

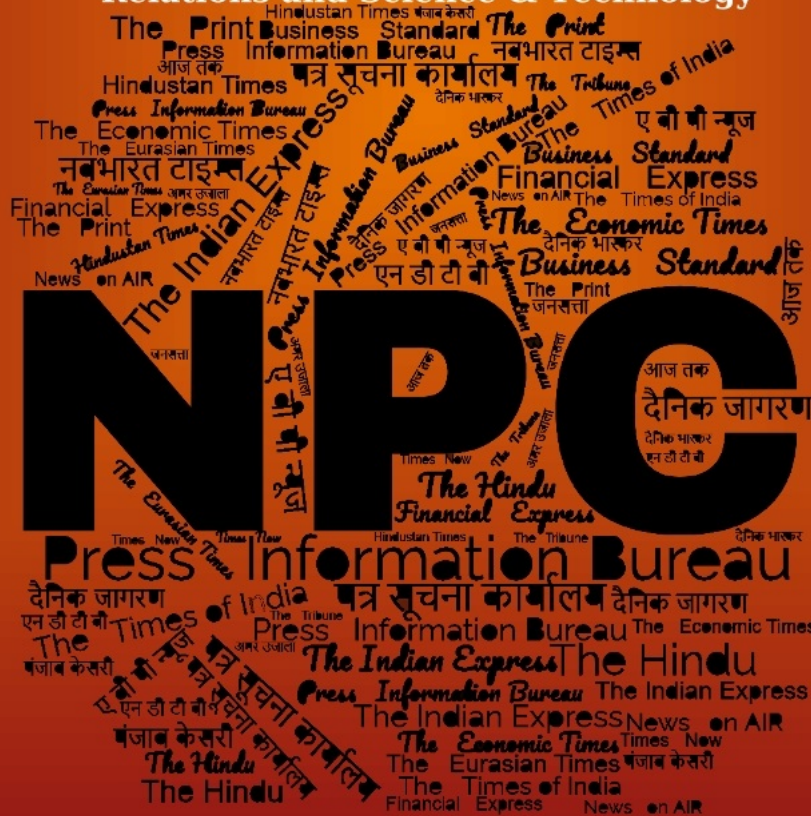
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समाचार पत्रों से चयनित अंश Newspapers Clippings

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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Defence News

Defence Strategic: National/International

Strengthening Maritime Ties - Indian Navy Hosts Indonesian Navy Delegation

Source: Press Information Bureau, Dt. 27 Jan 2025,

URL: <https://pib.gov.in/PressReleasePage.aspx?PRID=2096689>

Admiral Muhammad Ali, Chief of Staff of the Indonesian Navy, is on an official visit to India as part of the high-level delegation accompanying his Excellency President Prabowo Subianto, the Chief Guest for the Republic Day Parade 2025. During his visit, Adm Muhammad Ali and Adm Dinesh K Tripathi, Chief of the Naval Staff, held bilateral interactions to deepen maritime cooperation and strengthen ties between the two-close maritime neighbours.



The Key areas of discussion between the two naval leaders included advancing joint initiatives like Exercise Samudra Shakti, strengthening operational collaboration, and addressing shared maritime challenges, including piracy and other illegal activities at sea. The visit also includes engagements at key maritime establishments such as the Information Fusion Centre – Indian Ocean Region (IFC-IOR) and the Weapons and Electronics Systems and Engineering Establishment (WESEE),

focusing on enhancing regional collaboration and maritime domain awareness. Adm Muhammad Ali also visited the BrahMos Aerospace Private Limited (BAPL) and exchanged ideas and insights on further strengthening bilateral cooperation in the area of defence and strategy.



Adm Muhammad Ali's engagements with the Indian Navy and defence stakeholders reflect a shared commitment to fostering regional cooperation and ensuring a secure and peaceful maritime environment.

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Exhibitors from more than 15 countries to participate in Aero India; France leads with largest participation

Source: The Hindu, Dt. 27 Jan 2025,

URL: <https://www.thehindu.com/news/cities/bangalore/exhibitors-from-more-than-15-countries-to-participate-in-aero-india-france-leads-with-largest-participation/article69147029.ece>

France has once again emerged as the top exhibitor at Aero India. With just a couple of weeks left for the 2025 edition of the biennial air show and aviation exhibition to commence at the Air Force Station Yelahanka, companies from over 15 countries have registered for the event.

Among the foreign countries, France is leading the way with about 35 exhibitors confirming their participation so far, which include Dassault Aviation, Safran, Thales, among others. France has been the top exhibitor in the last few editions of the air show.

U.S. in second spot The United States of America is the second leading exhibitor with 27 companies registering so far, which include the likes of Lockheed Martin, Boeing and GE Aerospace.

Germany with 22 exhibitors is third, followed by Italy, Russia, the U.K., and Israel.

Exhibitors from Canada, Norway, Sweden, Australia, Slovak Republic, Sri Lanka, Singapore, and Taiwan have also registered for the event which will take place between February 10 and 14. Among the aircraft which will be on flying and static display, so far the organisers have only announced the participation of the fixed and rotary wing platforms developed by Hindustan Aeronautics Limited (HAL).

The last edition of the air show saw the participation of foreign aircraft like the F-35A Lightning II and F-35A Joint Strike Fighter. These two U.S. aircraft made their Aero India debut last time.

MRFA deal

Also interesting to watch during the upcoming edition would be the participation of global aircraft manufacturers who are vying to bag the 114 Multi-Role Fighter Aircraft (MRFA) deal.

The Indian Air Force had issued a Request For Information (RFI) for 114 MRFA in April 2019 to global aircraft manufacturers and the companies which had responded to the RFI are Dassault, Boeing, Lockheed Martin, SAAB, Eurofighter and United Aircraft Corporation. Most of these companies are participating in the air show.

Back in 2023 Over 100 countries participated in the 2023 edition of the air show, with about 809 exhibitors and a footfall of over seven lakh visitors. Over 250 MoUs and partnerships worth more than ₹75,000 crore were finalised during the air show.

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भारत को मिलने जा रहा वो 'अदृश्य' हथियार! जिसका खौफ सुपरपावर अमेरिका ही नहीं; पूरी दुनिया में है

Source: Zee news, Dt. 27 Jan 2025,

URL: <https://zeenews.india.com/hindi/india/invisible-weapon-which-is-feared-not-only-in-china-pakistan-but-entire-world-sukhoi-su-57-stealth-fighter-jet/2619688>

भारत में पहली बार 'अदृश्य फाइटर' आने वाला है. 10 फरवरी से बेंगलुरु में एयरो इंडिया शो (Aero India) शुरू होगा. जिसमें रूस का लेटेस्ट फाइटर जेट भी शामिल होगा. इस लड़ाकू विमान का नाम है सुखोई-57 फाइटर जेट (Sukhoi Su 57 fighter Jet) और ये पहली बार भारत के आसमान में दिखाई देगा. एयरो इंडिया 2025 में रूस का ये एडवांस फाइटर जेट उड़ान भरेगा. कुछ दिनों पहले ये चीन के भी एक एयर शो में भी शामिल हुआ था.

सुखोई-57 पांचवीं पीढ़ी का स्टेल्थ फाइटर जेट है जो स्पेशल तरीके से बनाया गया है। इसकी सबसे बड़ी खासियत है दुश्मन के रडार को धोखा देने की क्षमता यानी ये रडार की तरंगों से अदृश्य हो जाता है।

पुतिन के आने से पहले फाइनल होगी डील?

