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DRDO News

DRDO eyes domestic partner for next-gen aero engine, invites bids

Source: The Tribune, Dt. 31 Jan 2026

In what could re-define efforts for making aero-engines, the Defence Research and Development Organisation (DRDO) has invited bids from Indian defence and aerospace companies to partner in the production of the next generation of aero-engines.

So far, India imports engines even for its indigenous fighter jet, Tejas. As more than 500 jets are to be produced in India over the next 15-17 years, the non-availability of an engine is seen as a handicap for the sector's growth. The DRDO has issued an expression of interest (EOI), asking for bids from Indian companies to become 'Development-cum-Production Partner (DcPP)' for what is termed as 'Advanced High Thrust Class Engine' (AHTCE) programme.

The Indian company will support design, development, manufacturing, integration, testing and certification of a next-generation indigenous aero gas turbine engine. Foreign engine houses may assist, but the design control stays with India. Leading global engine makers, including any one out of Safran of France, Rolls Royce of the UK, General Electric of the US and IHI of Japan, could be in the race.

The **Gas Turbine Research Establishment (GTRE)** under the DRDO will lead the programme. The establishment has been at the core of India's military aero-engine research. The DcPP will act as the primary industrial execution agency, responsible for transforming GTRE's engineering outputs into flight-worthy engine. This includes tooling, manufacturing engineering, special processes, inspection systems, engine assembly, subsystem testing and final integration.

The scope includes manufacturing and assembly of compressor, combustor, turbine, afterburner, subsystems like the gearbox, oil system and fuel system. The selected Indian partner will support GTRE through detailed engineering, preparation of 2D drawings, 3D models, design iterations, and configuration. The partner will manufacture components, sub-assemblies, and modules, including raw material procurement.

The GTRE would be the design authority. It would provide engineering data, materials support. The new engine would be looking at thrust of almost 120 kilo newton. To provide a reference, the F404 engine powering the Tejas – a single engine plane -- has a thrust of 84 kilo newton.

The GTRE had started making an aero-engine named 'Kaveri' some 30 years ago, however, it faced development delays regarding thrust-to-weight ratios and high-temperature materials. That engine generated almost 51 kilo newton and is now being adapted for the 'Ghatak' an unmanned combat ariel vehicle (UCAV).

<https://www.tribuneindia.com/news/india/drdo-eyes-domestic-partner-for-next-gen-aero-engine-invites-bids/>

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Defence News

दुनिया का पाँचवाँ सबसे बड़ा रक्षा बजट

Source: Punjab Kesari, Dt. 02 Feb 2026

अमेरिका, चीन, रूस-जर्मनी के बाद रक्षा क्षेत्र पर खर्च करने वाला भारत पाँचवाँ देश बन गया है। केंद्रीय



बजट 2026-27 में देश के रक्षा क्षेत्र के लिए 7.8 लाख करोड़ रुपये का आवंटन किया है। यह राशि पिछले वित्त वर्ष के 6.81 लाख करोड़

रुपये की तुलना में करीब 15 प्रतिशत ज्यादा है। बजट में रक्षा बलों के लिए सैन्य उपकरणों की खरीद के लिए 2.19 लाख करोड़ रुपये रखे गए हैं। रक्षा बजट में ये बढ़ोतरी ऐसे समय में की गई है, भारत ने कश्मीर में हुए आतंकी हमले के बाद ऑपरेशन सिंदूर चलाया और दुनिया भर में भू-राजनीतिक तनाव बढ़ रहे हैं।

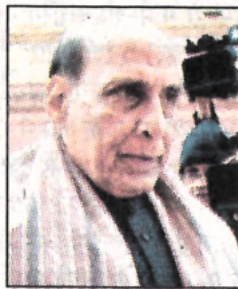
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दोगुनी ताकत से आतंकवाद के चिथड़े उड़ाएगा भारत

Source: Punjab Kesari, Dt. 02 Feb 2026

नई दिल्ली, (पंजाब केसरी): केंद्रीय बजट में मजबूत भारत के लिए वित्त मंत्री निर्मला सीतारमण ने बड़ा ऐलान किया है। रक्षा मंत्रालय को 2026-27 के लिए 7.8 लाख करोड़ रुपये आवंटित किए गए हैं। रक्षा मंत्रालय के पास कई प्रोजेक्ट पाइपलाइन में हैं। राफेल फाइटर जेट्स, पनडुब्बियां और ड्रोन से जुड़े कई कॉन्ट्रैक्ट्स पर भारत पैसे खर्च कर रहा है।

रक्षा मंत्री राजनाथ सिंह ने भी रक्षा बजट को 2047 तक भारत को आत्मनिर्भर बनाने की दिशा में अहम कदम करार दिया है। दरअसल, ऑपरेशन सिंदूर के बाद सशस्त्र बलों पर खर्च में बढ़ोतरी की उम्मीद थी, यह 1971 के युद्ध के बाद दोनों देशों के बीच पाकिस्तान के साथ पहली सैन्य झड़प थी। भारत ने रक्षा बलों के आधुनिकीकरण



● रक्षा बजट के लिए 7.84 लाख करोड़ रुपये आवंटित किए राफेल जेट, पनडुब्बियां, ड्रोन को बनाने में आएगी तेजी

के लिए 2.19 लाख करोड़ रुपये का ऐलान किया है। इससे भारतीय सेना अपने लिए राफेल जैसे फाइटर, पनडुब्बियां और अनमैन्ड एरियल वाहन यानी ड्रोन पर ज्यादा फोकस कर सकेगी। यह बजट बीते साल के मुकाबले 21 फीसदी ज्यादा है। कैपिटल आउटले डिफेंस के लिए 2,19,306.47 करोड़ आवंटित किए गए हैं। वहीं,

