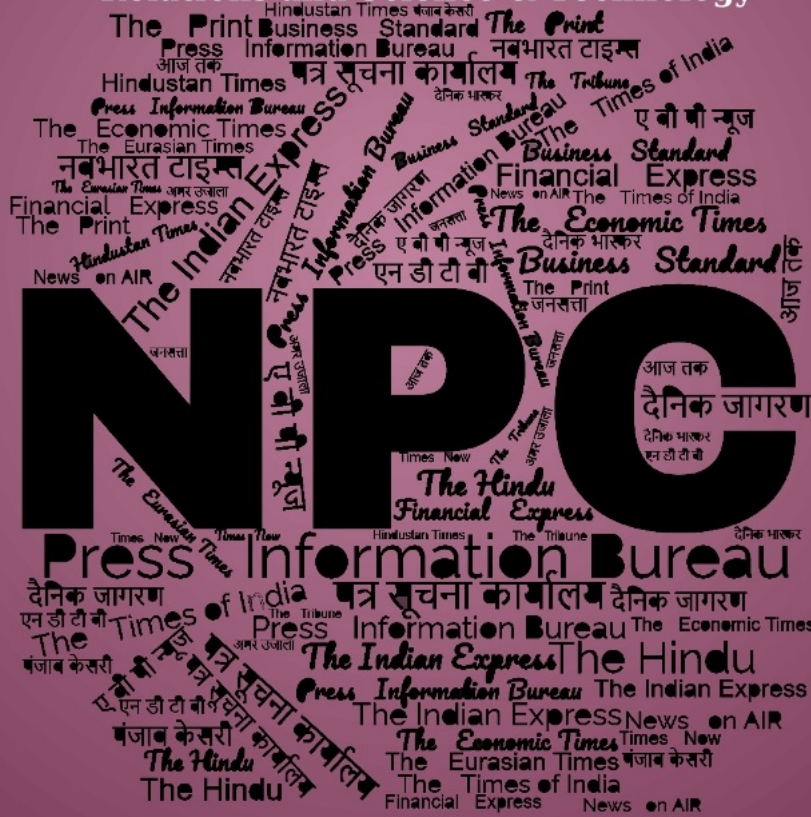
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# समाचार पत्रों से चयनित अंश Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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### **R.V. Hara Prasad takes charge as the new Director General (NS & M) of DRDO in Visakhapatnam**

R.V. Hara Prasad, Director, Defence Laboratory, Jodhpur, took over as the Director General (Naval Systems & Materials), of Defence Research and Development Organisation, here on Tuesday, October 1.

A Post Graduate in Electronics and Communication Engineering with specialisation in Microwave and Radar Engineering degree from Osmania University, Hyderabad, Mr. Prasad joined the Defence Electronics and Research Laboratory (DRDL), Hyderabad, in 1988 and served in various capacities and delivered and inducted various advanced EW systems to the tri-services, according to an official release.



He has also served as a member of G-FAST (Think Tank group of DRDO) between 2003- 05. As Director of the Defence Lab, Jodhpur, since 2022, he has been instrumental for the successful development of technologies/projects in strategic areas.

<https://www.thehindu.com/news/cities/Visakhapatnam/rv-hara-prasad-takes-charge-as-the-new-director-general-ns-m-of-drdo-in-visakhapatnam/article68705466.ece>

## **Analog Of Russia’s Iskander-M, India’s DRDO To Enhance Range, Accuracy & Lethality Of ‘Tactical’ Pralay Missiles**

India is advancing its tactical missile capabilities by improving the range, accuracy, and lethality of the Pralay ballistic missile, a short-range surface-to-surface weapon developed by the Defense Research and Development Organisation (DRDO).

According to a report from the Times of India on September 28, India’s defense forces are preparing to induct an enhanced version of the Pralay missile, with a range of 400 kilometers, alongside the long-range Nirbhay cruise missile, capable of striking targets up to 1,000 kilometers away.

Lt. Gen. A. Kumar, Director General of the Indian Army’s Regiment of Artillery, confirmed during a press briefing that the Defence Acquisition Council has approved the purchase of both missile systems. He noted that DRDO’s ongoing development efforts aim to refine these weapons to meet the evolving demands of modern warfare.

“Our missile program is progressing well at the desired pace, wherein research and development is being carried out by DRDO to enhance range, accuracy, and lethality of both ballistic and cruise missiles,” Kumar said.

The General also disclosed that efforts to develop hypersonic missile technology are in progress, indicating India’s dedication to leading in missile advancements. India’s push to enhance its missile arsenal comes amid growing interest from international partners. Previous reports suggest that Armenia has expressed interest in acquiring the Pralay missile, which would mark a significant export milestone following the success of the BrahMos missile.

A potential export contract could further boost DRDO’s reputation as a leading missile exporter. In addition to missile advancements, the Indian Army is bolstering its long-range firepower by adding six more regiments of the Pinaka multi-barrel rocket launcher system to its arsenal.

This expansion, Kumar stressed, has “added more punch and lethality” to India’s defense capabilities. Drawing lessons from the ongoing Russia-Ukraine conflict, Kumar said, “Our focus will remain on enhancing operational preparedness and staying ahead of challenges by innovating our technical and tactical philosophies.”

With these developments, India is positioning itself to meet future security challenges with a formidable and advanced arsenal.

### **Pralay Short-Range Ballistic Missile**

India’s defense capabilities are set to receive a significant boost with the enhancement and deployment of the Pralay missile, a tactical surface-to-surface, short-range ballistic missile (SRBM) developed by the DRDO.

Project 'Pralay' was sanctioned in March 2015, and since then, the missile has rapidly evolved into one of India's most formidable tactical weapons. The development of the Pralay missile combines technologies from two major missile systems: the Prithvi Defence Vehicle (PDV), an exoatmospheric interceptor, and the Prahar tactical missile.

The missile is equipped with a solid-fuel rocket motor and follows a quasi-ballistic trajectory, allowing it to perform mid-air maneuvers using a maneuverable reentry vehicle (MaRV) to avoid detection and interception by anti-ballistic missile (ABM) systems. The first trials of Pralay took place in December 2021, with subsequent tests in December 2022. The missile was tested for a range of 500 kilometers with heavier payloads.

On November 7, 2023, the missile completed its final test, achieving all mission objectives paving the way for its operational induction. Pralay is designed to be a quick-reaction missile. It can be launched within 10 minutes from a canister on a land mobile launcher. The missile boasts rapid deployment capabilities and can transition from command to launch in 60 seconds.

A 12×12 vehicle can carry two Pralay missiles, each capable of targeting different locations or striking a single target from different trajectories. One of Pralay's standout features is its ability to optimize its flight path to avoid air defense systems. In its terminal phase, it employs a millimeter-wave (MMW) seeker for precision targeting, with its speed varying depending on the trajectory.

The missile employs inertial navigation for mid-flight guidance and radar imaging for terminal homing, ensuring precision strikes with a Circular Error Probability (CEP) of around 10 meters. The missile's jet vane system for thrust vector control allows it to perform evasive maneuvers in its terminal phase. Similar to Russia's Iskander-M missile, Pralay may also be capable of releasing decoys, further frustrating adversary air defense systems.

### **An Analog of Russia's Iskander-M Missile**

India-based defense analyst Vijinder K Thakur pointed out, "The Pralay missile is an analog of Russia's Iskander-M quasi-ballistic missile, which has acquired a formidable reputation during Russia's Special Military Operation in Ukraine."

The Pralay and Iskander-M exhibit impressive accuracy, with a circular error probability (CEP) of around 10 meters, a feature attributed to terminal guidance systems utilizing seekers. While the Iskander-M employs optical or radio-frequency Digital Scene Mapping and Correlation (DSMAC) guidance, the Pralay is believed to currently rely solely on radio-frequency DSMAC.

Fitted with an indigenously developed fused silica radar dome (RADOME), the Pralay missile is designed for radar imaging during terminal guidance enhancing its precision further. The missile's jet vane system allows for thrust vector control, enabling evasive maneuvers during the terminal phase. Like the Iskander-M, Pralay may also be capable of deploying decoys to mislead and overwhelm enemy air defense systems.

The missile's launch system is highly mobile, supported by a 12×12 launcher that can carry two missiles or an 8×8 launcher for single missile deployment. Each launcher is complemented by a Battery Command Centre (BCC) vehicle, which functions as a communication hub and supports missile operations.

The impressive performance of the Russian Iskander-M missile in Ukraine likely spurred India's Ministry of Defence and the DRDO to expedite the enhancement and acquisition of the Pralay missile system. Pralay, equipped with cutting-edge technology and robust operational capabilities, is poised to considerably bolster India's tactical defense inventory, improving its preparedness to address modern security threats.

<https://www.eurasiantimes.com/analog-of-russias-iskander-m-indias-drdo/>

## Defence News

### Defence Strategic: National/International



**Press Information Bureau**  
**Government of India**

**Ministry of Defence**

*Wed, 02 Oct 2024*

## **17th India-Germany Military Cooperation Sub Group Meeting held in Berlin**

The 17th edition of the India-Germany Military Cooperation Sub Group (MCSG) meeting was held from 01-02 Oct 24 at Berlin, Germany. Discussions focused on new initiatives to further enhance the scope of bilateral military cooperation and to strengthen ongoing defence engagements across the spectrum. The meeting was conducted in a friendly, warm, and cordial atmosphere.