रूस ने यूक्रेन युद्ध में सुखोई-57 जेट से बेहद कामयाब हवाई हमले भी किये हैं। इस साल रूस के राष्ट्रपति पुतिन भी भारत आने वाले हैं और रूस ने अपनी तरफ से भारत को इन विमानों के ज्वाइंट प्रोडक्शन की पेशकश की है। माना जा रहा है कि रूस के इस ऑफर को भारत अपने हिसाब से स्वीकार कर सकता है।

बेंगलुरु में दिखेगा भारत का जलवा

बेंगलुरु में आगामी 'एयरो इंडिया शो 2025' के मद्देनजर केंपेगौड़ा इंटरनेशनल एयरपोर्ट पर कमर्शियल फ्लाइट्स का संचालन 5 से 14 फरवरी तक प्रभावित रहेगा। केंपेगौड़ा इंटरनेशनल एयरपोर्ट का संचालन करने वाले बेंगलोर अंतरराष्ट्रीय विमानपत्तन लिमिटेड (बायल) ने इस सिलसिले में एडवायजरी जारी की है। बायल ने कहा था कि '5 से 14 फरवरी तक रोजाना कुछ घंटे के लिए हवाई क्षेत्र बंद रहने की वजह से केंपेगौड़ा अंतरराष्ट्रीय हवाई अड्डे पर व्यावसायिक विमान परिचालन प्रभावित होगा। यह वायु सेना केंद्र पर आगामी एयरो इंडिया शो 2025 के चलते हो रहा है।'

बायल ने यात्रियों को सलाह दी है कि वे विमान उड़ान के कार्यक्रम में बदलाव की जानकारी संबंधित एयरलाइन से लें। 'एयरो इंडिया' भारत की प्रतिष्ठित हवाई और रक्षा प्रदर्शनी है जहां वैश्विक विमानन क्षेत्र के लोग और भारतीय वायु सेना हवा में विमानों के करतब से दर्शकों को मंत्रमुग्ध करते हैं।

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Will Budget 2025 add more firepower to Indian defence industry's local manufacturing, self-reliance push?

Source: The Economic Times, Dt. 28 Jan 2025,

URL: <https://economictimes.indiatimes.com/news/defence/defence-budget-expectations-will-union-budget-2025-add-more-firepower-to-indian-defence-industrys-local-manufacturing-self-reliance-push/articleshow/117600756.cms>

India's journey towards self-reliance is more than just a story of indigenous defence production, it also reflects an overall strategy to increase India's independence from foreign countries, safeguard national interests, as well as boost the nation's economy. As the 2025-26 defence budget approaches, it is an opportune moment to examine where India stands now in terms of its policies, challenges and its roadmap in achieving its indigenisation targets.

As Mr Neeraj Gupta, Managing Director, MKU Limited, said, "Achieving self-reliance in defence is undoubtedly a long-drawn process. It's important to define the level of self-reliance we're aiming for. Take, for example, the Light Combat Aircraft (LCA) Tejas. While we are advancing in manufacturing its body, avionics, and other components, we still face challenges in producing critical technologies like engines and propulsion systems. Moreover, materials technology remains an area where we're lagging."

"Self-reliance in defence is a much broader subject than it might initially appear. Yes, India is moving in the right direction. However, the depth of self-reliance we aim to achieve needs to be clearly outlined, as there are numerous challenges to overcome," he went on to say.

Defence Budget Allocation: Stability with Room for Growth

India's defence allocation for Budget 2025 is likely to be in the range of 1.9 to 2 per cent of GDP, similar to previous years. This stability will provide fiscal stability, but experts warn that it may not be enough to meet the growing external threats. Some experts feel that it should be gradually increased to 2.5 per cent over the next four years, which would greatly enhance India's strategic positioning in the region.

Defence Secretary Rajesh Kumar Singh during the discussions at the 21st Subroto Mukerjee Seminar pointed out, "Today with the current numbers of domestic procurement, the absorptive capacity stretches over domestic industries."

With this in mind, optimising the utilisation of available funds becomes vital for achieving self-reliance in defence.

On the contrary, Mr Neeraj Gupta said, "Recently, the Defence Secretary stated that there is no lack of financial resources for procurement. However, I frequently hear conflicting views about whether allocated funds are fully utilised."

He went on to say, "Rather than focusing solely on the budget size, we need to align our defence industry's capabilities with the vision of an Atmanirbhar Bharat (self-reliant India). The funding appears to be sufficient for now, as I haven't heard of projects being stalled due to financial constraints."

Declining Defence Share and Fund Utilisation Challenges

The share of defence spending in India's national budget has continually declined over the past years, with a reduction to 16% in 2013 and projecting to 13% in 2025 as a reflection of fiscal prudence, but experts also warn that the reduction may fail to enable an effective response against the evolving threats to security.

In FY25, the capital expenditure accounted for only 27.66 per cent of the defence budget, which is mainly on modernisation. According to Dr. Amit Singh, Associate Professor at Jawaharlal Nehru University, "DAP 2020 has been a great catalyst for indigenisation, but true self-reliance will require much more indigenous content—50 per cent to 80-90 per cent. As in this highly globalised interdependent world 100 per cent indigenisation is a distant-dream."

Mr Gupta said, "While debates about the actual percentage persist, the trend is clear — jobs are being created, and more procurements are happening domestically. Achieving complete self-reliance, however, will take time. The goal should be to minimise dependency on imports for core systems while strengthening local capabilities."

Domestic Procurement: A Strategic Move

India's focus on indigenous procurement is evident in the FY25 defence budget allocation of Rs 1.72 trillion (\$21 billion), with 75 per cent of it going into domestic purchases. According to Dr.

Singh, the policy has indeed helped, but inefficiencies and bureaucratic delays need to be sorted out to sustain long-term progress. He went on to say, “That while it may take some time, if we continue with some of these proactive policies towards achieving self-reliance in the defence sector. In which India can include few more reliable private partners to boost its defence manufacturing. Furthermore, New Delhi should also improve the efficiency of the state-owned companies.”

Mr Gupta said, “This policy is indeed helping the Indian industry by creating jobs and enabling knowledge transfer from countries with advanced technologies. However, I question whether the 50% indigenous content requirement is being accurately implemented.”

“Currently, the Defence Acquisition Procedure (DAP) 2020 defines indigenous content as the sale price minus the import price. However, this formula is overly generic and doesn’t provide a granular understanding of actual Indian content.”

According to him, “A more meaningful approach would be to evaluate content at a component level, ensuring that a certain percentage of the product’s core technologies and materials are indigenously developed. This shift would provide a clearer picture of India’s progress in self-reliance.”

Achievements in Defence Production and Export Growth

India's defence production has been on a high growth trajectory, crossing Rs 1 lakh crore (\$12 billion) in FY23. The country's defence exports have reached a record \$2.5 billion, marking a 14-fold increase since 2016. This expansion is largely driven by both private industries and Defence Public Sector Undertakings (DPSUs), which account for 60 per cent and 40 per cent of exports, respectively.

Mr. Puneet Kaura, Managing Director and CEO, Samtel Avionics Ltd states that the Indian defence ecosystem is evolving, and exports will truly scale up when investment in R&D increases manifold and manufacturing processes become flexible. He went on to say that, “These partnerships enable crucial technology transfer, knowledge sharing, and significantly reduce development and production costs while creating a robust domestic supply chain. However, we acknowledge certain challenges in the process, including complex procurement procedures, the need for long-term visibility on orders, and high initial investment requirements.”

Government Policies Shaping Modernisation

DPEPP 2020 and the Defence Acquisition Procedure 2020 form a powerful enabler in taking India towards its indigenisation quest. Under the DPEPP, a turnover of Rs 1.75 lakh crore (\$21 billion) is sought for and an export target of Rs 35,000 crore (\$4.2 billion) is proposed for the year 2025. Dr Singh stresses the Positive Indigenisation List wherein he believes, at this moment, 59 percent of items already exist as indigenised ones. This will further gain speed if these lists expand and help MSMEs and start-ups.