रक्षा मंत्रालय सिविल के लिए 28,554.61 करोड़ रुपये, डिफेंस सर्विसेज रेवेन्यू के लिए 3,65,478.98 करोड़ रुपये और रक्षा पेंशन के लिए 1,71,338 करोड़ रुपये आवंटित किए गए हैं। रक्षा मंत्री राजनाथ सिंह ने कहा-यह बजट लोगों की भावनाओं और उम्मीदों के अनुसार है। यह बजट प्रधानमंत्री नरेंद्र मोदी के आत्मनिर्भर भारत के दृष्टिकोण की मजबूत नींव रखता है। यह भारत को 2047 तक आत्मनिर्भर और विकसित बनाएगा। रक्षा मंत्री राजनाथ सिंह ने कहा-इस बजट में रक्षा क्षेत्र के लिए 7.85 लाख करोड़ रुपये अलॉट किए गए हैं।

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Defence gets a 15% boost in Op Sindoor aftermath

Source: Hindustan Times, Dt. 02 Feb 2026

India on Sunday hiked its defence spending by more than 15% in the backdrop of Operation Sindoor, setting aside ₹7.85 lakh crore for the critical sector in the Union Budget for 2026-27, including a capital outlay of ₹2.19 lakh crore to boost the capabilities of the armed forces with new weapons and systems including fighter planes, transport aircraft, helicopters, warships, submarines, artillery guns, smart weapons, missiles, rockets and a variety of unmanned systems.

The enhanced allocation, the defence ministry said, will cater to the increased military requirements following Operation Sindoor, the four-day military confrontation between India and Pakistan in early May, following the April 22 Pahalgam terror attack in which 26 people were killed.

The capital outlay for defence services for the coming fiscal is almost 22% higher than what it was in the budget estimates (₹1.8 lakh crore) for the financial year 2025-26, and 17.61% more than the revised estimates (₹1.86 lakh crore), the budget documents show. This means India spent an additional ₹6,454 crore on new military hardware this year, mostly related to Operation Sindoor.

“Coming after the historic success of Operation Sindoor, this budget has further strengthened our resolve to make the country’s defence system even more robust,” defence minister Rajnath Singh said.

The overall defence spending is 15.18% more than that in the budget estimates (₹6.81 lakh crore) for the financial year 2025-26, and 7.12% higher than the revised estimates (₹7.32 lakh crore). The most important aspect of the budget, he said, is its thrust on the modernisation of our three services. “As a result of this increase, our military capability will become even more powerful. The budget strengthens the balance between security, development, and self-reliance,” he added.

The allocation for 2026-27 includes a revenue expenditure of ₹3.65 lakh crore, a pension outlay of ₹1.71 lakh crore and an allocation of ₹28,554 crore for civil organisations under the defence ministry. It accounts for 1.99% of the country’s projected gross domestic product (GDP) for 2026-27. To be sure, finance minister Nirmala Sitharaman did not touch upon the defence allocation in her budget speech.

A significant portion of the capital expenditure -- almost ₹63,734 crore -- has been earmarked for aircraft and aeroengines at a time when the Indian Air Force is looking at buying 114 French-origin Rafale jets to bolster its combat fleet. Jet engines for the light combat aircraft (LCA Mk-1A) will also contribute to the outgo.

“In the current geo-political scenario, a quantum jump in the modernisation budget is a strategic imperative. The upcoming capital acquisition projects will equip the armed forces with next-generation fighter aircraft, smart and lethal weapons, ships, submarines, unmanned aerial vehicles, and specialist vehicles,” the defence ministry said. The defence budget accounts for 14.67% of the overall government expenditure, the highest among ministries.

In addition to the modernisation of the armed forces and financing their regular requirements, the increased allocation will also cater to the financial needs arising from the emergency procurement of arms and ammunition in the aftermath of Operation Sindoor, the defence ministry said in a statement.

The budget has earmarked ₹1.39 lakh crore for buying weapons and equipment from domestic sources to boost self-reliance in the defence manufacturing sector, up from ₹1.11 lakh crore in

2025-26. The allocation for the Agnipath scheme under the revenue head has been increased from ₹9,414 crore to ₹15,173 crore. The allocation for the Defence Research and Development Organisation (DRDO) has been increased from ₹26,816 crore to ₹29,100 crore, with ₹17,250 crore earmarked for capital expenditure.

In her speech, Sitharaman proposed exemption of basic customs duty on raw materials imported for manufacturing parts of aircraft to be used in maintenance, repair or overhaul requirements by defence sector units.

The budget will also provide a push to the development of border infrastructure to boost military mobility and logistics support for deployed forces in forward areas. The allocation to Border Roads Organisation under the capital head has been hiked from ₹7,146 crore to ₹7,394 crore. "It will cater to many strategically significant projects such as tunnels, bridges and airfields, and promote regional development and tourism, along with providing last-mile connectivity in the border areas," the defence ministry said.

The increase in defence budget signals a renewed thrust on modernisation, capability ramp-up and deeper self-reliance across the defence ecosystem, said Gaurav Mehndiratta, partner and head, aerospace and defence, KPMG India. "While the budget delivers a strong capability-focused push, it also underscores the need for continued dialogue around innovation-led enablers such as R&D and space," he added.