The MCSG is a forum established to boost defence cooperation between both nations through regular talks at the strategic and operational levels between Headquarters, Integrated Defence Staff, and the Department of International Cooperation Armed Forces, Germany. The meeting was co-chaired from the Indian side by the Deputy Assistant Chief of Integrated Defence Staff for International Defence Cooperation and the Deputy Director, the Department of International Cooperation, Armed Forces Office from the German side.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2061205>



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Tue, 01 Oct 2024*

## **Department of Defence starts preparation for Special Campaign 4.0**

As part of the preparatory phase of the Special Campaign 4.0, Department of Defence has identified the pendency across various parameters viz. MP references, public grievances, Inter-Ministerial Consultations, Parliamentary Assurances and State Government references.

The number of physical files to be reviewed for the purpose of further retention/ weeding out, as the case may be, during the implementation phase (02-31 Oct,2024) of the Special Campaign 4.0, has also been identified. All these parameters have been entered as “target” on the dedicated Special Campaign 4.0 portal.

Department of Defence has also adopted saturation approach on continuous basis for the concomitant Pan-India Swachhata Abhiyan that would run alongside the Special Campaign 4.0. Thus, a total of 3,832 such locations have been identified across India.

These locations pertain to various organizations such as Controller General of Defence Accounts, Border Roads Organization, Military Hospitals , Directorate General of National Cadet Corps, Indian Coast Guard, Sainik Schools, Canteen Stores Department, the Cantonments along with the Nehru Institute of Mountaineering, Uttarkashi and Himalayan Mountaineering Institute, Darjeeling.

The Department shall also look forward to premise its Swachhata Abhiyan on the principle of generating wealth from waste by disposing of office scrap, obsolete IT equipment, etc and generating revenue therefrom. The focus shall continue to be on ensuring a cleaner and decluttered workplace which eventually results in enhanced productivity.

The organizations of Department of Defence have also been encouraged to wholeheartedly appreciate the invaluable and tireless contribution of the Swachhata Veers towards the cause of Swachhata.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2060754>





**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Tue, 01 Oct 2024*

## **Indian Army To Conduct Chanakya Defence Dialogue – 2024 On 24-25 October : Curtain Raiser Conducted Today**

The Indian Army, in collaboration with the Centre for Land Warfare Studies (CLAWS), is set to conduct the Second Edition of its flagship event, Chanakya Defence Dialogue-2024 on the theme "Drivers in Nation Building: Fuelling Growth through Comprehensive Security". The much-awaited event, will be conducted on 24th and 25th October 2024 at Manekshaw Centre, New Delhi.

At the Curtain Raiser event held today at New Delhi, General Upendra Dwivedi, Chief of the Army Staff, reflected on Indian Army's vision of a resilient, secure and prosperous Bharat@2047, sharing his views on various issues related to national and global security, as also contribution of the Indian Army in nation building.

The COAS shared his thoughts on the theme "Pillars of Security: Powering India's Path to Viksit Bharat by 2047" in a Fireside Chat. The Chat provided an engaging platform to discuss the role of Indian Armed Forces as Net Security provider in India's development trajectory. The COAS underscored Indian Army and the importance of robust security frameworks ranging from defence readiness to internal stability for fostering an environment conducive to economic growth and innovation. The conversation highlighted the need for a multi-faceted approach, emphasising collaboration between government, industry, and civil society to address emerging challenges. By framing security as a foundational pillar of national development, the discussion underscored the vision of a prosperous and secure India by 2047, encouraging proactive strategies that align security with the broader goals of societal advancement and sustainable growth.

The Fireside Chat was followed by a panel discussion chaired by Lt Gen NS Raja Subramani, the Vice Chief of the Army Staff. The discussion was titled "Secure Nation and Prosperous Future: Bridging National Security with Growth and Development". This session explored strategies to create a secure environment that fosters innovation and fuels development. By framing security as a fundamental pillar in India's journey toward a developed nation by 2047, the dialogue underscored the critical importance of aligning defence initiatives with national prosperity and social progress. The discussion featured Shri Oken Tayeng, MLA Arunachal Pradesh, Mr SS Sarma, Director (Operations), Cert-in, Lt Gen PR Shankar (Retired), a renowned strategist and Lt Gen (Dr) Madhuri Kanitkar (Retired), a shining example of women empowerment in the Indian Armed Forces. The participants during the discussion expressed their views on a wide range of subjects including Border Area Development, Youth, Sports and Women Empowerment towards nation building.

The Curtain Raiser event demonstrated a glimpse of the main event and highlighted the multifaceted dimensions of security, its impact on national growth and role played by the Indian Army in achieving India's vision of 'Viksit Bharat'. The second Chanakya Defence Dialogue will facilitate in- depth discussions, foster strategic partnerships and contribute to the formulation of actionable insights for enhancing national security and development. It will provide a platform for national and international leaders, policymakers and subject matter experts to share their expertise and contribute to the discourse on security through development.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2060634>



**Press Information Bureau**  
**Government of India**

**Ministry of Defence**

*Tue, 01 Oct 2024*

## **Surgeon Vice Admiral Arti Sarin becomes first woman to take over as DG, Armed Forces Medical Services**

Surgeon Vice Admiral Arti Sarin, on October 01, 2024, became the first woman officer to take over as the Director General, Armed Forces Medical Services (DGAFMS). The DGAFMS is directly responsible to the Ministry of Defence for overall medical policy matters which relate to the Armed Forces.

Prior to assuming the appointment of 46th DGAFMS, the Flag Officer held the coveted appointments of DG Medical Services (Navy), DG Medical Services (Air) and Director & Commandant of Armed Forces Medical College (AFMC), Pune. She is an alumna of AFMC, Pune and was commissioned into the Armed Forces Medical Services in December 1985. She is an MD in Radiodiagnosis from AFMC, Pune and Diplomate National Board in Radiation Oncology from Tata Memorial Hospital, Mumbai, complemented with training in Gamma Knife Surgery from University of Pittsburgh.

In a career spanning 38 years, the Flag Officer has held prestigious academic and administrative appointments including Professor & Head, Radiation Oncology, Army Hospital (R&R) and Command Hospital (Southern Command)/AFMC Pune, Commanding Officer, INHS Asvini, Command Medical Officer in the Indian Navy's Southern and Western Naval Commands.

The Flag Officer has the rare distinction of serving in all three branches of the Indian Armed Forces, having served as Lieutenant to Captain in the Indian Army, from Surgeon Lieutenant to Surgeon Vice Admiral in the Indian Navy and as an Air Marshal in the Indian Air Force.

In recognition of her dedication to patient care with utmost loyalty and supreme commitment, the Flag Officer has been awarded Ati Vishist Seva Medal in 2024 and Vishist Seva Medal in 2021. She has also been conferred with Chief of Army Staff Commendation (2017), Chief of Naval Staff

Commendation (2001) and General Officer Commanding –in-Chief Commendation (2013) for distinguished service.

The Flag Officer has been recently appointed as a member of the National Task Force by the Supreme Court to formulate safe working conditions and protocols for medical professionals. She has been at the forefront of motivating young women to join the Armed Forces and is a shining icon for the Nari Shakti initiative of the Government.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2060559>



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Tue, 01 Oct 2024*

## **Press Brief On Completion Of The Visit Of Chief Of The Naval Staff To Greece**

The visit of Adm Dinesh K Tripathi, Chief of the Naval Staff (CNS), to Greece saw extensive deliberations with senior Greek Defence officials aimed at further consolidating bilateral defence relations between India and Greece.

The maiden visit to Greece, by an Indian Navy CNS focused on enhancing interoperability, furthering training cooperation, and exploring defence collaboration, aimed at strengthening Navy-to-Navy partnership with shared goals of a stable and secure maritime environment in the Indian Ocean Region and the Mediterranean.

Major interactions during the visit included meetings with the Deputy Minister of Defence, the Chief of Hellenic National Defence General Staff (HNDGS), the Deputy Chief of HNDGS, the Chief of the Hellenic Navy, CinC Hellenic Fleet, and the Superintendent of the Hellenic Naval Academy.

Both sides emphasised strong diplomatic and defence ties, aiming to expand joint training, exercises, and defence collaboration. Enhanced synergy and interoperability were discussed, including potential port calls and increased engagement through joint maritime activities. Discussions included opportunities for Greece to leverage Indian Navy training facilities and to participate in the Admiral's Cup Sailing Regatta in December 2024. Greece also offered FOST-level training opportunities.

The feasibility of a White Shipping Information Exchange (WSIE) agreement to enhance maritime security in the region and Navy-to-Navy Staff Talks to further deepen strategic and operational collaboration, were also discussed. The visit underscored the shared commitment of both navies to maritime security, mutual respect, and deeper strategic alignment.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2060940>



**Press Information Bureau  
Government of India**

**Ministry of Defence**

*Wed, 02 Oct 2024*

## **INSV Tarini Sails Out For Navika Sagar Parikrama II**

Adm Dinesh K Tripathi, Chief of the Naval Staff flagged off the Navika Sagar Parikrama II expedition from Ocean Sailing Node, INS Mandovi, Goa on 02 Oct 24. This landmark event marks a significant milestone in Naval ocean sailing history as the first ever circumnavigation of the globe onboard a sailing vessel by Indian women in double handed mode. The expedition symbolises India's maritime endeavours, showcasing nation's prominence in global maritime activities and Indian Navy's commitment to excellence and women empowerment.