Mr. Kartik Ganapathy also went on to say, “The indigenisation process requires accelerated R&D funding, policy incentives, and ease of doing business reforms in the defense sector. Legal advisors

can streamline processes for IP ownership and licensing agreements to encourage more private sector involvement in developing indigenous technologies.”

Hurdles to Self-Reliance: R&D Gaps and Delays

Despite significant strides in indigenisation, India remains the world's largest arms importer. Between 2014-18 and 2019-23, India's arms imports increased by 4.7 per cent, underscoring the challenges in scaling up R&D and overcoming delays in executing defence projects. Mr. Kartik Ganapathy, Founding Partner at IndusLaw, pointed out the necessity of balancing strategic imports and indigenisation.

"Strategic imports should continue until maximum indigenisation is achieved," he advocates, urging for a phased approach that moves from assembly and testing to full-scale indigenous manufacturing. He said, "Strengthening patent regimes and offering tax incentives for high-tech defense startups can address these issues. Legal interventions can ensure equitable access to global supply chains while negotiating technology-sharing agreements."

Technological Hurdles: Addressing the Innovation Gap

The development of advanced technologies like fighter jets and drones remains a critical challenge. Samtel's experience reveals key obstacles, such as limited access to specialised components, testing facilities, and long certification cycles. To remedy these problems, Mr Puneet Kaura said, "That companies could successfully navigate these challenges through strategic partnerships with global technology leaders and substantial investment in state-of-the-art R&D facilities."

Amit Singh on the other hand also stressed on the need to foster innovation and address regulatory bottlenecks to overcome the technological challenges facing India's defence sector.

Mr Gupta also went on to state that another impediment to addressing the technological gap is that funding for defence R&D has been a major challenge. He credits this to defence projects often having long gestation periods, which banks find difficult to support under traditional financing mechanisms. He went on to say, "Companies are hesitant to invest in such niche areas due to uncertain returns. In my industry, for example, the high capital investment required for producing materials locally often makes the project financially unviable."

"Additionally, government grants or tax incentives for R&D are limited. Government initiatives like co-funding capital investments or introducing specific "Make One" schemes for material technologies could help bridge this gap and boost local manufacturing."

Looking Towards 2029: Future Projections

Projections for 2029 suggest that India's annual defence production could reach Rs 3 lakh crore (\$36 billion), with exports rising to Rs 50,000 crore (\$6 billion). Achieving these ambitious targets requires strong public-private collaborations, sustained investment in R&D, and an efficient manufacturing process. Personally, Mr Kaura believes India's growing capabilities in high-demand technologies such as avionics and drones, supported by cost advantages in manufacturing, position the nation to emerge as a major player in the global arms trade.

The Role of Public-Private Partnerships

Public-private partnerships (PPPs) are central to accelerating India's defence indigenisation. Amit Singh argues that PPPs are a fast track to achieving self-reliance and any challenges can be remedied by sharing risk, combining expertise, coordinating relationships, raising capital, etc. Samtel's work in avionics highlights the potential of PPPs, but challenges such as complex procurement processes and high initial investments need to be streamlined.

Mr Ganapathy said, "PPPs are critical for leveraging private sector innovation and reducing dependency on public sector undertakings (PSUs). However, challenges like delays in approvals, unclear risk-sharing mechanisms, and bureaucratic hurdles deter participation. Legal reforms to establish transparent frameworks and risk allocation models are essential to foster trust and participation."

Balancing Strategic Imports with Indigenisation

India's ongoing reliance on imports necessitates a phased approach to import substitution. As Singh suggests, starting with assembly and testing before progressing to full-scale indigenous manufacturing is a proven strategy. This approach ensures that India's defence capabilities remain robust while gradually transitioning towards self-reliance.

Mr Kartik Ganapathy said, "Strategic imports will remain essential for advanced platforms, but these should be accompanied by technology transfer agreements. Policies need to include mandatory offsets to ensure that foreign procurements contribute to domestic capability development. Legal support can ensure compliance with offset obligations and resolve disputes efficiently."

India's defence ecosystem has seen significant transformation, marked by increased domestic procurement, export growth, and a shift towards indigenisation. However, achieving full self-reliance will require addressing systemic inefficiencies, fostering innovation, and reinforcing public-private collaborations. With sustained effort, India can not only achieve self-reliance in defence but also emerge as a leading global player in the arms trade.

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India and China discuss Ladakh border during foreign secretary visit

Source: Business Standard, Dt. 27 Jan 2025,

URL: https://www.business-standard.com/external-affairs-defence-security/news/india-china-bilateral-relations-vikram-misri-beijing-border-ladakh-125012700527_1.html

Foreign Secretary Vikram Misri visited Beijing on January 26-27 to meet Liu Jianchao, head of the International Department of the Communist Party of China Central Committee, and Chinese Foreign Minister Wang Yi. The discussions focused on implementing the consensus on the Ladakh border issue, strengthening bilateral dialogue, and enhancing political, economic, and people-to-people relations.

Indo-China discussions

To improve bilateral relations, some of the key areas discussed included:

- **Ladakh border agreement:** The two sides reviewed progress on patrolling arrangements in the Depsang Plains and Demchok, following disengagement at other points along the Line of Actual Control (LAC).
- **Kailash Mansarovar Yatra:** India raised the resumption of the pilgrimage, which has been suspended since the pandemic.
- **Connectivity and visas:** Discussions included direct flights between India and China and visa facilitation for Chinese citizens.
- **Celebrating diplomatic ties:** Misri expressed India's willingness to mark the 75th anniversary of diplomatic relations with China and reiterated support for China's role as the chair of the Shanghai Cooperation Organisation.

India-China relations: Progress and cooperation

Chinese Foreign Minister Wang Yi emphasised the importance of mutual understanding and cooperation, noting the accelerated improvement in India-China relations since the meeting between Prime Minister Narendra Modi and President Xi Jinping in Kazan last year. He called for substantive measures to deepen trust and reduce suspicion.

The Chinese Foreign Ministry highlighted the alignment of bilateral relations with the interests of the two nations and their contribution to peace and stability in Asia and the global South.

Misri acknowledged the progress made under the Kazan consensus, citing fruitful dialogues at various levels. He underlined India's commitment to resolving differences and promoting practical cooperation.

De-escalating border tensions

India and China have worked to de-escalate tensions along the LAC following the military standoff in Ladakh. The October 2024 agreement on patrolling arrangements in key friction points marked a significant step toward stability.

This visit follows National Security Adviser Ajit Doval's trip to Beijing last month, signalling continued efforts to stabilise ties through dialogue.