<https://www.hindustantimes.com/india-news/budget-2026-india-hikes-defence-budget-by-15-to-rs-7-85-lakh-crore-101769941384355.html>

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Post Op Sindoor, Budget likely to focus on new technologies

Source: The Tribune, Dt. 01 Feb 2026

In the first post-Operation Sindoor Budget, the defence sector is hoping for a substantial allocation for updating its arsenal. This would include a greater focus on drones, surveillance, long-range missiles, newer jets and the latest submarines.

In the Budget 2026-27, the focus is likely on "Atmanirbhar Bharat" (self-reliance) in the sector, with emphasis on capital spending to acquire new weapons and equipment. Of the Rs 6.81-lakh crore allocation for the present year, Rs 1.71 lakh crore is for capital expenditure.

The Ministry of Defence is reportedly seeking a hike of up to 20 per cent in the allocation for capital acquisition. This is intended to address "committed liabilities" and high-tech procurements like the 114 Rafale fighter jets or the signing of the deal for the next generation submarines being offered by ThyssenKrupp Marine Systems (TKMS) of Germany in partnership with Mazagon Docks Shipbuilders Limited (MDL).

Analysts expect the capital outlay to grow to bridge the readiness gap highlighted by recent tensions with Pakistan. In the present fiscal year, 75 per cent of the modernisation budget was earmarked for domestic industry. This could potentially rise or see stricter implementation to favour Indian private players and MSMEs.

The Budget is likely to pivot from traditional heavy platforms to more asymmetric and digital capabilities. Significant funding is likely for drones, counter-drone systems and swarm technologies. Given the ongoing situation along the Line of Actual Control (LAC) and the Line of Control (LoC), the revenue expenditure, including the daily operational cost, is expected to remain high.

The Border Roads Organization (BRO) is expected to receive a continued boost to accelerate strategic tunnels and all-weather roads in Ladakh and Arunachal Pradesh. On the research front, the DRDO's R&D funding is expected to rise from its allocation of Rs 26,817 crore. This would be needed to align with recommendations for frontier technology like drones, AI and quantum computing.

<https://www.tribuneindia.com/news/borderinfrastructure/post-op-sindoor-budget-likely-to-focus-on-new-technologies>

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'रक्षा बजट देश की सैन्य शक्ति को निरंतर सुदृढ़ करने के साथ आत्मनिर्भर बनाने में भी सहायक'

Source: Punjab Kesari, Dt. 02 Feb 2026



भारत की अर्थव्यवस्था में गत लगभग एक दशक में अभूतपूर्व बढ़ोतरी हुई है तथा यह लगभग 7 फीसदी वार्षिक दर से बढ़ते हुए विश्व की चौथी सबसे बड़ी अर्थव्यवस्था बन चुकी है और तीसरी सबसे बड़ी अर्थव्यवस्था बनने की ओर अग्रसर है। इतिहास साक्षी है कि भारत की समृद्धि अनेक सदियों से विदेशी लुटेरों, आक्रांताओं को आकर्षित करती रही है। गत वर्ष पुनः भारत को एक और आक्रमण का सामना करना पड़ा था जिसे ऑपरेशन सिंदूर के माध्यम से सफलतापूर्वक निष्फल किया गया था। भारत की सुदृढ़ सैन्य शक्ति के माध्यम से शत्रु के क्षेत्र में सैकड़ों किलोमीटर अंदर तक प्रहार

गत वर्ष में लगभग 160000 करोड़ रुपए से अधिक का रक्षा उत्पादन स्वदेश में ही हुआ

कर शत्रु को जो क्षति पहुंचाई गई उसने विश्व की महाशक्तियों सहित समूचे विश्व की आंखें खोल दी थीं। आर्थिक समृद्धि की वृद्धि के साथ देश की सैन्य शक्ति को निरंतर अधिकाधिक सुदृढ़ करने की राजनीतिक दूरदर्शिता की झलक वित्त वर्ष 2026-27 के रक्षा बजट में स्पष्ट दिखाई देती है जिसे लगभग एक लाख करोड़ रुपए की वृद्धि करके, वर्तमान 681210 करोड़ रुपए से बढ़ाकर 784678 करोड़ रुपए किया गया है, जोकि कुल बजट का 14.68% है। कैपिटल बजट को 192387 करोड़ रुपए से बढ़ाकर 231009 करोड़ रुपए किया गया है, जिसमें एयरक्राफ्ट और एयरो इंजन के लिए 63,733 करोड़ रुपए व नेवल फ्लीट के लिए 25,023 करोड़ रुपए तथा अन्य रक्षा उपकरणों के लिए 82217 करोड़ रुपए सम्मिलित हैं। यदि रक्षा बजट में गत दशक में

हुई वृद्धि की ओर देखा जाए तो वित्त वर्ष 2013-14 में कुल बजट मात्र 23672 करोड़ रुपए, कैपिटल बजट 86740 करोड़ रुपए और रक्षा अनुसंधान तथा विकास के लिए बजट 10609 करोड़ रुपए था। रक्षा अनुसंधान तथा विकास का आत्मनिर्भरता में अत्यंत महत्वपूर्ण योगदान सदैव रहा है। इसके लिए भी बजट में लगभग 3000 करोड़ की वृद्धि करके इसे 29100 करोड़ रुपए किया गया है।

तेजी से बिगड़ते हुए वैश्विक परिपेक्ष्य तथा सुरक्षा व्यवस्था को देखते हुए रक्षा बजट में और भी अधिक वृद्धि की अपेक्षा की जा रही थी, लेकिन देश की अन्य आवश्यकताओं के साथ संतुलन बनाते हुए देखा जाए तो यह महत्वपूर्ण वृद्धि है। कैपिटल रक्षा बजट में की गई यह लगभग 22 फीसदी की वृद्धि भारतीय सेनाओं के आधुनिकरण के माध्यम से इन्हें सशक्त बनाने में