The flag off ceremony was witnessed by VAdm V Srinivas , FOCINC (South), VAdm Arti Sarin, DG AFMS, VAdm Vineet Mc Carty, CPS, VAdm L S Pathania, Chief Hydrographer, other senior officers, civilian dignitaries and enthusiastic members from the Naval community both serving and retired, as well as media personnel. On this occasion, a special chart commemorating the expedition was also released by CNS in the presence of FOCINC (South) and Chief Hydrographer. The CNS took a walk around of the boat and interacted with the crew prior cast off.

In his address, the CNS highlighted the Sagar Parikrama as the symbolic expression of devotion and a significant step in fostering maritime consciousness, embodying the spirit of Sashakt and Saksham India. He acknowledged the visionary foresight of Late VAdm MP Awati who pioneered the idea of circumnavigation on sail boats and the subsequent voyages of Capt Dilip Donde, Cdr Abhilash Tomy and Navika Sagar Parikrama I showcasing seafaring skills at global stage and commitment to the spirit of Nari Shakti. The CNS complimented the mentors, Instructors and others involved in preparation of this voyage and congratulated the family members of the duo being the pillars of strength and support. He stated that the duo are the flag bearers of resurgent India who represent the confidence, courage and conviction of today's India and the Navy. He wished them Fair Winds and Following Seas as they fly the Tirangaa around the globe.

Navika Sagar Parikrama II covering more than 21,600 nautical miles (approx 40,000 km) will unfold in five legs with stop overs at four ports for replenishment and maintenance, as required. The broad contour of voyage will be as follows: -

- (a) Goa to Fremantle, Australia
- (b) Fremantle to Lyttleton, New Zealand
- (c) Lyttleton to Port Stanley, Falkland
- (d) Port Stanley to Cape Town, S Africa
- (e) Cape Town to Goa

INSV Tarini, a 56 foot sailing vessel built by M/s Aquarius Shipyard Ltd was inducted in the Indian Navy on 18 Feb 17. The vessel has clocked more than 66,000 nautical miles (1,22,223 km) and participated in first edition of Navika Sagar Parikrama in 2017, trans-oceanic expedition from Goa to Rio, Goa to Port Louis and other significant expeditions.

The boat is equipped with advanced navigation, safety and communication equipment and has undergone necessary maintenance and equipment upgrade recently. Both the officers with a sailing experience of 38,000 nautical miles (70,376km) have trained vigorously for this epic voyage for more than three years.

They have been trained on ocean sailing aspects of seamanship, meteorology, navigation, survival techniques and medicare at sea. Further, under the mentorship of Cdr Abhilash Tomy (Retd) since Aug 23, the duo have fine tuned their skills and undergone psychological conditioning, ready to face challenges at sea.

The Indian Navy wishes Navika Sagar Parikrama II, a triumphant voyage spreading the message of Courageous Hearts, Boundless Seas across the vast expanse of the world's oceans.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2061255>

## THE ECONOMIC TIMES

*Tue, 01 Oct 2024*

### **HAL delivers first AL-31FP aero engine of Su 30MKI to IAF under new contract**

Hindustan Aeronautics Limited (HAL) has handed over the first AL-31FP Aero Engine, manufactured under the 240 engine contract, to the Indian Air Force at Koraput in Odisha.

The contract for 240 AL-31FP Aero Engines for Su-30MKI aircraft was signed on September nine, Bengaluruheadquartered HAL noted in a statement on Tuesday, adding, these engines would be delivered in eight years.

The statement said Secretary (Defence Production) Sanjeev Kumar lauded HAL's efforts in delivering the first engine within weeks of signing the contract. "This key milestone reflects HAL's aero engine manufacturing competency and dedication to support the Su-30MKI fleet of IAF.

It is very heartening to see that Koraput Division has mastered cutting edge technologies of aero engine manufacturing and has set up required infrastructure to match with the global OEMs," he said.

HAL CMD D K Sunil said: "During this entire engine manufacturing process, we aim to engage Indian industries from present level of work share from 40 per cent to more than 50 per cent in next two-three years and help in employment generation."

Sukhoi Engine Division, Koraput, was created by HAL for manufacture of engines of Su-30MKI aircraft from raw material stage to final engine, it was noted.

<https://economictimes.indiatimes.com/news/defence/hal-delivers-first-al-31fp-aero-engine-of-su-30mki-to-iaf-under-new-contract/articleshow/113855074.cms>

# THE ECONOMIC TIMES

*Thu, 03 Oct 2024*

## **India docks naval warships at Iran port as war escalates. Is this a strategic response to the Middle-East strife?**

Three Indian naval ships—INS Shardul, INS Tir, and ICGS Veera— arrived in Bandar Abbas, Iran, on Tuesday as part of a training mission in the Persian Gulf. The ships were received by the Iranian Navy ship Zereh, emphasizing the growing naval collaboration between India and Iran.

The Indian Navy stated that the primary objective of this visit is to enhance maritime cooperation and mutual understanding between the two nations.

"A vital step in strengthening maritime cooperative engagement and fostering mutual understanding," remarked a Navy officer in a report by the Times of India.

During their stay, the Indian ships will engage in activities focused on maritime security and interoperability, including professional exchanges and maritime partnership exercises. This deployment comes at a critical time as tensions escalate between Israel and Iran, particularly following Iran's missile attacks on Israel. Israeli Prime Minister Benjamin Netanyahu recently hinted at potential military action against Iran, stating that Israel would "pay" for the missile strikes.

In an effort to mitigate tensions, Indian Prime Minister Narendra Modi called Netanyahu, urging for restraint and a diplomatic resolution to the conflicts involving Hamas and Hezbollah. Amid these heightened tensions, the docking of Indian warships at Iran's port carries significant geopolitical implications, as India navigates its diplomatic ties while ensuring energy security.

### **Strengthening Maritime Ties**

These interactions underscore the ongoing collaboration, particularly in maritime security and interoperability training, which is essential for maintaining stability in the Persian Gulf, a critical region for global energy markets.

### **Why is India's energy security in focus**

Any disruption to these shipping lanes could severely impact India's economy, as 80 percent of its energy needs are sourced from abroad.

The safety of these maritime routes is paramount for India, especially with the significant share of energy imports flowing through the Strait of Hormuz, a crucial chokepoint that handles around 30 percent of the world's seaborne oil shipments.

In light of maritime security incidents, such as the 2019 oil tanker attacks in the Gulf of Oman, India has taken proactive measures by deploying naval vessels like INS Chennai and INS Sunayna to patrol the region and protect its energy supplies. Furthermore, the Indian Navy established the Information Fusion Centre – Indian Ocean Region (IFC-IOR) in Gurugram in 2018 to enhance maritime domain awareness and monitor ship movements in the region.

### **Geopolitical Implications of Indian Naval Diplomacy**

India's decision to send naval ships to Iran amidst rising regional tensions reflects the complexities of its foreign policy.

"As a nation with deep ties to both Israel and Iran, India must carefully balance its strategic interests," explained a former naval officer. While India supports Israel in its fight against terrorism, it also has crucial energy and defense ties with Iran. The deployment of Indian warships, through joint naval exercises, communicates India's commitment to maintaining peace and security, even amid growing uncertainty.

### **What is the potential economic impact of conflict**

The ongoing tensions and recent missile attacks raise concerns about a possible full-scale conflict between Iran and Israel, which could significantly disrupt India's energy imports. The Strait of Hormuz, through which a considerable portion of India's oil and liquefied natural gas (LNG) passes, is the world's most crucial oil transit chokepoint.

Disruption in this area could lead to increased oil prices, adversely affecting India's economy. India's reliance on oil imports from the Middle East remains high despite rising imports from Russia. In August, the share of Russian oil in India's imports dropped to approximately 36 percent, while Middle Eastern oil accounted for about 44.6 percent of the total crude imports.

With nearly half of India's LNG sourced from Qatar, a full-scale conflict could jeopardize these vital energy flows. The potential for rising oil prices due to conflict in the region could lead to inflationary pressures in India, compelling the Reserve Bank of India to maintain high interest rates. According to a Morgan Stanley report, a \$10 per barrel increase in oil prices could raise consumer prices by 0.2 to 1.4 percentage points across Asia, with India seeing an uptick of up to 0.5 percentage points for each \$10 rise.

Recent reports note a significant drop in India's oil imports due to declining global crude prices. Brent crude averaged \$80.9 per barrel in August 2024, compared to \$86.2 in August 2023. This downturn has allowed Indian oil marketing companies to consider reducing fuel prices. However, if war erupts, these companies would likely have to increase prices.

Pankaj Jain, secretary at the Ministry of Petroleum and Natural Gas, mentioned that companies might cut petrol and diesel prices if crude prices remain low. ICRA warned that any escalation in the Iran-Israel conflict could push India's oil import bill higher, potentially widening the current account deficit.

A \$10 per barrel increase in crude oil prices could expand India's net oil imports by \$12-13 billion, increasing the current account deficit by 0.3% of GDP.