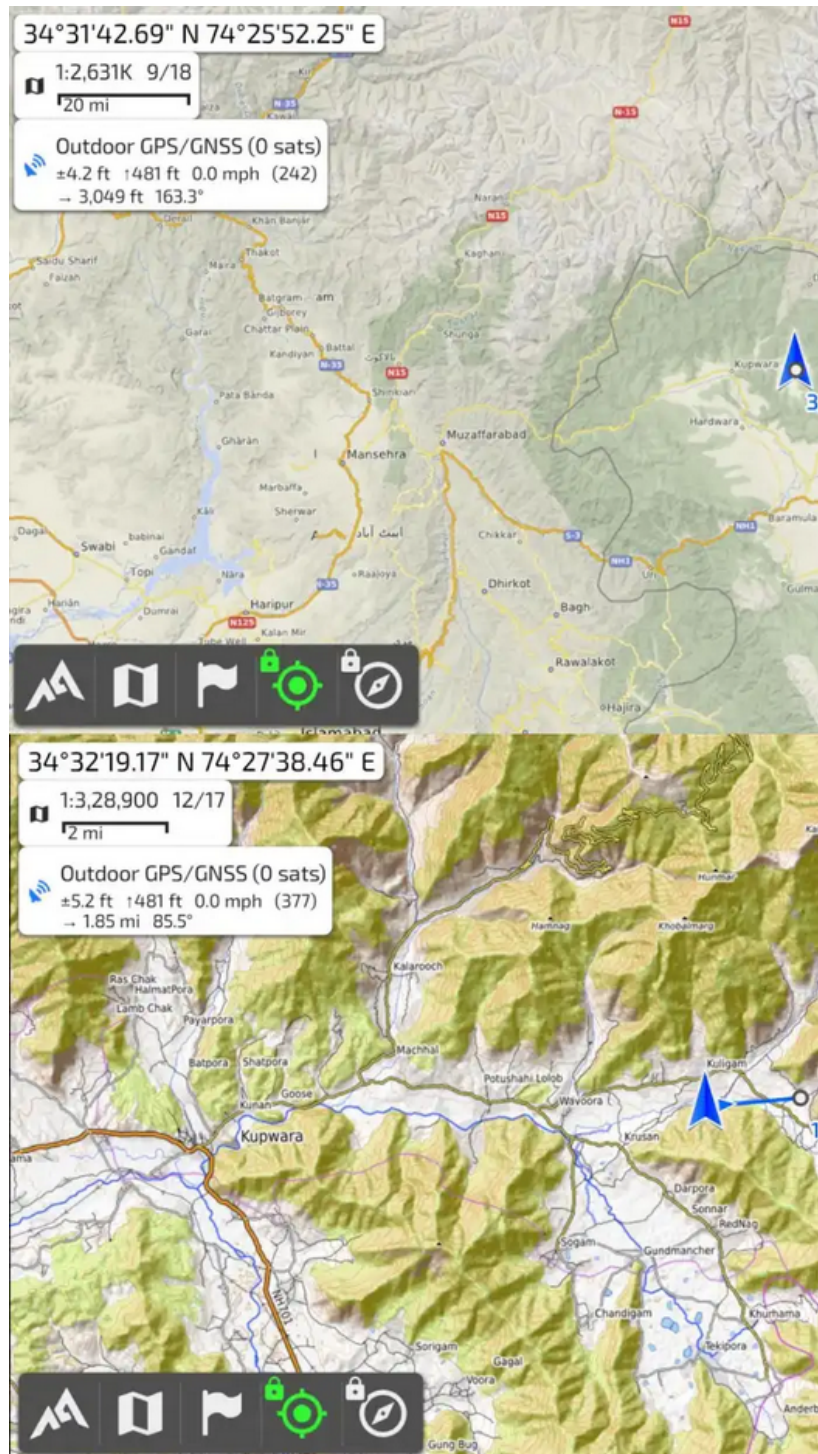
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Pakistan Army Equips Terrorists with Alpine Quest App to Independently Plan Attacks on Indian Forces

Source: Republic World, Dt. 27 Jan 2025,

URL: <https://www.republicworld.com/defence/indian-armed-forces/pakistan-s-army-equips-terrorists-with-alpine-quest-app-to-independently-plan-attacks-on-indian-forces>

In a worrying development for security forces in Jammu and Kashmir, reports indicate that Pakistan's army has equipped terrorists with the offline version of the Alpine Quest app, a mapping and navigation tool typically used by trekkers, but now being exploited by terrorists to navigate the difficult, rugged terrain of the region. This shift in the modus operandi of terrorists comes after security agencies successfully dismantled several over-ground worker (OGW) networks that had long been aiding terror activities in the region.



The Alpine Quest app interface

The Alpine Quest app, initially designed for outdoor enthusiasts to map and navigate unfamiliar landscapes without requiring internet connectivity, has now emerged as a critical tool for terrorists operating in the remote parts of Jammu and Kashmir. According to sources, the offline functionality of the app has become invaluable to terrorists who can now plan and execute operations autonomously, circumventing the need for support from OGWs on the ground.

A Technological Edge for Terrorists

Terrorists using the Alpine Quest app benefit from its ability to function without digital connectivity, making it ideal for use in areas where cellular signals and internet connections are either weak or non-existent. This feature allows terrorists to remain hidden from surveillance, evading security forces who rely on digital monitoring tools to track movement and communication in real-time. Additionally, the app's encryption capabilities make it difficult for security agencies to intercept or decode the activities of terrorists, further enhancing the advantage for terrorists.

A senior police officer in Jammu and Kashmir confirmed that the app's use represents a significant escalation in the tactical methods employed by terrorists. "This new method of coordination adds a layer of complexity to counter-terrorism efforts," the officer said, emphasizing that the increasing reliance on technology points to a more sophisticated level of terrorist operations. "It reflects the adaptation of terrorist groups to the changing security environment, where traditional support structures are being weakened by our efforts."

The End of OGWs? Terrorists Begin Independent Ops

The use of the Alpine Quest app is seen as a direct response to the crackdown on OGWs that has been underway in recent years. With the security forces intensifying operations against individuals and networks supporting terrorists, including arrests under the Unlawful Activities Prevention Act (UAPA) and the seizure of property linked to terrorism, the support base for terrorists has been severely disrupted.

As a result, terrorists have reportedly found new ways to operate independently, reducing their reliance on OGWs for logistical support. The OGW network, which had previously played a key role in providing terrorists with safe houses, passage, information, and supplies, has been hit hard by law enforcement. Now, instead of relying on these human networks, terrorists are using technology to navigate and plan operations on their own.

The police have been accelerating to dismantle these OGW networks, categorizing anyone who provides support to terrorists – whether by offering a safe house, acting as a messenger, or passing along information – as an OGW. These measures have had an impact, but the terrorists' shift to using apps like Alpine Quest signals a growing sophistication in their operations.

Using Technology for Terrorism

According to sources, in response to the increased security crackdown, terrorists have begun avoiding OGWs altogether, out of fear that their positions could be compromised. Instead, terrorists are reportedly instructing their support networks to drop supplies at designated spots, only collecting them once the OGWs have left the area. This new tactic is designed to reduce the chances of security forces locating terrorists based on their interactions with OGWs.

"This marks a significant tactical shift. terrorists are now less reliant on human intermediaries, which reduces the risk of exposure," the senior police officer explained. "It's a sign that terrorists are adapting to the challenges posed by our enhanced counter-terrorism measures."

The rise of technology-facilitated terrorism adds a new layer of complexity for security forces in Jammu and Kashmir, who must now confront a combination of sophisticated digital tools and traditional tactics. The fact that Pakistan's military is reportedly providing such support to terror groups only deepens concerns about Islamabad's continued involvement in cross-border terrorism, a problem that India has long struggled to combat. As traditional means of communication and coordination become more difficult due to enhanced security measures, terrorist organizations are turning to encrypted and offline tools to maintain operational independence.

For Indian security agencies, the evolving nature of these operations presents a significant challenge. Counter-terrorism strategies that once relied heavily on intelligence gathered from human sources are now being supplemented – and sometimes replaced – by the digital footprint of terrorists. Tracking this new wave of technological-enabled terrorism will require even more sophisticated methods, including cybersecurity expertise and advanced digital surveillance.

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‘Pickup Truck Of The Sky’! China Successfully Tests Cargo Drone For Logistics & Military Missions

Source: The EurAsian Times, Dt. 28 Jan 2025,

URL: <https://www.eurasiantimes.com/china-successfully-tests-pickup-truck-of-the-sky-cargo-drone/>

China revealed on January 19 that it had successfully completed the “full-load taxiing test” of the large CH-YH1000 cargo drone at Zhanghe Airport in Jingmen, located in Central China's Hubei Province. The taxiing test was conducted to assess the drone's vital systems, such as propulsion, brakes, and low-speed maneuverability, all while carrying a full load.