तो सहायक सिद्ध होगी ही साथ ही आत्मनिर्भरता के माध्यम से देश की औद्योगिक प्रगति में भी सहायक सिद्ध होगी।

उल्लेखनीय है कि वर्तमान सरकार के आत्मनिर्भरता पर विशेष बल दिए जाने के कारण गत वर्ष में लगभग 160000 करोड़ रुपए से अधिक का रक्षा उत्पादन स्वदेश में ही हुआ है। रक्षा क्षेत्र में आत्मनिर्भरता कि इस नीति के चलते रक्षा बजट का एक बड़ा भाग स्वदेश में बने हथियारों, साजो-सामान व सामग्री, स्वदेशी उत्पादन के क्रय के लिए व्यय किया जाता है। अतः यह बढ़ा हुआ रक्षा बजट देश सुरक्षा को तो सुदृढ़ करेगा ही, देश की आर्थिक उन्नति के लिए विकास का इंजन भी सिद्ध होगा तथा देश के युवाओं के लिए रोजगार के नए अवसर भी प्रदान करेगा। इसी दिशा में वायुयानों के निर्माण के लिए

आवश्यक कल-पुर्जों को आयात शुल्क से छूट दी गई है। रक्षा सहित अर्थव्यवस्था के प्रत्येक क्षेत्र में क्रिटिकल सामग्री का विशेष महत्व होता है। ऐसी क्रिटिकल सामग्री के लिए स्वायत्तता के उद्देश्य से इनके निर्माण में प्रयुक्त होने वाले कैपिटल सामान को भी आयात शुल्क से छूट दी गई है।

कुल मिलाकर प्रस्तुत किए गए रक्षा बजट से देश की सुरक्षा व्यवस्था को सुदृढ़ करने के साथ-साथ भारत को रक्षा उत्पादों के एक निर्यातक के रूप में उभारने में भी सहायक होने की अपेक्षा है। आशा है कि यह वर्ष-2029 तक देश में रक्षा उत्पादन को 3 लाख करोड़ रुपए तथा हमारे रक्षा निर्यात को 50000 करोड़ रुपए तक पहुंचने के देश के लक्ष्य को प्राप्त करने में सहायक सिद्ध होगा।

— प्रस्तुति: राहुल शर्मा

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India's defence budget: A case for higher allocation

-by Thomas Mathew (former Civil Servant, held key position in the Ministries of Defence & Finance)

Source: The Hindu, Dt. 02 Feb 2026

It is usual for defence allocation to rise sharply in the Budget that follows a security challenge. It has been the case this year too, in the shadow of Operation Sindoor. The overall increase was more than 15% over the previous year (₹6.81 lakh crore to ₹7.84 lakh crore), with the capital outlay surging by 22% (₹1.80 lakh crore to ₹2.19 lakh crore). It may also look daunting that the defence budget has grown in the present century (2000-01 to 2026-27) by a hefty 1,240% (from nearly ₹0.59 lakh crore).

India's defence expenditure since 1960 to 2024, as a percentage of its GDP, had averaged nearly 3% (World Bank data), and to many, that is impressive. It is not. In the context of India's rapidly evolving security requirements, its defence budget is middling. Our security outlays must be assessed in the context of the resources committed by nations that pose a threat to India, rather than in isolation. Even the U.K., which has a strong military and is umbilically tied to U.S. security architecture, through NATO and a "special relationship", spent nearly 4% of its GDP on defence during the same period (1960-24). The comparative figure for even the world's preeminent power, the U.S., was 5.3%.

India's unfriendly neighbour Pakistan, with which it has fought four major wars, has spent nearly 5%. China, which is a greater threat to India, is in a different league altogether. It dwarfs India's defence outlays. For 35 years up to 2024, its defence budget as a percentage of GDP, as assessed by the World Bank, averaged only 1.8%, though in reality, it was much higher, with estimates varying widely. While China officially announced a defence budget of \$246 billion in 2025, the overwhelming opinion is that it was much higher. Employing the midpoint of the US Department of Defense's estimated range of how much higher the budget is, it would be \$406 billion. Dan Sullivan, a U.S. Senator in 2023, citing government sources, assessed it was \$700 billion. The Heritage Foundation estimated that in 2017, the Chinese budget was 87% of that of the U.S. It implied that in that year, China's defence budget was \$562 billion, as opposed to \$647 billion for the U.S., and \$68 billion for India.

To maintain a strong military, India has to spend more on defence, taking the budget to at least 5% of its GDP in the short to medium term and 6% to 7% in the long term. A credible deterrence against an increasingly aggressive China cannot be built on hopes. Critics would argue that India does not have the capacity to absorb more defence budget. Without overhauling the existing system, it may be true as we are stuck in a stasis, crippled by a paralysis by analysis. How else can we describe the surfacing of the submarine project (P-75) after some two and a half decades of deciding that we needed a new series? China, which did not even have an aircraft carrier when India operated one for decades, is expected to have nine by 2035. It today boasts that its latest carrier, Fujian, has an electromagnetic catapult which is only seen on the U.S.'s largest and latest carrier USS Gerald R Ford (commissioned 2017). India's first indigenous aircraft carrier took nearly 20 years to go from the planning to commissioning stage. We have not ordered the second so far, mainly on account of budgetary constraints.

A much larger budget with innovative strategies is required to attain a credible defence capability and build its domestic military industrial complex. Some progress has been made in this direction, but in the larger scheme of things, they do not add much. The irony is that we cannot even

indigenously build large platforms today, save for a few, for which several critical systems are still imported. We must grab the opportunities that come our way for important domestic production of sophisticated platforms, clearly understanding that India cannot become a strong military power by reinventing the wheels of technology of different systems, fearing a technology denial regime pervading the defence sector.