### **How does Israel-India partnership impact the war?**

Meanwhile, Former Israeli Ambassador to India, Daniel Carmon, expressed that India should keep a close eye on the situation in Israel, considering its own interests in the region. During an interview with ANI, Carmon acknowledged Prime Minister Narendra Modi's prompt response and commitment to peace.

Carmon emphasized the strategic partnership between India and Israel, noting their strong bilateral relations. He said, "India is a strategic partner of Israel, and Israel is a strategic partner of India. We share very good bilateral relations."

"I don't know what will happen next. India is a strategic partner of Israel, and Israel is a strategic partner of India. We share very good bilateral relations. For me, it's crucial to observe the India-Israel relationship. We deeply appreciate Prime Minister Modi's statement on October 7, 2023. He quickly made a clear and strong declaration. Mediation or involvement between the various regional players is complex and can sometimes result in losses rather than gains. So, I'm not in a position to suggest what India should do. However, I believe India must follow the situation closely as it affects its own interests," he said.

Carmon highlighted India's concerns regarding maritime disruptions by the Houthis, given India's interests in the Gulf region.

"The Houthis' disruption of maritime traffic is an Indian concern. India should monitor the situation carefully," he advised.

The arrival of Indian naval ships in Iran underscores India's commitment to maintaining stability in a turbulent region while safeguarding its energy interests. By strengthening maritime partnerships and engaging in joint naval exercises, India aims to navigate the complexities of its foreign relations, ensuring its strategic interests are preserved amid rising geopolitical tensions.

<https://economictimes.indiatimes.com/news/defence/india-docks-naval-warships-at-iran-port-as-war-escalates-is-this-a-strategic-response-to-the-middle-east-strife/articleshow/113891000.cms>

## **THE ECONOMIC TIMES**

*Tue, 01 Oct 2024*

### **Lokesh Machines delivers first indigenous submachine guns to Indian Army**

In a landmark achievement for India's private defence manufacturing sector, Lokesh Machines Limited has delivered its first major order of the indigenously developed Asmi submachine gun (SMG) to the Indian Army's Northern Command.



This order, consisting of 550 SMGs, represents a significant milestone in India's push toward domestic production of advanced military hardware. The Hyderabad-based manufacturer, traditionally focused on CNC machines, entered the small arms manufacturing sector with this delivery.

### **Timely Completion of Army Order**

Lokesh Machines announced that the order was executed "on time and in full." This accomplishment is particularly significant because it is the first time a private, 100% indigenous manufacturer has met such a requirement. The consignment was officially flagged off by Major General Rakesh Manocha, General Officer Commanding of the Telangana and Andhra sub-area, highlighting the importance of the achievement for India's defence sector.

### **Asmi: A New Entry in Small Arms Manufacturing**

The Asmi SMG, which stands for "pride" in Sanskrit, marks Lokesh Machines' entry into the defence sector, specifically small arms production. The gun was developed by Lokesh Machines based on the design provided by the Armament Research & Development Establishment (ARDE) Pune, in collaboration with the Indian Army. Weighing under 2.4 kg, the Asmi SMG is notably 10-15% lighter than its international competitors. This makes it a highly competitive option for close-quarters combat.

### **Beating International Competition**

According to M Srinivas, Director of Lokesh Machines, "Asmi beat competition from internationally renowned SMGs such as Uzi, which is manufactured by Israel Weapon Industries (IWI), and German firearms manufacturer Heckler & Koch's M to bag the order." The lighter weight of the Asmi SMG was a key factor in its selection, positioning it as a formidable alternative to its global counterparts.

### **India's Indigenous defence Push**

This successful delivery highlights India's continued focus on developing indigenous defence capabilities, a move that aligns with the government's "Make in India" initiative.

The involvement of private manufacturers like Lokesh Machines in the production of military equipment underscores a shift toward self-reliance in defence production, reducing dependency on foreign arms suppliers. The collaboration between ARDE and Lokesh Machines represents a strong partnership between government research and private industry to achieve this goal.

A Milestone for Indian defence The timely and full delivery of 550 Asmi SMGs to the Northern Command sets a new benchmark for private-sector contributions to India's defence industry. Lokesh Machines' success is expected to inspire further collaboration between private manufacturers and the military, opening up new opportunities for indigenous defence production. As India continues to push for self-reliance in defense, the Asmi SMG could serve as a model for future projects.

<https://economictimes.indiatimes.com/news/defence/lokesh-machines-delivers-first-indigenous-submachine-guns-to-indian-army/articleshow/113839998.cms>

## **Indian troops with UNIFIL to stay put in south Lebanon amid Israeli ground incursion**

The Indian contingent in the United Nations Interim Force in South Lebanon (UNIFIL) will be staying put and performing its duties in the face of Israel's decision to enter the country amid escalating tensions in the region.

"The (Indian) battalion of more than 900 people is holding its position and everybody is safe," a UNIFIL source in south Lebanon told PTI over the phone Tuesday.

Israel Defence Forces (IDF) said in the early hours of Tuesday that it had launched a "targeted and limited" incursion into south Lebanon several hours ago focused on Hezbollah targets and infrastructure in several Lebanese villages along the border that posed an immediate threat to Israeli towns on the other side of the Blue Line. Ground troops operating inside southern Lebanon were being assisted by air and artillery forces, the IDF said.

Israel's operation is believed to be aimed at pushing Hezbollah north in line with the UNSC resolution 1701, which requires that the Lebanese army and UN peacekeepers be the only armed force south of the Litani River. UNIFIL confirmed that the IDF notified it of its intention to undertake "limited" ground incursions into Lebanon, asserting that despite the developments in Lebanon, its peacekeepers will remain in position.

It also urged all actors to step back from the escalatory acts. UNIFIL has around 10,500 peacekeepers drawn from 50 troop-contributing countries, including India. Seventeen per cent of its activities are carried out jointly with the Lebanese Armed Forces.

UNIFIL is also complemented by a five-vessel Maritime Task Force. It was established as per UN Security Council resolutions 425 and 426 of 1978 to carry out the withdrawal of Israeli forces from southern Lebanon, restore international peace and security and assist the Government of Lebanon in ensuring the return of its effective authority in the area.

Later in 2006, after Israel and Hezbollah fought a deadly war, UN Security Council resolution 1701 mandated UNIFIL to carry out monitoring of the cessation of hostilities and accompany and support the Lebanese armed forces as they deploy throughout the south, including along the Blue Line.

<https://economictimes.indiatimes.com/news/defence/indian-troops-with-unifil-to-stay-put-in-south-lebanon-amid-israeli-ground-incursion/articleshow/113855296.cms>

## **Defence major Safran to set up its first electronics unit in India**

French defence conglomerate Safran Group has indicated to India's National Security Advisor Ajit Doval that it is willing to set up its first Defence Electronics unit outside France in India, people familiar with the matter said, pointing out that this is a sign of the strategic relationship between the two countries becoming deeper.

The people, who asked not to be named added that during the two day strategic dialogue (September 30 and October 1) between Doval and French President Emmanuel Macron's diplomatic advisor Emmanuel Bonne and his chief military advisor, Fabien Mandon, France agreed to work with India on advanced materials and metallurgy, the key to manufacturing critical parts of military and civilian engines.

For India to absorb high end technology, it is important for the Indian industry to have knowledge on advanced metallurgy for forging and casting of key parts of aircraft engines, they said. In the course of the dialogue, Safran revealed its plans to set up a defence electronics facility in India to manufacture sensors and vital electronics parts needed to support military platforms. HT learns that the company is yet to decide on the location of this facility.

French aircraft manufacturer Dassault Aviation SA has already acquired land to build a full-fledged maintenance, overhaul and repair facility at Jevar in Uttar Pradesh for handling Rafale fighters and civilian aircraft. France has also decided to jointly develop with India, unmanned sub-surface, surface and aerial systems or underwater drones for submarines apart from supporting India in developing counter-swarm drone and armed drone technology.

HT also learns that during the dialogue, the two sides discussed sensitive security issues ranging from cyber security to military applications in space including the joint launch of military satellites and the co-development and manufacture of stand-off weapons such as the Hammer missile .

However, the highlight of Doval's visit to France was his hour-long meeting with Macron with the Ukraine war and Israel's war on Lebanon being the focus of discussion. While NSA Doval gave his assessment on the Ukraine war, French Foreign Minister Jean Noel Barrot gave his assessment of the situation in West Asia hours after he returned from Beirut.

The shared assessment was that Israel would likely continue land operations against Hezbollah in Lebanon in order to militarily degrade the Shia terrorist group while trying to support a moderate government in the strife-torn nation. The two sides also exchanged frank notes on the global security environment including Chinese posture in the Indo-Pacific , the people said.

<https://www.hindustantimes.com/india-news/defence-major-safran-to-set-up-its-first-electronics-unit-in-india-101727921736865.html>

Wed, 02 Oct 2024

## **Indian Air Force's Push for Indigenous Technologies: Night Vision Goggles to Boost Helicopter Capabilities**

In line with India's growing emphasis on self-reliance in defence, the Indian Air Force (IAF) is increasingly turning to indigenous technologies to enhance its operational capabilities. A key development in this direction is the induction of advanced Night Vision Goggles (NVGs) for helicopter pilots, aimed at improving the IAF's night-time operational readiness.