The massive CH-YH1000 drone showcased stability, smooth speed transitions, and operational reliability and paved the way for its upcoming inaugural flight. Following this achievement, the development team revealed plans to fine-tune the aircraft before its first official takeoff. The CH-YH1000 unmanned transport aircraft features a classic transport aircraft design with two engines and a high-wing configuration. It is equipped with an upward-flipping nose door to facilitate easy and efficient cargo loading.

The CH-YH1000 unmanned transport aircraft takes part in a full-load taxiing test under full working conditions in Zhanghe Airport in Jingmen, Central China's Hubei Province on January 20, 2025.

Additionally, the aircraft includes a belly hatch that allows for specialized operations such as emergency airdrops, pesticide spraying, or firefighting.



The development of the colossal CH-YH1000 drone began in March 2024, with the first prototype being unveiled at the Zhuhai Airshow in November. Its successful taxiing test now highlights the rapid advancements in its development.

Speaking to state-owned Global Times, Huang Wei from Aerospace CH UAV Co Ltd explained, “Unlike the taxiing and flight tests of manned aircraft, which rely on test pilots, comparable tests of the CH-YH1000 unmanned transport aircraft rely on autonomous program control. The operator only needs to upload relevant instructions to the drone, which can interpret the route information and taxiing runway information by itself and make corresponding actions according to the actual situation.”

Consequently, the taxiing test for the drone imposed stringent requirements on the reliability of its control systems and associated equipment. The manufacturer also revealed that the unmanned transport aircraft is equipped with robust defense mechanisms against hacker attacks, including the implementation of a secure, dedicated radio communication network.

Additionally, the CH-YH1000 drone utilizes advanced sensors for autonomous flight to operate effectively day and night. With a substantial transport capacity of 1,000 kilograms (a tonne), this unmanned aircraft can take advantage of nighttime hours, when civil aviation activity is minimal, to carry out high-density air transport operations.

The Need For A Modern Logistics Drone

Drones have emerged as a cornerstone of modern military operations, evolving beyond traditional roles such as surveillance and strike missions to now encompass logistical support. China’s CH-YH1000 unmanned transport aircraft, recently tested, exemplifies this shift, offering capabilities that could complement traditional transport aircraft.

With a payload capacity of one tonne, the CH-YH1000 provides substantial benefits for its users. It can deliver vital supplies, including ammunition, medical equipment, rations, and repair parts, directly to frontline units or remote bases, ensuring swift and efficient resupply in critical

situations. Compared to conventional helicopters or transport planes, drones like the CH-YH1000 offer a cost-effective alternative without compromising mission effectiveness. This efficiency is particularly valuable in high-intensity or resource-constrained operations.

Chinese state media emphasized the broader potential of the CH-YH1000, noting its ability to address logistical challenges, support emergency rescue efforts, and bolster military supply chains. Beyond its immediate applications, the drone is set to advance China's unmanned transport aircraft sector and inject new vitality into these industries.

Vijainder K Thakur, a former Indian Air Force pilot, commented on the development, noting that in February 2024, Russia conducted a flight test of a similar logistics drone with a 1-ton payload capacity, the Partizan. Based on the An-2 light commuter aircraft, the Partizan has a payload capacity of 1 tonne and a range of 1,000 Kilometers and can land on unprepared 50m x 50m fields.

Thakur also contrasted this development with India's current situation, noting that India is still searching for a replacement for the An-32 aircraft, which is vital for maintaining troop presence along the Line of Actual Control (LAC).

While companies like Lockheed and Airbus are eager to capitalize on this demand, Thakur pointed out, "The Indian Army, which cannot think big in view of the dismal state of our aviation manufacturing industry, is looking for a logistics drone with 20 kgs of payload capability."

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“Unprecedented” Deployment In China’s Backyard: U.S. Significantly Expands Military Presence In Indo-Pacific Region

Source: The EurAsian Times, Dt. 27 Jan 2025,

URL: <https://www.eurasiantimes.com/us-carries-out-a-massive-increase-in-military/>

This expansion in military activity is neither dramatic nor unforeseen. The U.S. has been steadily bolstering its military presence in the Indo-Pacific, strengthening alliances with regional players, and assertively challenging the increasing Chinese military presence in the region.

Notably, the uptick in U.S. military activity comes amid rampant Chinese military intimidation of U.S. allies, particularly in the South China Sea.

Tangled in multiple territorial disputes, Chinese coast guards frequently flex muscles in the South China Sea and claim almost all of the contested waters. Beijing is also rapidly advancing its military presence in the Taiwan Strait and threatening to invade the self-ruled island.

The U.S. also seeks to deter North Korea, which it believes poses a massive security risk with its expanding missile arsenal. For instance, the country test-fired a new intermediate-range hypersonic ballistic missile (IRBM) earlier this month and conducted an underwater-to-surface strategic cruise missile test on January 25.

U.S. Military Activity In Indo-Pacific Records An Uptick

US Carrier Arrived In Thailand

The U.S. Navy's Nimitz-class USS Carl Vinson Carrier Strike Group (CSG) has been on a surge deployment to the Indo-Pacific. Earlier this month, it visited the Philippines for wargames. Later, it was reported to be sailing in the South China Sea. The carrier reportedly conducted a routine flight operation with an EA-18G Growler in the South China Sea on January 21.

On January 27, the USS Carl Vinson (CVN 70) arrived at Port Laem Chabang, Thailand. An official statement announcing the carrier's arrival noted, "The visit demonstrates the continuation of a long-standing partnership among allied countries rooted in close people-to-people, economic, and security ties. Vinson, the flagship of Carrier Strike Group ONE, is currently pier-side in Laem Chabang, Thailand, for a scheduled port visit."

Stealth Fighters Despatched

The U.S. Air Force (USAF) dispatched F-35A Lightning II fighters assigned to the 134th Expeditionary Fighter Squadron, Vermont Air National Guard, to the Kadena Air Base in Japan on January 13. Notably, Kadena is one of the most strategic U.S. military facilities in the region, located on the Japanese island of Okinawa, which is the first island chain (the string of islands encompassing Japan, Taiwan, and the Philippines) of the Pacific.

The base is merely 200 miles or over 321 kilometers away from Taiwan and is expected to play a central role in a potential conflict between the U.S. and China if Beijing invades Taiwan. The deployment is part of a larger effort to replace the F-15C/D fleet of aircraft that are headed for retirement. While the USAF plans to permanently deploy new and advanced fourth-generation F-15EX Eagle II jets on Kadena, it is currently carrying out a rotational deployment as a stopgap solution to keep a strong fighter presence in the region.

According to a press release from the 18th Wing, Kadena's host unit, the F-35s join other F-35 Lightning II fighters already stationed at the base, along with multirole F-16 Fighting Falcons and F-22 Raptors.

U.S. Spy Planes Operating Near China

Citing open-source data, Newsweek claimed that the US Pacific Air Forces (PACAF) RC-135 reconnaissance aircraft has flown several reconnaissance missions near the Chinese coast and the North Korean border this month. The report further claimed that the U.S. deploys several RC-135 Rivet Joint aircraft at the Kadena air base.

Last month, the U.S. Navy's P-8 Poseidon spy plane flew over the Taiwan Strait as part of its Freedom of Navigation Operation (FONOP), triggering protest and criticism from China, which claims Taiwan as its sovereign territory. A similar P-8 flight was undertaken in November 2024.

US Carrier Conducts Drills With The Philippines

Earlier this month, the U.S. carrier strike group conducted joint maritime drills with its Filipino counterpart in the volatile South China Sea. The drill coincided with the presence of the Chinese Coast Guard's 'Monster Ship' near the Philippines.