Defence capability is evolutionary and cannot be leapfrogged, unless through absorption of technology through collaborate ventures. Alternatively, or in parallel, it has to be built through reverse engineering and employing clandestine methods, routes that China has perfected -- their J-11 fighter was modelled on Su-27, J-15 on Su-33, and HQ-9 air defence system on the S-300. We need to unleash the power of our increasingly capable private sector. A larger defence budget would help forge collaborate ventures with private companies, with liberal government funding of critical projects. Such JVs could also survey the international landscape for collaborative ventures. The government must facilitate access to foreign companies and the private sector must negotiate with few constraints.

It is also utterly disappointing that we have not been able to take advantage of our close relations with either the Soviet Union or its successor, Russia, to develop our defence manufacturing capability. For instance, we did not actively pursue the goal of building nuclear submarines with Russian collaboration in India, soon after Akula-II lease contract was signed in 2004. It was a time when Komsomolsk-on-Amur shipyard, where it was built, was struggling for orders. Budget constraints were a dampener. China exploited the opportunity and inundated the yard with its engineers whose targeted goal was to learn as much as possible about submarine-building on the back of the order for some conventional submarines they had placed on the yard. In contrast, India's budgetary constraints prevented the deployment of staff, which was barely enough to take care of its immediate needs, when any technical manpower deployed at the yard could have had far greater access than China's.

The opportunities that have opened up for the indigenous production of Su-57 fighter jets can be a vehicle for India to develop its aircraft-building capability. We should embrace the opportunity as we did in the early 1960s, when India produced the Mig-21 aircraft in collaboration with the Soviet Union. But we failed to follow the collaboration with the later versions. If we proceed with the Su-57 project, we would have access to a sophisticated supply chain and develop indigenous capability.

That collaborative ventures can succeed is exemplified by the success of BrahMos. Today, the time is right to negotiate with Russia to make India a production centre for defence wares to cater to nations that seek an alternate source of weapons to Western wares. Joint production of the S-400 defence systems could be a great opportunity. Once they are produced in India, we would be able to undertake research in collaboration with Russia and subsequently commit additional resources to undertake upgradation on our own. The attainment of steel-making capabilities after the establishment of the Bhilai and Bokaro steel plants should encourage us to take this route. Streamlining the Ministry of Defence, adoption of unconventional methods of gaining technology, and forging collaborations -- all without the constraint of funding -- are the only ways to make India a strong nation.

<https://www.thehindu.com/business/budget/indias-defence-budget-a-case-for-higher-allocation/article70578902.ece>

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Navy, coast guard ALHs to fly again in April

Source: Hindustan Times, Dt. 01 Feb 2026

Plane maker Hindustan Aeronautics Limited has fixed a nagging flaw afflicting a key component of the transmission system of the navy and coast guard's Dhruv advanced light helicopters and they are likely to be cleared to fly again in April, ending the longest grounding of an aircraft in the Indian military, HAL chief DK Sunil said on Saturday. The workhorse twin-engine fleet was grounded in January 2025 following a fatal coast guard crash.

"HAL has started upgrading the swashplate assembly mounted around the Dhruv ALH's main rotor mast to boost its fatigue tolerance in a harsh marine environment, and the exercise will be completed by March-end. The swashplate assembly life has been significantly improved through refined manufacturing techniques," Sunil said at Wings India 2026, the four-day civil aviation show that ended at Begumpet airport in Hyderabad on Saturday. Any defect in the swashplate assembly can compromise the ability of the pilots to control the helicopter's motion — it translates stationary control inputs from the pilot into rotating inputs connected to the main rotor blades. The snag related to the swashplate assembly in the navy and coast guard helicopters was detected after the fatal coast guard ALH crash at Porbandar in Gujarat on January 5, 2025 in which two pilots and an aircrew driver were killed.

The military's entire fleet of 330 ALHs was instantly grounded. Four months later, on May 1, the 300 choppers operated by the army and air force were declared airworthy by HAL after comprehensive safety checks. The 30 ALHs operated by the navy and coast guard were, however, not given the green light to return to the skies. A fleet-wide inspection conducted after the January 5 crash revealed that the navy and coast guard ALHs were facing the same problem as the Dhruv that crashed in Porbandar — cracks in the swashplate assembly, linked to sustained operations in a saline environment. HT was the first to report on February 4, 2025 that a detailed analysis by the Council of Scientific and Industrial Research-National Aerospace Laboratories (CSIR-NAL), Bengaluru, pointed to a swashplate assembly failure.

Last year, HAL instrumented two ALH's — one each from the navy and coast guard — to gather critical data on the performance of the helicopter's integrated dynamic system, including the transmission system, gearbox and rotor hub, as well as to test the loads some systems could withstand in different operating conditions.

The data collated by HAL's Rotary Wing Research & Design Centre was thoroughly analysed by a defect investigation committee (DIC) before it concluded that the problem with the swashplate assembly was specific to ALHs that were carrying out a maritime role, and recommended that it be modified to eliminate the possibility of any future failure. The committee consisted of officials from the Bengaluru-based Centre for Military Airworthiness and Certification (CEMILAC), the Directorate General of Aeronautical Quality Assurance and HAL. HAL began supplying the 5.5-tonne multi-mission helicopters to the armed forces in the early 2000s. The army and air force's light combat helicopters also inherit several features of the ALH.