Developed by Kanpur based MKU Limited, an Indian defence technology firm, these NVGs will equip the Light Combat Helicopter (LCH) Prachand and the Light Utility Helicopter (LUH), marking a significant step towards self-sufficiency in defence technologies.

### **Boosting Night Operations with Indigenous Night Vision Goggles**

The introduction of the NETRO NB-3101 Night Vision Goggles is expected to significantly enhance the IAF's ability to conduct night-time missions. These NVGs, designed and produced by MKU, use Generation-III Image Intensifier technology, providing pilots with enhanced visibility during night operations and in low-light conditions.

In an earlier interaction with Financial Express Online, Prachi Gupta, CEO of Netro Optronics, a division of MKU, highlighted the importance of indigenous solutions in improving the operational capabilities of Indian forces. She highlighted the company's focus on developing advanced optical systems, such as night vision devices, thermal sights, and other cutting-edge technologies, tailored to meet the unique needs of Indian armed forces.

The capability to operate effectively in darkness is critical for modern military aviation, particularly for helicopters like the LCH Prachand, which are often used for missions involving low-altitude flying, search and rescue, and combat support. The high-resolution, stereoscopic vision provided by these goggles ensures that pilots can accurately judge distances and safely execute complex manoeuvres, even in challenging conditions.

MKU's NETRO NB-3101 is rugged, waterproof, and built to withstand the harshest environments, adhering to the stringent MIL-STD-810G standards. This ensures that the device can be relied upon during critical missions where operational success depends on precision and safety.

### **Indigenization: A Strategic Focus**

The adoption of indigenous technologies like the NETRO NB-3101 NVGs is part of a larger effort by the IAF to reduce dependency on foreign defence suppliers. India's 'Atmanirbhar Bharat' initiative has accelerated the development and integration of home-grown defence solutions, enabling the country to address critical defence needs internally.

One of the advantages of indigenization is the ability to customize solutions to specific operational requirements. In this case, MKU has provided custom cockpit modifications for the IAF's helicopters, ensuring that the NVGs integrate seamlessly into the aircraft's systems. This includes modifications to lighting systems within the cockpit and cargo areas, allowing pilots to use the NVGs without compromising their situational awareness.

### **Enhancing the IAF's Helicopter Fleet**

The integration of these indigenous NVGs into the IAF's helicopters represents a significant advancement in the force's night-flying capabilities.

The LCH Prachand, developed by Hindustan Aeronautics Limited (HAL), is designed for a variety of roles, including air defence, anti-tank warfare, and close air support. With the addition of the NETRO NB-3101 goggles, the helicopter's ability to operate in the dark or low-visibility conditions will be greatly enhanced.

In June 2024, the Ministry of Defence issued a Request for Proposal (RFP) for the procurement of 156 Light Combat Helicopters, 66 of which are intended for the IAF.

This acquisition, valued at around Rs 45,000 crore, highlights India's commitment to modernizing its defence forces with indigenous technologies. By equipping these helicopters with advanced NVGs, the IAF is not only improving its combat readiness but also reinforcing its strategic autonomy.

### **The Role of Night Vision Goggles in Modern Warfare**

Night Vision Goggles have become an essential tool for military aviation. They allow pilots to operate in complete darkness, significantly expanding the scope of night-time missions.

For the IAF, the deployment of NVGs is a game-changer, enabling helicopters to perform crucial tasks such as reconnaissance, target acquisition, and emergency evacuation in low-light conditions.

The Generation-III Image Intensifier technology used in the NETRO NB-3101 amplifies ambient light, such as moonlight or starlight, to create a clear, detailed image for the pilot.

This enhanced visibility allows for precise navigation and target identification, even in environments with minimal natural light. The goggles also provide stereoscopic vision, which is essential for depth perception, a critical factor for low altitude flying and landing operations.

### **Moving Forward with Indigenous Innovation**

The IAF's adoption of MKU's Night Vision Goggles underscores India's broader shift towards self-reliance in defence. By developing and integrating advanced technologies domestically, the IAF is not only strengthening its night-time operational capabilities but also contributing to the country's long-term goal of reducing reliance on foreign defence equipment.

<https://www.financialexpress.com/business/defence-indian-air-forces-push-for-indigenous-technologies-night-vision-goggles-to-boost-helicopter-capabilities-3628466/>

# **A New Dimension of Hybrid Asymmetric Warfare: Evolution, Ingenuity, and Modern Conflict**

- By Lt Col Manoj K. Channan, Veteran

Warfare has constantly evolved, shaped by technological advancements, strategic ingenuity, and terrain exploitation. From the 16th-century military revolutions to modern hybrid and asymmetric conflicts, the art of war has continually adapted to confront both conventional and hidden enemies. Asymmetric warfare, a form of conflict where one side has significantly fewer resources or power than the other, particularly in recent decades, has expanded the battlefield, integrated guerrilla tactics and cyber warfare, and strategically used terrain and civilian environments to negate traditional military superiority. This article traces the historical evolution of warfare. It examines modern examples of hybrid warfare, providing a comprehensive understanding of how terrain and technology have been used to surprise, outmanoeuvre, and defeat hidden adversaries.

## **Historical Background: Evolution of Warfare from the 16th Century to the Gulf War**

### **The 16th Century: The Birth of Modern Armies**

The 16th century saw the transformation of European warfare through innovations like gunpowder artillery and trace Italian fortifications. Geoffrey Parker's concept of the "military revolution" highlights how these developments forced a shift in military strategies, where sieges became central to warfare. Large standing armies began to dominate, with infantry—armed with pikes and muskets—gradually replacing feudal cavalry. Commanders strategically used terrain, such as mountains and rivers, to fortify positions and outflank opponents, emphasising the significance of geographical features in warfare and setting the stage for modern warfare's reliance on terrain and technology to confront enemies.

### **Napoleonic Warfare: Manoeuvre and Mass Mobilization**

Napoleon Bonaparte revolutionised warfare in the early 19th century using mass conscription, rapid mobility, and terrain exploitation. His ability to manoeuvre large armies quickly across varied terrain enabled him to surprise and outflank opponents. Innovations such as mobile artillery allowed him to break through defensive lines, while terrain became a critical factor in offensive and defensive operations. These movement, speed, and terrain exploitation strategies would continue influencing military tactics for generations.

### **Industrial Revolution and the American Civil War**

The Industrial Revolution of the 19th century brought new technologies, such as railroads, telegraphs, and rifled artillery, transforming logistics and battlefield strategy. During the American Civil War, railways rapidly deployed troops, while telegraph systems enabled better

communication between commanders. Terrain, from rivers to dense forests, played a crucial role in battles, with Union and Confederate forces using the geography to their advantage. The effective use of trenches foreshadowed World War I's trench warfare, demonstrating how technology and terrain combined to reshape military strategies.

### **World War I: Trench Warfare and Chemical Weapons**

World War I epitomised the stagnation of trench warfare, where static front lines and extensive defensive fortifications forced armies to innovate. The use of poison gas to target hidden enemies in trenches, along with the development of tanks and aircraft, showed how technological advancements were integrated into terrain-based warfare. Commanders sought to break the deadlock using artillery bombardments and infantry assaults across dangerous, shell-cratered landscapes. Despite this, the war demonstrated the difficulty of overcoming well-entrenched forces using traditional tactics.

### **World War II: Combined Arms and Tactical Innovation**

World War II marked the full integration of combined arms, a military doctrine that employed various combat methods to achieve specific objectives. In this case, infantry, tanks, artillery, and air power were coordinated. The importance of terrain became more apparent in campaigns such as the D-Day landings, where Allied forces navigated heavily fortified coastlines and minefields to establish beachheads. Dense jungles and mountainous terrain in the Pacific theatre favoured guerrilla warfare, ambushes, and hidden defensive positions, complicating conventional strategies. Radar, amphibious warfare, and air superiority further highlighted how technology could be used to negate the advantages of rugged terrain.

### **The Vietnam War: Guerrilla Warfare and Terrain**

The Vietnam War illustrated the power of asymmetric warfare, where the Viet Cong and North Vietnamese forces used dense jungle terrain, tunnels, and guerrilla tactics to outmanoeuvre U.S. forces. The terrain provided cover for hidden movements, ambushes, and supply lines, while unconventional tactics, such as booby traps and tunnel networks, negated the technological superiority of American forces. This conflict demonstrated that advanced technology alone could not overcome an enemy deeply embedded in rugged terrain, showcasing the importance of adapting to the environment.

### **The Gulf War: Precision and Technological Superiority**

The Gulf War marked a new era in military technology, where precision-guided munitions, stealth aircraft, and real-time intelligence played a decisive role. Coalition forces, led by the United States, used advanced technology to systematically destroy Iraqi forces and infrastructure while avoiding direct ground engagement. Using laser-guided bombs and cruise missiles to target hidden military positions in urban environments demonstrated how technology could negate traditional defensive tactics. This conflict set the stage for future hybrid wars, where conventional and unconventional tactics would be integrated.

### **Modern Hybrid and Asymmetric Warfare**

#### **Somali Piracy in the Indian Ocean Region**

Somali pirates, using small, fast boats and modern communication technology, have employed asymmetric tactics to hijack large ships in the Indian Ocean. Their ability to exploit the ocean's vastness and local lawlessness made them formidable. International naval patrols struggle to monitor such a large area effectively, demonstrating how low-tech tactics can outmanoeuvre well-equipped modern forces. This hybrid warfare exploits gaps in conventional defences and uses mobility and terrain to their advantage.