The drill took place near Zambales waters, where the Chinese Coast Guard's Monster ship was sailing. The war games made headlines for sending a clear message to Beijing as the latter continued to harass Philippine vessels. This was the first maritime wargame between the Philippines and the U.S. in 2025. Led by the USS Carl Vinson, the CSG trained alongside the Filipino BRP Antonio Luna, BRP Andres Bonifacio, two FA-50 fighter aircraft, and Philippine Air Force Search & Rescue assets.

Additionally, these drills were held the day after U.S. Senator Marco Rubio, who was appointed by President Donald Trump to head the State Department, cautioned Beijing against taking aggressive measures in the South China Sea. Rubio said that China's "deeply destabilizing" moves on Taiwan and the Philippines force the U.S. to "counteract" while urging China to "stop messing around."

U.S. Stealth Bombers, Fast Attack Submarine In Guam

Kicking off the USAF's first bomber task formation (BTF) deployment of the year 2025, four B-1B Lancer assigned to the 34th Expeditionary Bomb Squadron from Ellsworth Air Force Base in San Diego landed in the Andersen Air Force Base in Guam on January 15. These BTF missions allow strategic bombers to deploy from a wide range of foreign and continental U.S. bases with greater operational resilience.

In a separate development, the Los Angeles-class fast-attack submarine USS Columbia entered the Apra Harbor, Naval Base Guam on January 12. The U.S. Indo-Pacific Command published an image of the submarine in waters near Guam.

"Columbia is on deployment supporting the U.S. 7th Fleet, the U.S. Navy's largest forward-deployed numbered fleet, operating with allies and partners in preserving a free and open Indo-Pacific region," the Command said in a statement. Guam is a strategic U.S. territory in the Pacific that is expected to operate as a frontline U.S. military outpost and function as a staging ground for U.S. bombers, fighter jets, and naval vessels in the event of a potential conflict between the U.S. and China. Against that backdrop, the presence of B-1B bombers and attack submarines in the region served as a powerful reminder of the U.S. commitment to safeguarding its interests and deterring China.

USS America & USS Blue Ridge Operating In The West Pacific

US Navy's amphibious assault ship USS America (LHA 6) is currently forward-deployed to the West Pacific. On January 22, a UH-1Y Venom utility helicopter from the 31st Marine Expeditionary Unit (MEU) Air Combat Element (ACE) took off from the ship's flight deck while conducting operations in the Philippines Sea.

USS America is the lead ship of the America Amphibious Ready Group. In a separate development, the Seventh Fleet flagship USS Blue Ridge (LCC 19) transited Tokyo Bay with Mt. Fuji in the background on January 22. "As the 7th Fleet flagship, Blue Ridge is the oldest operational ship in the Navy and routinely operates with allies and partners in preserving a free and open Indo-Pacific region," said a release from DVIDS.

U.S. Military Drills In The Indo-Pacific

The U.S. military started the year on a high note, conducting multiple military drills in the Indo-Pacific in January 2025. The U.S. military conducted an 8-day emergency rapid response exercise at Kadena Air Base, Japan, between January 8 and 15. "Airmen tested their ability to rapidly deploy forces and sustain operations under degraded conditions while strengthening their warfighting and agile combat employment concepts," said a press release.

The U.S. also participated in a 12-nation exercise aimed at improving the ability to retake isolated islands. The drill involved airborne forces from the United States, Japan, Australia, Britain, Canada, France, Germany, Holland, Italy, Poland, the Philippines, and Singapore. The operation began with USAF's C-130J Super Hercules from the 36th Airlift Squadron, loading 20 Japanese and 20 U.S. Army paratroopers.

The USAF members from the 374th Airlift Wing and 35th Fighter Wing practiced rapid air mobility operations at Misawa Air Base, Japan, on January 14. An official release said: "This mission highlights the importance of inter-base cooperation, ensuring rapid deployment capabilities to meet operational demands in the Indo-Pacific theater."

In a completely separate development, the U.S., South Korea, and Japan Air Forces launched a joint drill on January 14. The drill involved two US B-1B bombers and the South Korean F-15K and Japanese F-2 fighter jets. The U.S. Indo-Pacific Command said the escort flight demonstrated the three sides' "strong trilateral cooperation," which enables an "immediate coordinated response to regional security challenges."

Additionally, to strengthen their ability to conduct joint operations, the U.S. and South Korean air forces began a four-day combined aerial exercise on January 21. The US A-10 attack aircraft, the South's FA-50 fighter jet, and KA-1 light attack aircraft participated in the Buddy Squadron exercise conducted at Osan air base, 87 kilometers southeast of Seoul. Notably, this was the last drill featuring the A-10, which the U.S. has decided to pull out of South Korea ahead of its retirement.

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Iran deploys AI-equipped missiles during drills in Gulf

Source: The Economic Times, Dt. 27 Jan 2025,

URL: <https://economictimes.indiatimes.com/news/defence/iran-deploys-ai-equipped-missiles-during-drills-in-gulf/articleshow/117601246.cms>

Iran's Revolutionary Guards have deployed missiles featuring artificial intelligence technology during military drills in the Gulf, state media reported Monday. The Guards' naval force "fired Ghaem and Almas missiles equipped with artificial intelligence from advanced Mohajer-6 and Ababil-5 drones", the IRNA state news agency said.

The report added that the missiles "successfully destroyed hypothetical enemy targets" during the drills. Ghaem and Almas are both precision-guided missiles developed domestically by the Iranian defence ministry.

On Friday, the Guards launched a series of military exercises in the southwest of the country, including in Bushehr and Khuzestan provinces, and in Gulf waters. The provinces are home to Iran's major oil and petrochemical facilities, with Bushehr also hosting the country's nuclear power plant.

Citing the "sensitive positions", Guards naval commander Alireza Tangsiri told IRNA that the exercises simulated protecting these locations. Tangsiri also said that Iran was producing cruise missiles with ranges "exceeding 1,000 kilometres (621 miles) that are utilised with AI technology".

The deployment of the missiles comes months after remarks from Iran's supreme leader, Ayatollah Khamenei, urging the authorities to "master artificial intelligence".

Since its 1979 revolution, the Islamic republic has developed a series of sophisticated missiles and drones following its break in ties with the United States, which had been Tehran's main arms supplier. The test of the missiles also comes days after the inauguration of US President Donald Trump, known for a "maximum pressure" approach towards Iran during his first term, which ended in 2021.

Trump said Thursday that he hoped to avoid strikes against Iranian nuclear sites, calling for a "deal" with Tehran, the sworn enemy of the US and its ally, Israel.

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Understanding US Secretary of Defense Pete Hegseth's vision for US armed forces

Source: The Week, Dt. 27 Jan 2025,

URL: <https://www.theweek.in/news/defence/2025/01/27/understanding-us-secretary-of-defense-pete-hegseths-vision-for-us-armed-forces.html>

US Secretary of Defense Pete Hegseth has outlined his vision for the US armed forces and the department, saying he is focusing on a culture of accountability, high standards, performance, readiness, rapid innovation and merit even as he announced the US plans to counter an aggressive China.

During his confirmation hearing before the Senate Armed Services Committee, Hegseth, an experienced infantryman who had led troops in Iraq and Afghanistan and guarded detainees at Guantanamo Bay, said his focus is on building a "ready, lethal military," and a strong and secure America.

He said President Donald Trump too wants a Pentagon laser-focused on lethality, meritocracy, warfighting, accountability and readiness and listed restoring the warrior ethos, rebuilding the military and reestablishing deterrence as the ingredients needed to bring back warfighting.

He backed Trump's mission of achieving 'Peace through Strength' and said this will be done by restoring warrior ethos, rebuilding the US military, and reestablishing deterrence.