To be sure, the ALH had undergone a design review around three years ago that involved installing upgraded control systems on the helicopters to improve their airworthiness. The review was spurred by a string of crashes that led to the ALH fleet being grounded several times in 2023. The helicopters were fitted with booster control rods made of steel instead of aluminium — these rods allow pilots to control the helicopter's motion, and any failure can severely affect power input to the rotor blades and cause accidents.

At Wings India 2026, HAL showcased the Dhruv NG (new generation) helicopter for the civil sector, and signed a deal with Pawan Hans Limited for supplying 10 units to the helicopter service provider. HAL's internal estimates suggest that India will require around 400 helicopters in the Dhruv NG category in the coming years. Those interested in buying these helicopters include the Border Security Force (BSF), several states including Karnataka and Odisha, and some Southeast Asian countries. HAL also plans to tap the potential of heli-tourism in the country's north to boost sales.

<https://www.hindustantimes.com/india-news/navy-coast-guard-alhs-to-fly-again-in-april-101769885149075.html>

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India, EU to hold annual dialogue on security & defence

Source: The Tribune, Dt. 01 Feb 2026

Details emerging from the India-European Union Security and Defence Partnership indicate a shift in the ties with the two sides agreeing to hold an annual security and defence dialogue. In this defence dialogue, they will discuss strategic environment, thematic security and defence issues and will feed the ministerial-level meetings, according to a document put out by the European Union External Action, the diplomatic service of the EU.

The document further states security and defence-related issues will be a key component of the agenda of the EU-India strategic dialogue at the level of the External Affairs Minister of India and his EU counterpart. The European Union and India aim to enhance global security and contribute to effective arms control mechanisms. The two sides will also deepen exchanges on space security and explore further opportunities for cooperation and synergies in support of capacity-building for partners in the field of security and defence, it reads further.

The EU document notes that the defence industry of both sides will also explore mutual interest and alignment of security priorities, with possibilities for India's participation in relevant EU defence initiatives. Analysts say this is vital as India needs the technology and partnership with EU countries to propel its 'Make in India' projects in the defence sector. The two-sides will also look to work together on maritime security, counter-terrorism, cyber security and non-proliferation and disarmament. Besides, they will look for cooperation on maritime capacity-building with other partners. They will also deepen the existing cyber dialogue, and coordinate diplomatic responses to malicious cyber activities, as well as coordination of cyber capacity-building efforts. The two sides also look to address issues related to the global governance and responsible use of AI in the context of relevant international initiatives and forums.

Strengthening the resilience of critical infrastructure, in full respect of respective legal frameworks, both sides will strengthen the existing joint working group on counter-terrorism, allowing for a comprehensive exchange on domestic, regional, and global threat assessments, as well as for regular updates on the evolution of terrorist threat, including the link between organised crime, terrorism and financing of terrorism.

<https://www.tribuneindia.com/news/india/india-eu-to-hold-annual-dialogue-on-security-defence/>

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Op Sindoor displayed seamless inter-service coordination within India's multi-layered maritime security system, reaffirmed ICG's role as frontline force: Raksha Mantri on 50th ICG Raising Day

Source: Press Information Bureau, Dt. 30 Jan 2026

“Operation Sindoor displayed seamless inter-service coordination within India's multi-layered maritime security system, and reaffirmed the role of the Indian Coast Guard (ICG) as a frontline force,” said Raksha Mantri Shri Rajnath Singh as he graced the 50th Raising Day celebrations of ICG in New Delhi on February 01, 2026. He asserted that the operation was carried out during a time of heightened maritime sensitivity, and the ICG responded quickly & firmly, deployed strategic assets in advance, enhanced surveillance along the western coast, and maintained high alertness in coastal & creek areas. He described the ICG as a wall of trust on India's maritime border, stating that it demonstrated the true meaning of service to the nation.

Praising the ICG for fulfilling its responsibilities with utmost efficiency time-and-again, Raksha Mantri said: “From preventing terrorism, arms and human trafficking to controlling other illegal activities, ICG remains vigilant on every front. In an era of global instability and growing maritime threats, its responsibilities have increased even more. Its contribution in tackling challenges such as drug trafficking, piracy, illegal trade, and marine pollution is decisive. Saving over 11,800 lives at sea since its inception clearly demonstrates its courage, skill, and sense of duty. Be it cyclones, maritime accidents, or regional humanitarian missions like Operation Sagar Bandhu, it has demonstrated prompt response, compassion, and a professional approach. Multi-agency coordination, the role of first responders in disaster management, and the display of humanity, along with professionalism, strengthen national security,” he said.



Shri Rajnath Singh termed ICG as one of the strongest pillars of national security, which has been transformed into a massive, modern, and powerful force equipped with advanced ships, helicopters, modern aircraft & best technologies. “ICG's service to the nation is one of the reasons

India speaks about its maritime interests with confidence, and devises plans for the blue economy, maritime security, and coastal development with clarity. The nation is proud of the ICG,” he said.

Raksha Mantri exhorted the ICG to prepare a clear, well-targeted, and visionary roadmap for the next 25 years as the nation marches forward towards the goal of Viksit Bharat @ 2047 with determination. He emphasised that the roadmap should not only encompass manpower planning and capability development, but also define where the ICG sees itself as an organisation in 2047. He also urged the ICG to focus on organisational and structural reforms that will make it more agile, responsive & future oriented. “If this introspection and reforms are initiated today, then on 100 years of our independence, the ICG will not only become a strong guardian of maritime security, but also a shining symbol of Viksit Bharat’s maritime prowess,” he said.