### **Hamas Attack on Israel (October 7, 2023)**

Hamas's assault on Israel exemplified hybrid warfare, combining conventional missile strikes with guerrilla infiltration and the use of civilian shields. This attack showcased the complexity of modern conflict, where non-state actors use urban terrain and civilian populations to hide military assets. Additionally, Hamas employed social media and propaganda, integrating information warfare into the conflict.

### **Russia-Ukraine Conflict: Drone Warfare and Infrastructure Attacks**

The ongoing conflict between Russia and Ukraine has seen the innovative use of drones for surveillance, strikes, and intelligence gathering. Both sides have employed drones to attack naval and land targets, highlighting how unmanned systems bypass traditional defences. The destruction of the Nord Stream pipeline, whether by drones or other unconventional means, exemplifies how critical infrastructure far from the battlefield can be targeted in hybrid warfare, impacting both military and civilian spheres. This use of technology in the warzone demonstrates how modern hybrid warfare can affect immediate battle outcomes and global geopolitics.

### **Israeli Tactics: Using Mobile Pagers and Icom Communication Sets**

In its operations against Hamas, Israel employed low-tech but effective tools like mobile pagers and Icom communication sets to pinpoint hidden terrorist networks. This tactic allowed Israeli forces to operate with precision, targeting terrorists while minimising civilian casualties. This simple yet effective communication technology highlights the evolving nature of asymmetric warfare, where ingenuity and adaptability can often outmatch expensive, advanced systems. Israel's ability to track and neutralise hidden Hamas operatives has set a benchmark for modern counterterrorism in urban settings.

### **Hybrid and Asymmetric Warfare in India**

#### **Kashmir and the Line of Control (LoC) with Pakistan:**

The conflict in Kashmir and along the LoC has long exemplified hybrid warfare, with Pakistan supporting insurgent groups like Lashkar-e-Taiba and Jaish-e-Mohammed. These groups have used guerrilla warfare tactics, leveraging the rugged mountainous terrain to infiltrate and attack Indian positions. This form of hybrid conflict blends conventional artillery shelling with the asymmetric tactics of non-state actors, creating a complex security environment for India.

#### **Line of Actual Control (LAC) with China:**

The LAC has been a battleground for hybrid warfare, with China employing salami-slicing tactics to incrementally encroach on Indian territory. The rugged, high-altitude terrain challenges logistics



and military operations for both nations, while China uses infrastructure development and non-military pressure to shift the balance of power.

The 2020 Galwan Valley clash was a stark example of hybrid warfare, with physical confrontations taking place without traditional firepower.

In India's Northeastern states, insurgent groups like ULFA and NSCN have waged asymmetric wars using guerrilla tactics, exploiting the dense forests and remote regions. These groups have relied on external support, including from Myanmar and Bangladesh, further complicating India's counter-insurgency efforts.

India's military intervention in Sri Lanka, known as Operation Pawan, was a significant instance of hybrid warfare. The Indian Peacekeeping Force (IPKF) fought against the LTTE, which employed guerrilla tactics, suicide bombings, and terrorism. The LTTE's deep knowledge of the local terrain and their use of civilian shields made it difficult for Indian forces to achieve decisive victories, highlighting the complexities of fighting insurgent forces embedded within the local population.

### **Countermeasures Against Hybrid Threats**

To counter these modern threats, nations must adopt multi-layered strategies integrating intelligence, cyber defence, and quick-response forces. Developing anti-drone systems, enhanced surveillance, and counter-insurgency tactics are essential in neutralising the advantages that asymmetric forces gain through terrain and unconventional warfare methods.

Collaborative international efforts, such as joint naval patrols against Somali piracy, demonstrate how coordinated responses can mitigate the impact of hybrid threats. Technology, such as real-time intelligence systems and traditional counter-insurgency tactics, responds best to these evolving challenges.

### **Conclusion**

The evolution of warfare, from the military revolutions of the 16th century to the modern conflicts of the 21st century, has been marked by the constant adaptation of technology, strategy, and terrain. Hybrid and asymmetric warfare, as seen in recent conflicts like Ukraine, Somalia, and Gaza, and in India's own experiences in Kashmir, Sri Lanka, and the Northeastern states, challenges traditional military tactics and international laws.

The lessons from historical conflicts illustrate the importance of understanding the terrain and using technology creatively to outsmart and neutralise hidden or elusive enemies. As warfare continues to evolve, the ability to adapt, innovate, and integrate diverse strategies will be vital to maintaining military superiority in an increasingly complex global environment.

<https://www.financialexpress.com/opinion/a-new-dimension-of-hybrid-asymmetric-warfare-evolution-ingenuity-and-modern-conflict/3628478/>

## **Indian Army Conducts Trials of High-Altitude Pods: A Critical Solution for Extreme Conditions**

The Indian Army is currently conducting trials of Peak Pods, a revolutionary high-altitude habitat in the harsh terrain of Ladakh. These cutting-edge shelters are specifically designed to provide a safe and sustainable living environment for soldiers stationed in extreme cold regions, where temperatures can dip as low as  $-40^{\circ}\text{C}$ .

The introduction of these pods designed by DTECH 360 INNOVATIONS, marks a significant step towards improving the living conditions of the army's personnel in high-altitude regions, where traditional solutions often fall short.

### **Why Are High-Altitude Pods Required?**

The Indian Army's operations in high-altitude regions, such as those near the Line of Actual Control (LAC), require soldiers to endure prolonged periods in severe environments. Conventional shelters, while functional, present numerous challenges. They are often immobile, heavily reliant on kerosene heaters, and require frequent fuel supply runs—difficult tasks in remote, non-motorable regions. This not only increases logistical burdens but also creates risks like carbon monoxide poisoning and fire hazards.

Furthermore, traditional shelters often do not address issues such as snow accumulation or structural integrity in high wind conditions, leaving soldiers vulnerable to both the elements and potential safety hazards. The need for a solution that is both robust and adaptable to the extreme weather conditions of the Himalayas has become increasingly urgent.

### **Key Features of Peak Pods**

**Sustainable Climate Control:** One of the most impressive features of Peak Pods is their ability to maintain an internal temperature of  $15^{\circ}\text{C}$ , even when external temperatures plummet to  $-40^{\circ}\text{C}$ . Unlike conventional shelters that rely on fuel-based heaters, Peak Pods achieve this through an energy-efficient, solar-powered system, eliminating the need for external fuel sources.

**Modular and Portable Design:** Peak Pods are designed to be modular, allowing for quick assembly and dismantling. Their relocatable design means they can be easily transported and deployed in various terrains, making them ideal for military bases in high-altitude areas. This also ensures that no permanent foundation work is required, further enhancing their versatility.

**Smart Technology Integration:** The pods come equipped with intelligent climate control systems that automatically regulate internal temperatures, as well as oxygen and carbon dioxide levels. This ensures that soldiers remain comfortable and safe, even when stationed at extreme altitudes. The system is also energy-efficient, drawing power from solar panels to operate essential equipment such as lights, pumps, and charging stations.

Bio-Toilets and Basic Amenities: Peak Pods are equipped with bio-toilets that convert human waste into grey water, addressing the lack of proper sanitation facilities in remote areas. Other essential amenities, such as sofa beds, hot water tanks, and storage compartments for food and personal items, further enhance the pods' suitability for long-term deployments.

### **Benefits for Indian Soldiers**

The introduction of Peak Pods could significantly improve the quality of life for soldiers deployed in high-altitude areas. By reducing their reliance on fuel, these pods minimize the logistical burden of frequent resupply missions. Moreover, their sturdy design, capable of withstanding winds up to 190 km/h, and snow-resistant architecture ensures that soldiers can remain safe and operational during even the harshest winter storms.

Additionally, the smart climate control and self-sustaining energy systems allow soldiers to focus on their duties without the constant worry of maintaining warmth or accessing basic facilities. The portability of the pods also means that they can be quickly redeployed as the situation on the ground changes, offering the Indian Army greater flexibility in responding to tactical needs.

### **Future Prospects**

The ongoing trials in Ladakh will determine whether Peak Pods become a permanent fixture in the Indian Army's high-altitude operations. Should the results be positive, these habitats could replace traditional shelters, transforming how soldiers live and work in extreme conditions. DTECH 360 INNOVATIONS is already planning further advancements, including the integration of AI systems, renewable energy sources, and even atmospheric water generation, which could further enhance the pods' capabilities.

<https://www.financialexpress.com/business/defence-indian-army-conducts-trials-of-high-altitude-pods-a-critical-solution-for-extreme-conditions-3627380/>



*Wed, 02 Oct 2024*

## **Boosting India's defence: How will new airbase in Gujarat brace up country's security**

To further strengthen the country's defense mechanism, the Centre is all set to build a new airbase in Gujarat's Banaskantha district. The new airbase has been named Deesa Airfield. Once comes into effect will help the Indian Air Force (IAF) to launch any kind of attack when required. It is just 130 km away from Pakistan.

Coming up in the western part of the country, this will be the 52nd station of the IAF in the country. This airbase will be a very strategic airbase of the South-West Command of the Air Force.

This airbase will not only help in boosting India's security but will also help in the development of the region.