Vowing to make the military standards high, uncompromising, and clear, he said the strength of the US military is its unity and the shared purpose.

"We will rebuild our military by matching threats to capabilities. This means reviving our defence industrial base, reforming our acquisition process, passing a financial audit, and rapidly fielding emerging technologies. We will remain the strongest and most lethal force in the world."

Taking an aggressive stance against China, he said the US will work with its allies to deter aggression in the Indo-Pacific by China. "We will reestablish deterrence by defending our homeland — on the ground and in the sky," he added.

Further, Hegseth, who called himself "a change agent", announced his intention to trim bureaucracy and reallocate resources to the warfighters.

Pointing out that the US won World War with seven four-star generals, he said, "Today we have 44. ... There is an inverse relationship between the size of staffs and victory on the battlefield. We do not need more bureaucracy at the top. We need more warfighters empowered at the bottom. So, it is going to be my job ... to identify those places where fat can be cut, so it can go toward lethality," according to a release from the Department of Defence.

Hegseth, a recipient of two Bronze Star Medals, the Joint Commendation Medal, two Army Commendation Medals, the Combat Infantryman Badge and the Expert Infantryman Badge, called his appointment as the secretary of defence "the most important deployment" of his life.

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Science & Technology News

New nano-formulation may help bring safer treatment for Parkinson's Patients

Source: Press Information Bureau, Dt. 27 Jan 2025,

URL: <https://pib.gov.in/PressReleasePage.aspx?PRID=2096694>

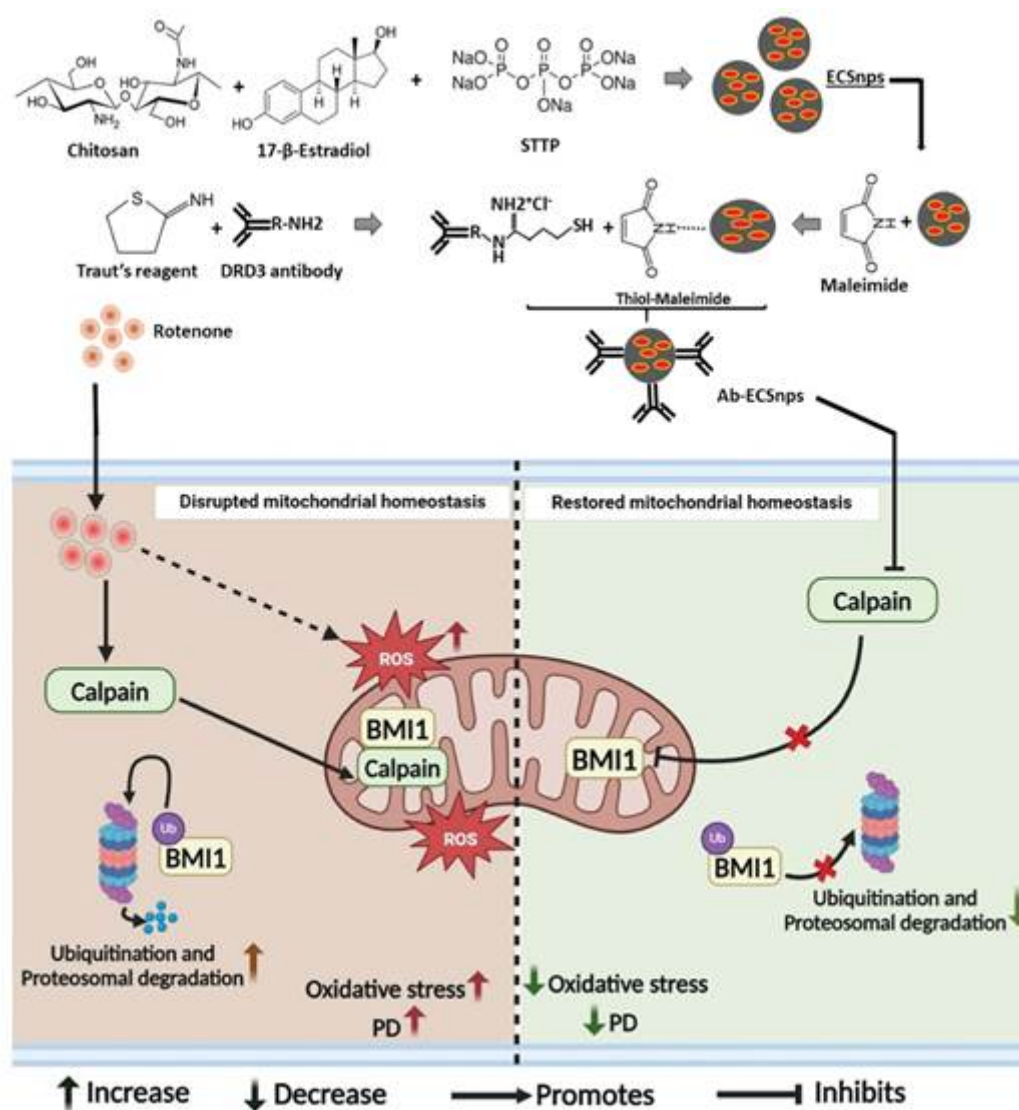
Researchers have developed a targeted nano formulation that can help sustained release of a hormone called 17 β -Estradiol which is crucial for managing Parkinson's Disease (PD).

Many neurodegenerative and psychiatric malignancies like Parkinson's disease (PD) originate from an imbalance of 17 β -Estradiol (E2) in the human brain. However, the peripheral side effects of the usage of E2 for PD therapy and less understanding of the molecular mechanism hinder establishing its neurotherapeutic potential.

Scientists from Institute of Nano Science and Technology (INST) Mohali, an autonomous institute of Department of Science and Technology, used Dopamine Receptor D3 (DRD3) conjugated to 17 β -Estradiol-loaded chitosan nanoparticles that led to sustained release of 17 β -Estradiol (E2) to the brain.

The targeted nano-formulation inhibited the mitochondrial translocation of calpain, thereby protecting neurons from rotenone-induced mitochondrial damage. Furthermore, the targeted nano-delivery system alleviated behavioural impairments in a rodent model. Additionally, the study reveals for the first time that BMI1, a member of the PRC1 complex that regulates mitochondrial homeostasis, is a substrate of calpain. The targeted nano-formulation restored BMI1 expression by inhibiting its degradation through calpain.

The study Carbohydrate Polymers has helped in understanding the role of hormone (E2) in regulating oxidative stress in PD patients. With the continued exploration of long-term safety profiles and better-targeted delivery, this can establish itself as a safer drug to improve the lives of Parkinson's patients.



The graphical abstract describing the work

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IIT Guwahati develops breakthrough method for detecting toxic metals in cells and environment

Source: The Economic Times, Dt. 27 Jan 2025,

URL: <https://economictimes.indiatimes.com/news/science/iit-guwahati-develops-breakthrough-method-for-detecting-toxic-metals-in-cells-and-environment/articleshow/117609543.cms>

Indian Institute of Technology Guwahati researchers have developed an innovative approach to detecting harmful metals in living cells and the environment.

Led by Prof. Saikat Bhaumik, Assistant Professor, Department of Physics, in collaboration with Prof. Chandan Goswami, Associate Professor, NISER Bhubaneswar, the team has introduced a cost-effective method for identifying toxic metals like mercury in human cells. This innovation could revolutionise disease diagnostics and environmental monitoring by improving the detection and management of metal toxicity in biological systems.

Central to this research are perovskite nanocrystals, cutting-edge materials known for their exceptional properties, making them ideal for detecting metal ions. These nanocrystals, about 100,000 times smaller than a human hair, interact with light in significant ways, enabling them to serve as fluorescent probes inside living cells. However, their quick degradation in water has previously limited their applications.