Reiterating that national security will always be of paramount importance to the Government, Shri Rajnath Singh extended the Ministry of Defence’s full support to the ICG’s endeavours. He voiced the resolve of making the ICG even more capable, modern, and effective. “As we celebrate the golden jubilee year, let us all take a pledge to build a stronger, more capable, and more vigilant Indian Coast Guard. We will take our country’s maritime security to greater heights. Technologically empowering the ICG, enhancing its operational capabilities, and preparing it for future challenges are among the Government’s priorities. Only when the ICG is strong will India’s maritime security be strengthened. And when our maritime borders are secure, India will be able to play its role with greater confidence not only at the regional level but also on the global stage,” he added.

On the occasion, Raksha Mantri unveiled the Swarnim Jayanti Logo, symbolising ICG’s 50 years of unwavering vigilance, maritime security, and humanitarian service. He also released the 50-year Commemorative Stamp, paying tribute to the ICG’s rich legacy and vital role in safeguarding India’s maritime interests. A specially curated film highlighted the organisation’s evolution, operational excellence, and steadfast commitment to national security, maritime safety, and environmental protection.

Shri Rajnath Singh also interacted with dignitaries, serving officers, and veterans during a High Tea, acknowledging their dedication & contributions. The event was attended by Raksha Rajya Mantri Shri Sanjay Seth, Minister of State for Rural Development and Communications Dr Pemmasani Chandra Sekhar, Chief of the Naval Staff Admiral Dinesh K Tripathi, Defence Secretary Shri Rajesh Kumar Singh, Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat and DG, ICG Director General Paramesh Sivamani.

As part of the celebrations, a solemn wreath laying ceremony was held at the National War Memorial, New Delhi to honour the brave personnel who made the supreme sacrifice in the service of the nation. Led by DG, ICG, the ceremony included a moment of silence, reflecting the nation’s deep respect and gratitude.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2221829®=3&lang=1>

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Science & Technology News

Indian scientists developed a self-charging energy storage device powered by sunlight

Source: Press Information Bureau, Dt. 30 Jan 2026

An innovative sunlight-powered supercapacitor called photo-capacitor developed by scientists can both capture and store solar energy in a single integrated device. This could be a remarkable step towards clean and self-sustaining energy storage systems paving the way for efficient, low cost, and eco-friendly power solutions for portable, wearable, and off grid technologies.

Traditionally, solar energy systems rely on two separate units: solar panels for energy capture and batteries or supercapacitors for energy storage. While such hybrid systems are widely implemented from large-scale solar farms to portable electronics, they rely on additional power management electronics to regulate voltage and current mismatches between the energy harvester and the storage unit. This requirement increases system complexity, cost, energy losses, and device footprint, which becomes particularly detrimental for miniaturised and autonomous devices.

This new photo-rechargeable supercapacitor, developed by the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute under the Department of Science and Technology (DST), Government of India, seamlessly combined both processes converting sunlight into electrical energy and storing that energy for later, thus simplifying design and minimising energy loss during conversion and storage.

Under the guidance of Dr. Kavita Pandey, innovated with the help of binder-free use of nickel-cobalt oxide (NiCo₂O₄) nanowires, which have been uniformly grown on nickel foam using a simple in situ hydrothermal process. These nanowires, only a few nanometres in diameter and several micrometres long, form a highly porous and conductive 3D network that efficiently absorbs sunlight and stores electrical charge. This unique architecture allowed the material to act simultaneously as a solar energy harvester and a supercapacitor electrode.

When tested, the NiCo₂O₄ electrode exhibited a remarkable 54% increase in capacitance under illumination, rising from 570 to 880 mF cm⁻² at a current density of 15 mA cm⁻². This exceptional performance stems from the efficient generation and transfer of light-induced charge carriers within the nanowire network. Even after 10,000 charge-discharge cycles, the electrode retained 85% of its original capacity, demonstrating its long-term stability, an essential feature for practical applications.

To evaluate its real-world applicability, the researchers prepared an asymmetric photo-supercapacitor using activated carbon as the negative electrode and NiCo₂O₄ nanowires as the positive electrode. The device delivered a stable output voltage of 1.2 volts, maintained 88% of its capacitance retention even after 1,000 photo-charging cycles, and operated efficiently under varying sunlight conditions-from low indoor illumination to intense 2 sun intensity. This stability indicates that the nanowire structure can endure both mechanical and electrochemical stress over extended periods of use.

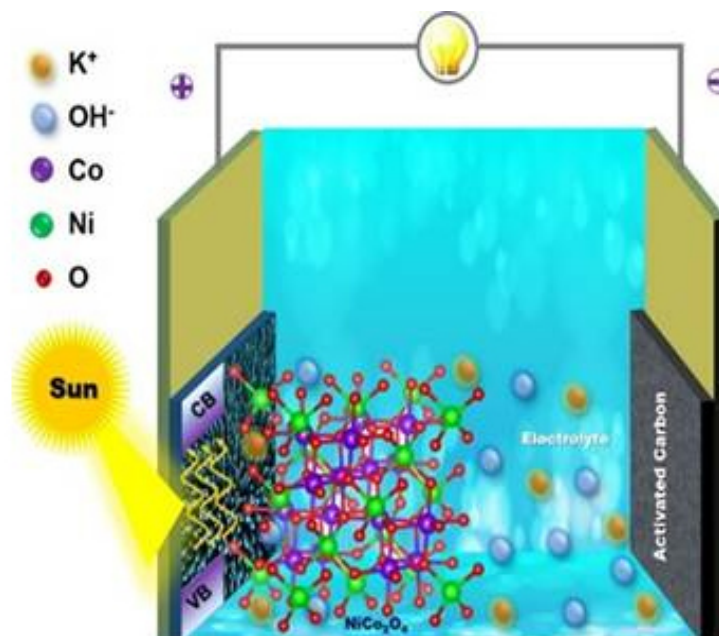


Fig. Schematic illustration of photo-rechargeable supercapacitor

By integrating sunlight harvesting and energy storage in a single device, the team developed self-charging power systems that can function anywhere even in remote regions without access to an electrical grid. Such technology can substantially reduce dependence on fossil fuels and conventional batteries, paving the way for a sustainable and green energy future. In addition to the experimental, theoretical study was carried out to understand why the NiCo₂O₄ nanowire system performs so efficiently.