The Centre has handed over the construction of the airbase to a private company based in Singapore. For this purpose, a small aircraft of DA-62 type reached Ahmedabad recently. The report of the survey will be handed over to the Defence Ministry after which the map of the entire airbase will be prepared.

### **Airbase to be built at cost of Rs 1,000 crore**

The Centre has allotted nearly 4,519 acres of land to build the airbase. It will be built at a total cost of around Rs 1,000 crore. Of the total cost, the runway alone will be built for Rs 394 crores. After the construction of this airbase, forces will be carried out to attack even through land or sea whenever needed.

It will also help in providing more air security on India's western frontier. It will also help in protecting important cities like Ahmedabad and Vadodara from enemy attacks. This airfield is located close to Kandla Port and Jamnagar Refinery.

### **Airbase to boost neighbouring IAF bases**

Also, with the construction of this airbase, other neighbouring IAF bases like Bhuj and Nalia will benefit. Currently, there is only one runway at Deesa Airfield, which is used for civilian purposes.

<https://www.news9live.com/india/boosting-defence-mechanism-how-will-new-airbase-in-gujarat-brace-up-indias-defence-2711424>

## **THE ECONOMIC TIMES**

*Tue, 01 Oct 2024*

### **Have to compete, cooperate, co-exist, confront, contest with China: Army Chief Gen Upendra Dwivedi**

Highlighting the complex nature of dealing tensions with China, Indian Army Chief General Upendra Dwivedi said that India must compete, cooperate, coexist, confront, and contest with China.

He stated, "As far as China is concerned, it has been intriguing our minds for quite some time. With China, you have to compete, cooperate, coexist, confront, and contest." "It's stable, but it's not normal and it's sensitive. We want the situation to be restored back to what it was before April 2020, whether in terms of the ground occupation situation or the buffer zones that have been created," he explained.

He reiterated the military's readiness, stating, "Until that situation is restored, the situation will remain sensitive, and we are fully operationally prepared to face any kind of contingency. Trust has become the biggest casualty."

When asked about the progress of ongoing talks, Dwivedi shared that both sides have engaged in approximately 17 Corps Commander-level talks since April.

"We have come a long way. Now, when we have a difficult situation, both sides need to find a win-win solution," he concluded.

Meanwhile, earlier in September, The Ministry of External Affairs (MEA) provided an update on the current state of India-China relations, characterising them as ongoing dialogue and efforts to resolve tensions through the Working Mechanism for Consultation and Coordination (WMCC) meetings.

MEA Spokesperson Randhir Jaiswal stated that External Affairs Minister S Jaishankar has consistently addressed the relationship in various forums, emphasising transparency and providing regular updates on the progress of WMCC discussions.

Responding to a question on External Affairs Minister S Jaishankar's statement that 75 per cent of disengagement problems between India and China have been resolved, Jaiswal said, "External Affairs Minister has spoken on India-China relations on several occasions. Recently, he spoke it in Berlin. He also spoke about it in New Delhi when he attended an event here. We have also been keeping you informed about the developments on our talks with the WMCC."

Notably, Jaishankar during his visit to Geneva spoke about the relationship between India and China and said that "75 per cent of disengagement problems are sorted out."

India and China held the 31st meeting of the WMCC in Beijing on August 29, and the two sides had decided to jointly uphold peace and tranquillity on the ground in border areas in accordance with relevant bilateral agreements and protocols.

Since May 2020, when the Chinese troops tried to aggressively change the status quo on LAC in eastern Ladakh, both sides have been deployed in forward positions near Patrolling Point 15, which emerged as a friction point in the wake of the Galwan clash. Over 50,000 Indian soldiers have been stationed since 2020 at forward posts along the LAC, with advanced weapons to prevent any attempts to change the status quo unilaterally on the LAC.

<https://economictimes.indiatimes.com/news/defence/have-to-compete-cooperate-co-exist-confront-contest-with-china-army-chief-gen-upendra-dwivedi/articleshow/113843381.cms>

**THEWEEK**

*Tue, 01 Oct 2024*

## **How can India avoid pager blasts like the one orchestrated by Israel against Hezbollah? Army chief Gen Dwivedi explains**

Reacting to the synchronised blasts in Lebanon and Syria involving handheld pagers and walkie-talkies, orchestrated by Israel targeting members of the militant group Hezbollah, Army chief

General Upendra Dwivedi called it a "masterstroke". He also spoke about ways to avoid such incidents in India.

Speaking at the curtain raiser to the Chanakya Defence Dialogue-2024, conducted by the Indian Army, in collaboration with the Centre for Land Warfare Studies (CLAWS), he said, "The pager that you are talking about, it is a Taiwanese company being supplied to a Hungarian company. The Hungarian company thereafter giving it to them. The shell company that had been created is something that is a masterstroke by the Israelis."

He observed that for such an attack, it requires years and years of preparation. "So it means they were prepared for it."

The pagers that exploded were primarily the AR924 model manufactured by a Taiwanese company, Gold Apollo, through a Hungarian intermediary, BAC Consulting Kft. These devices were modified to contain explosives. General Dwivedi said it is important to remain vigilant over supply chains to ensure such incidents do not happen in India.

Supply chain interruption and interception is something we have to be very watchful of, he said and added that India needs to have several levels of inspection, including technical and manual, to ensure such incidents do not happen in India.

Further, General Dwivedi highlighted the importance of planning in battle saying warfare does not start with physical fighting but with planning phase.

The second Chanakya Defence Dialogue is expected to facilitate detailed discussions, foster strategic partnerships, and contribute to the formulation of actionable insights for improving national security and development. It will be a platform for national and international leaders, policymakers, and experts to share their views and expertise and contribute to the discussions on security through development.

<https://www.theweek.in/news/defence/2024/10/01/how-india-can-avoid-pager-blasts-like-the-one-orchestrated-by-israel-against-hezbollah-army-chief-gen-dwivedi-explains.html>



*Tue, 01 Oct 2024*

## **Indian, Israeli companies set up firm to support MRSAM**

India's Bharat Electronics Limited (BEL) has formed a joint venture (JV) with Israel Aerospace Industries (IAI) to sustain missile systems designed by the Israeli firm.

BEL said in a filing to the Bombay Stock Exchange on 27 September that the setting up of the new JV, named BEL IAI AeroSystems, was approved by India's Ministry of Corporate Affairs earlier that same month.

BEL said the JV's remit will be to provide repair and maintenance support for missiles deployed and operated in India. These missiles, it added, include the new Medium-Range Surface-to-Air Missile (MRSAM), an Indian version of IAI's Barak-8 SAM.

In August BEL's 2023–24 annual report said the company was close to finalising the JV with IAI. The annual report said the JV will provide support for weapons in India “for which the [IAI] is the main designer”.

In its filing BEL, which is headquartered in Bangalore, said it has a 40% holding of the JV comprising 164,000 shares. IAI owns the remainder. Total authorised share capital of the JV is INR82 million (USD980,000) and paid up share capital is INR41 million.

BEL and IAI jointly announced in February 2023 an intention to set up the JV. At the time, BEL said the JV would be established in New Delhi and would be positioned as a “single point of contact” delivering MRSAM support services to the Indian military.

BEL and IAI have also previously entered collaborative agreements centred on products in India including air-defence systems and unmanned aerial vehicles (UAVs).

<https://www.janes.com/osint-insights/defence-news/industry/indian-israeli-companies-set-up-firm-to-support-mrsam>



*Thu, 03 Oct 2024*

## **Need for self-reliance in defence equipment**

In a breakthrough of sorts, Tata Advanced Systems has said it will assemble and sell armoured carriers to the Royal Moroccan Armed Forces. The unit in Casablanca that will assemble these amphibious vehicles will be the first foreign unit for an Indian defence manufacturer. The vehicle is said to be a versatile fighting machine and is likely to evince interest from other African countries.

Most of Africa is currently dependent either on Russia or China for their defence equipment, and their supply is erratic. In this scenario, the Casablanca facility may emerge as a major export hub for the Indian company.

The deal is indeed a feather in India's chequered defence production cap. It is a reminder that despite several strides in this sector, India continues to import 60-65 percent of its defence equipment. With a spending of over USD 70 billion, India was the world's second largest arms importer in 2020, according to the Stockholm International Peace Research Institute.

This high import dependency has significantly contributed to our fiscal deficit. It is no wonder that we have been struggling for the last three decades to reverse the trend by boosting local production through indigenisation and opening up the sector to private players.

Over the last few years, the government's Made in India drive has encouraged indigenous design, development and manufacture by increasing the number of defence items that cannot be imported. There have been many successful projects such as the light combat aircraft Tejas, artillery gun Dhanush and the intercontinental ballistic missile Agni V.

The government has promoted private sector production too, issuing as many as 379 licences to 230 Indian companies. However, most of these have either been scrapped or are on the backburner, such as the Rs 8,000-crore light utility helicopter project and the Rs 32,000-crore bid to build minesweepers with South Korean support.

At the moment, about 45 percent of all arms equipment is sourced from Russia; for the army, the dependence may be as high as 80 percent. This is one of the factors that has crimped our foreign policy. In our quest to be a strong nation, there is obviously no short cut to self-reliance in defence production.