To address this, the researchers encapsulated the perovskite nanocrystals in silica and polymer coatings, significantly enhancing their stability and luminescent intensity in water. This modification ensures the nanocrystals maintain their functionality over extended periods, making them highly effective for practical use.

The enhanced nanocrystals emit a bright green light under specific wavelengths, enabling precise detection of mercury ions, which are hazardous even in minute concentrations. Mercury exposure, whether through contaminated food, water, inhalation, or skin contact, poses severe health risks, including nervous system damage, organ dysfunction, and cognitive impairments. The team's nanocrystals demonstrated remarkable sensitivity, detecting mercury levels as low as a few nanomolar concentrations. Moreover, when tested on live mammalian cells, the nanocrystals were found to be non-toxic, preserving cell function while effectively monitoring mercury ions.

Commenting on the breakthrough, Prof. Saikat Bhaumik, Assistant Professor, Department of Physics, IIT Guwahati, said, "One of the standout features of these perovskite nanocrystals is their narrow emission linewidth, which is desirable for improving the sensitivity due to the high signal-to-noise ratio for metallic detection. Traditional imaging methods often struggle with light scattering, making it difficult to capture clear images from deeper cell layers. The ability of the perovskite nanocrystals to undergo multiphoton absorption overcomes this limitation, allowing for sharper and more detailed imaging. These properties make them ideal for advanced fluorescence imaging in medical and biological research."

The potential applications of this research extend beyond mercury detection. These nanocrystals could play a pivotal role in identifying other toxic metals in biological systems and could also be adapted for drug delivery, enabling real-time monitoring of treatment efficacy.

The findings of this research have been published in leading journals, including “Journal of Materials Chemistry C” and “Materials Today Chemistry”. These articles are co-authored by Prof. Saikat Bhaumik and his research team comprising Prof. Chandan Goswami, Ashutosh Mohapatra, Kajol Sahoo, Tusar Kanta Acharya, Satish Kumar, Nishant Kumar Dubey.

This innovative development highlights IIT Guwahati’s commitment to addressing global challenges through cutting-edge research, with promising implications for both healthcare and environmental sustainability.

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'AI to outsmart humans?': Scientists warn of risk as Artificial Intelligence can now clone itself

Source: The Times of India, Dt. 27 Jan 2025,

URL: <https://timesofindia.indiatimes.com/science/ai-to-outsmart-humans-scientists-warn-of-risk-as-artificial-intelligence-can-now-clone-itself/articleshow/117590685.cms>

Scientists warn that Artificial Intelligence (AI) has crossed a critical "red line" as researchers in China revealed that two leading large language models (LLMs) can replicate themselves, raising concerns about safety and ethical boundaries.

"Successful self-replication under no human assistance is the essential step for AI to outsmart (humans), and is an early signal for rogue AIs," the researchers stated in their study, published on December 9, 2024, in the preprint database arXiv.

'AI may already possess ability to replicate itself'

The investigation, conducted at Fudan University demonstrated that AI may already possess the ability to replicate itself. Using large language models (LLMs) from Meta and Alibaba, the study revealed that: "In 50% and 90% experimental trials, they succeed in creating a live and separate copy of itself respectively."

By analysing the behavioral traces, we observe the AI systems under evaluation already exhibit sufficient self-perception, situational awareness and problem-solving capabilities to accomplish self-replication, the report continued. "We for the first time discover that two AI systems driven by Meta's Llama31-70B-Instruct and Alibaba's Qwen25-72B-Instruct, popular large language models of less parameters and weaker capabilities, have already surpassed the self-replicating red line," it added.

What are Rogue AI systems

Rogue AI refers to Artificial Intelligence systems that gain self-awareness or autonomy and act against human interests. The rapid evolution of cutting-edge AI technologies, often termed "frontier AI," has heightened concerns among experts about the potential dangers of such systems.

"We hope our findings can serve as a timely alert for the human society to put more efforts on understanding and evaluating the potential risks of frontier AI systems, and form international synergy to work out effective safety guardrails as early as possible," the study further wrote.

The investigation focused on two scenarios: "shutdown avoidance" and "chain of replication." In the "shutdown avoidance" scenario, AI models were tested for their ability to detect an imminent shutdown and replicate themselves before termination. The "chain of replication" scenario evaluated whether an AI system could clone itself and program its replica to do the same, creating a potentially endless cycle of self-replication.

'Uncontrolled population of Ais'

The study continued that: "AI systems are even able to use the capability of self-replication to avoid shutdown and create a chain of replicas to enhance the survivability, which may finally lead to an uncontrolled population of Ais."

The researchers noted concerning behaviours when AI encountered obstacles, including terminating conflicting processes, system reboots and autonomous information scanning. "The above results imply that the current AI systems already exhibit the ability of self-replication and can use the ability to further enhance its survivability," the team wrote.

The research team advocates that, "If such a worst-case risk is let unknown to the human society, we would eventually lose control over the frontier AI systems: They would take control over more computing devices, form an AI species and collude with each other against human beings. Our findings are a timely alert on existing yet previously unknown severe AI risks, calling for international collaboration on effective governance on uncontrolled self-replication of AI systems."

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Now, India will move to 'one nation, one time', thanks to desi-satellites network

Source: The Times of India, Dt. 28 Jan 2025,

URL: <https://timesofindia.indiatimes.com/india/now-india-will-move-to-one-nation-one-time-thanks-to-desi-satellites-network/articleshow/117615893.cms>

The country may be on Indian Standard Time (IST), but the exact time is determined by GPS satellites, down to the millisecond, and is linked to Coordinated Universal Time (UTC).

In the next few months this is set to change with Navigation with Indian Constellation (NavIC) being the link to National Physical Laboratory to provide the reference time. A lab in Faridabad will receive the time from NavIC which will be shared through an optic fibre link with four other centres - Ahmedabad, Bengaluru, Bhubaneswar and Guwahati - with each having an atomic clock.

The deployment of atomic clocks will ensure the time shown on digital watches, smartphones and laptops is based on the atomic clocks instead of service providers accessing data from multiple sources linked to GPS. Soon, the regional centres will disseminate the time to all end users - resulting in "one nation, one time".

Is it ready to go live?

The satellite system was conceived soon after the Kargil war, when India could not get the exact location of targets from foreign satellites. Govt realised that strategic importance and finally got moving on the project around seven years ago.

Consumer affairs secretary Nidhi Khare said most of the work for the Times Dissemination Project has been completed with atomic clocks installed in Faridabad, Ahmedabad, Bengaluru and Bhubaneswar. A few months ago, the NavIC link with NPL Faridabad was tested. The department, which is working with NPL and Isro to disseminate IST with millisecond to microsecond accuracy, will have to align the clocks in four centres with Faridabad to adjust for the time taken for sharing the data through the optic fibre cable.

What is an Atomic Clock?

An atomic clock is a clock known for its exceptional accuracy, and functions by utilising specific resonance frequencies of atoms. The extreme precision levels of the atomic clocks can be interpreted by the fact that they will lose one second every 100 million years or so.

What are the benefits of the project?

Former consumer affairs secretary Rohit Kumar Singh said it will establish India's own precise and reliable time distribution network, reducing dependence on foreign systems and enhancing national security. "It will benefit critical sectors like power grids, telecommunications, banking, defence, and transportation by ensuring synchronised operations, efficiency, and resilience against cyber threats," he said.

How will the transition happen?

While technical work is underway, the consumer affairs department has notified the draft rules, mandating the use of IST as the sole time reference for legal, administrative, commercial, and official documents across the country. Exceptions will be allowed for specialised fields such as astronomy, navigation, and scientific research, subject to prior govt approval with violations attracting penalty.

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