This study revealed that nickel substitution in the cobalt oxide framework narrows the band gap to approximately 1.67 eV and induces half metallic behavior. This means the material behaves as a semiconductor for one type of electron spin while remaining metallic for the other: a rare dual property that enables faster charge transport and higher electrical conductivity. Such spin dependent conductivity is particularly valuable for photo-assisted charge storage applications.

Integrating sunlight capture and charge storage in a single architecture has been a long-standing goal in sustainable energy research. This study also demonstrates the synergy between experimental and theoretical insights in materials research. While experiments confirmed enhanced capacitance and durability, theoretical simulations revealed the atomic-level mechanisms driving these improvements. Together, they provide a comprehensive understanding of how nanostructured materials can be optimized for light-responsive energy storage.

This work, published in *Sustainable Energy & Fuels* (Royal Society of Chemistry Journal), introduces a new class of smart, photo-rechargeable energy storage devices. Overall, this research represents a paradigm shift in renewable energy storage. With further development, such systems could play a pivotal role in achieving India's clean energy ambitions and inspiring similar innovations worldwide.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2220804®=3&lang=1>

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Working towards first uncrewed mission for Gaganyaan programme: ISRO chief

Source: The Tribune, Dt. 01 Feb 2026

ISRO is working towards the first uncrewed mission of its ambitious Gaganyaan Mission scheduled for 2027, Chairman V Narayanan has said. The Gaganyaan mission is India's first human spaceflight programme currently under development. It aims to send a three-member crew on a three-day mission to space and bring them back safely to Earth.

"Gaganyaan programme is planned in 2027. Before that, three uncrewed missions are planned. We are working towards the first uncrewed mission," he told reporters late Friday. To a query, he said, currently scientists were engaged in conducting a lot of tests for the mission to achieve success.

"There are lots of tests happening. You know safety of the Gaganyatri is very, very important. So, we have to be very careful. We have to qualify every system. In the rocket system, we have to score one hundred out of one hundred," he said. "Our aim is that (success of Gaganyaan). We have to do a perfect job. We are working towards that," he said.

On the PSLV-C62 mission, which suffered an anomaly in the third stage of the rocket after lift-off on January 12, he said scientists were studying everything on the mission to put things in order. The PSLV-C62/EOS N1 suffered a setback after an anomaly was encountered on the third stage of the rocket and scientists have initiated a detailed analysis on the mission.

<https://www.tribuneindia.com/news/science-technology/working-towards-first-uncrewed-mission-for-gaganyaan-programme-isro-chief/>

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IIT-Kanpur team develops new way to predict solar cycles

Source: The Hindu, Dt. 01 Feb 2026

The sun is a giant magnetic ball that goes through roughly 11-year cycles of activity that drive solar flares and space weather that can disrupt satellites and power grids on the earth. But predicting the strength and timing of these cycles has been difficult because scientists can't see the magnetic fields deep inside the sun, where the activity originates.

In a January 20 study in *Astrophysical Journal Letters*, PhD student Soumyadeep Chatterjee and assistant professor Gopal Hazra at IIT-Kanpur reported reconstructing the invisible magnetic fields inside the sun using 30 years of data collected from the surface.

For decades, solar physicists have used computer simulations called dynamo models to understand how the sun generates its magnetic field. Traditionally, these models relied on simplified theoretical rules to represent sunspots. For example, previous models often treated sunspots as simple, symmetrical circular patches even though real sunspots are messy and irregular. But such simplifications often led to inaccurate predictions.

The duo, instead of relying on theoretical shapes, fed their 3D computer model real observations of the sun's surface field. They used data recorded between 1996 and 2025 by satellites like SOHO and the Solar Dynamics Observatory. By forcing the model to align with observations from the surface, they could estimate what the magnetic fields deep inside the sun must be doing.

The data-driven model could reproduce the ‘butterfly diagram’, a chart visualising how sunspots migrate from the sun’s high latitudes towards the equator over a cycle. It also revealed the behaviour of the toroidal magnetic field within the sun’s convection zone. This field wraps around the sun like a doughnut and is the primary driver of sunspots. The researchers found their simulated internal field matched the actual intensity of cycles 23, 24, and 25.

They also tested the model’s predictive capability by stopping the data feed at various points to see if it could forecast what happened next. It could accurately predict the peak amplitude of a cycle up to three years in advance. So by monitoring the surface magnetic fields today, scientists can get a reliable warning of how active the sun will be later.

“Our findings on one hand strengthen our physics understanding of the generation of solar magnetic fields and on the other ... predict when the sun will be active, violent, and very dangerous for space-borne technological assets and communications,” Dr. Hazra told The Hindu.

<https://www.thehindu.com/sci-tech/science/iit-kanpur-team-develops-new-way-to-predict-solar-cycles/article70564352.ece>

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The Tribune
The Statesman
ਪੰਜਾਬ ਕੇਸਰੀ ਜਨਸੱਤਾ
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The Economic Times
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The Indian Express
The Times of India
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