<https://www.newindianexpress.com/amp/story/editorials/2024/Oct/02/need-for-self-reliance-in-defence-equipment>

## THE ECONOMIC TIMES

Wed, 02 Oct 2024

### **Analysis: Iranian missile strike on Israel shows capability for greater scale, complexity**

The Iranian ballistic missile attack against Israel on Tuesday was larger, more complex and involved more advanced weapons than the strikes in April, experts say, putting greater stress on missile defences and allowing more warheads to get through.

Although debris from the more than 180 missiles is still being collected and analysed, experts say the latest attacks appear to have used Iran's Fattah-1 and Kheybarshekan missiles, both of which have a reported range of about 1,400 kilometres (870 miles). Iran has said both missiles have manoeuvring warheads, which can make defence more difficult, and use solid fuel, meaning they can be launched with little warning.

"Shorter launch prep means those missiles arrive all at once to further stress the defence," said Jeffrey Lewis, director of the East Asia Nonproliferation Program at the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies in California. "The (warheads) can manoeuvre a bit to complicate interceptor allocation, and manoeuvring means they can strike with better accuracy to actually hit targets after they are through."

Some Fattah-1 missiles were used in the April strike, which was largely defeated by U.S. and Israeli missile defences. But most were liquid-fuelled Emad ballistic missiles, which had a reported failure rate of 50%, Lewis said, and only enough accuracy to hit a target more than 1 km in diameter.



By contrast, Iran has said its more advanced ballistic missiles have a "circular error probable" of about 20 metres, meaning half of all the missiles fired at a target will land within 20 metres of it. They are "Iran's most advanced ballistic missiles capable of reaching Israel", said Fabian Hinz, research associate for defence and military affairs at the International Institute for Strategic Studies (IISS).

### **Fiery Debris**

Videos of Tuesday's attack appeared to show missile re-entry vehicles - which carry their warheads - or fiery debris reaching the ground. Some were intercepted, including several above the earth's atmosphere. The Pentagon said that two U.S. Navy destroyers fired about a dozen interceptors against the Iranian ballistic missiles.

Ankit Panda of the U.S.-based Carnegie Endowment for International Peace said that direct comparisons with the April strikes would be difficult because not just the weapons, but the structure of the attack and the defences had all changed. For example, he said, the strikes in April involved slow-moving drones and cruise missiles, which provided defenders more warning time.

"We have a different attack pattern ... probably a more spent-down Israeli Arrow interceptor magazine, and the IRGC Aerospace Force opting for the apparent use of a larger number of more advanced and capable missiles," he said, referring to the missile arm of Iran's elite Revolutionary Guards Corps.

Reports of damage have been limited, and Israel initially reported no deaths as a result of Tuesday's attack. But Malcolm Davis, a senior analyst at the Australian Strategic Policy Institute, warned that future attacks could be still more complex and use an even greater number of missiles.

"If the Iranians launch another much larger attack, it is likely that more missiles will get through, particularly if ballistic missile attacks are coordinated with cruise missile and drone attacks," Davis said. "So I don't think we've seen the maximum scale of attack by any means."

<https://economictimes.indiatimes.com/news/defence/analysis-iranian-missile-strike-on-israel-shows-capability-for-greater-scale-complexity/articleshow/113876997.cms>

## **Science & Technology News**

# **THE ECONOMIC TIMES**

*Wed, 02 Oct 2024*

### **Chandrayaan-4 to bring back 2-3 kg moon samples**

India's next big step in exploring the habitability of the Moon will be to bring back samples from the lunar surface. The Chandrayaan-4 mission, scheduled for 2029 at an estimated cost of

₹2,104.06 crore, will comprise five modules: the Ascender Module (AM), Descender Module (DM), Re-entry Module (RM), Transfer Module (TM) and Propulsion Module (PM). These will be launched as two stacks on two separate LVM3 launch vehicles.

"After touchdown, a robotic arm, also called the surface sampling robot, mounted on the DM will scoop 2-3 kg of samples from around the landing site and transfer them to a container on the AM. In addition, a drilling mechanism will collect sub-surface samples and transfer them to another container in the AM. The containers with samples will be sealed to prevent contamination and leakage during their journey to Earth. Various phases of sample collection operations will be monitored through video cameras," the Isro in a statement Tuesday.

The mission aims to use all critical technologies developed in the country. Indian industries are expected to play a pivotal role in realising the mission, promoting skill development, creating significant employment opportunities and driving technological advancements.

<https://economictimes.indiatimes.com/news/science/chandrayaan-4-to-bring-back-2-3-kg-moon-samples/articleshow/113868562.cms>



*Tue, 01 Oct 2024*

## **ISRO targets to launch Venus mission in March 2028 for 112-day journey to planet**

India's maiden mission to Venus, which is scheduled for launch in March 2028, will embark on a 112-day journey to reach the planet. The ₹1,236-crore Venus Orbiter Mission (VOM) was recently approved by the Union Cabinet and the Indian Space Research Organisation (ISRO) on Tuesday (October 1, 2024) revealed the targeted launch window for the mission.

According to the targeted launch window for VOM, the Earth departure date is scheduled on March 29, 2028, and the arrival date on Venus is July 19, 2028. VOM will be launched by the Launch Vehicle Mark-3 (LVM-3).

"LVM-3 has been identified as the candidate launch vehicle which will place the spacecraft in an Elliptical Parking Orbit (EPO) of 170 km x 36,000 km, 21.5 degrees inclination and Argument of Perigee (AOP) of 178 degrees. Minimum energy requirement (expressed as incremental velocity, V) for the launch opportunity that exists in 2028 for placing a spacecraft in an elliptical orbit of 500 x 60,000 km around Venus," ISRO said.

The space agency added that after the cruise phase, Venus Orbit Injection (VOI) will be at 500 km x 60,000 km. "Aerobraking will be employed for over a period of six to eight months from VOI to achieve the desired low altitude Science Orbit of 200 X600 km with an inclination of around 90 degrees, to carry out proposed science studies for a period of five years," the space agency added.

ISRO said that 19 payloads will be onboard VOM, of which 16 are Indian payloads, two are Indian and international collaborative payloads, and there would be one international payload. These payloads have been recommended by an expert review committee.

ISRO added that VOM will explore the planet's atmosphere, surface and its interaction with the Sun.

“Key scientific objectives include examining dust in the Venusian atmosphere, mapping its surface topography in high resolution, studying the solar X-ray spectrum near Venus, analysing Venusian airglow, and investigating sub-surface characteristics. Additionally, the mission will serve as a technology demonstration for ISRO, testing aerobraking and thermal management techniques in the harsh Venusian environment,” it added.

<https://www.thehindu.com/sci-tech/science/isro-targets-to-launch-venus-mission-in-march-2028-for-112-day-journey-to-planet/article68705746.ece>



*Tue, 01 Oct 2024*

## **AI to Improve Cybersecurity: Combating Hacker Attacks**

An innovative project led by academics from Linköping University, Umeå University, and KTH intends to use AI to strengthen cybersecurity in society. The goal of the Air2 (AI for Attack Identification, Response, and Recovery) project is to create AI tools that can recognise hacker assaults and act on their own before harm is done to vital systems.

### **Increasing Cybersecurity Difficulties**

Many vital systems, like those in charge of healthcare, traffic control, and energy supply, depend on cloud-based services as society grows more interconnected. Hackers are putting these essential systems at increasing danger. If directed, the repercussions can affect private companies as well as the public infrastructure.

Maintaining system resilience is crucial, as Professor Simin Nadjm-Tehrani from Linköping University emphasises: “These are systems that mustn’t go down.” They ought to be strong and resistant to assaults, she says. However, hackers have a plethora of possible weaknesses to take advantage of due to the complexity of today’s linked networks. The difficulty is in identifying these dangers and eliminating them before more damage is done.

By using AI for real-time system monitoring, the Air2 project seeks to improve cybersecurity. Deep learning, a technique in which artificial intelligence extracts patterns from massive data sets, has advanced cybersecurity, but it is insufficient on its own. The researchers found that deep learning models have trouble explaining how they make decisions and may be tricked by hackers to ignore certain dangers.

As a result, Air2 suggests integrating deep learning with reasoning models using a technique called neurosymbolic reasoning. With this method, the AI would be able to map out hundreds of thousands of possible attack routes, recognise assault trends, and create backup plans for each. The AI must also guarantee that its reactions are secure and don't mistakenly destroy the systems it is supposed to safeguard.

### **Reliable Threat Identification**

Differentiating between benign system aberrations and real dangers is a major difficulty. Nadjm-Tehrani compares it to a healthy person being watched over for illnesses: the AI has to respond to signs of actual assaults, not little irregularities like "jet lagged" system behaviours. For the AI to offer efficient countermeasures, it must correctly pinpoint the source of a danger. Only genuine assaults should trigger a system response in order to prevent false alarms.

### **WASP-Powered Cybersecurity Project**

Under the direction of Professor NadjmTehrani, the initiative, which is supported by the Wallenberg AI, Autonomous Systems, and Software Program (WASP), brings united top cybersecurity specialists. Rolf Stadler from KTH, Jendrik Seipp from Linköping University, and Monowar Bhuyan from Umeå University are among the other contributors. Six young researchers who are working to enhance cybersecurity solutions driven by AI will be supervised by the team.

<https://www.news9live.com/science/ai-to-improve-cybersecurity-combating-hacker-attacks-2710320>

