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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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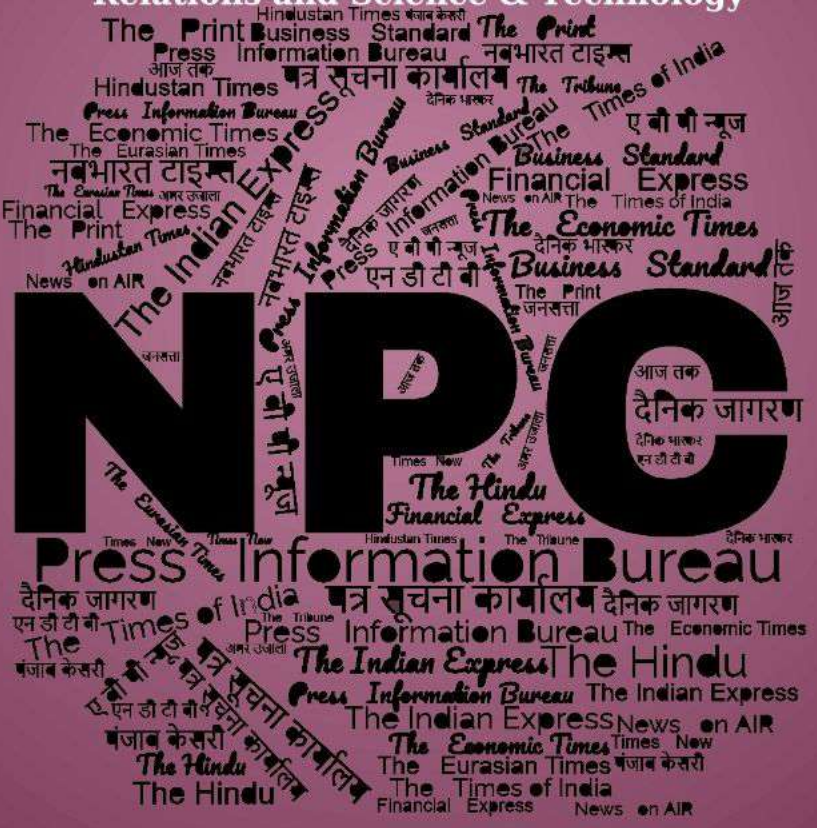

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DRDO News

Defence panel recommends DRDO, PSU, private sector collaboration for IAF's Atmanirbharta

Source: Economic Times , Dt. 04 March 2025,
URL: https://economictimes.indiatimes.com/news/defence/defence-panel-recommends-drdo-psu-private-sector-collaboration-for-iafs-atmanirbharta/articleshow/118690645.cms?from=mdr

An empowered committee tasked with suggesting steps to enhance capacity of the Indian Air Force has recommended that the private sector work closely with public sector units and Defence Research and Development Organisation (DRDO) to meet the goal of 'Atmanirbharta'.
They added that the report underscores the need for the private sector complementing the effort of DPSUs and DRDO. The special committee was formed under the direction of Singh, who had instructed that a clear plan of action must be prepared.

Records show current strength of 31 fighter jet squadrons is the lowest that India has had since 1965, when a war was fought with Pakistan.

Officials said Singh has directed that the recommendations should now be followed up in a time-bound manner. As reported, the committee was tasked to look at current trends, requirements projected over the years and ongoing procurement cases for modernisation.

Records show current strength of 31 fighter jet squadrons is the lowest that India has had since 1965, when a war was fought with Pakistan. This number steadily increased after the 1965 war and

peaked at 41 squadrons in 1996. As the aircraft profile changed, the strength dipped to 35 in 2013 and since then it has gone steadily down.

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Defence News

Defence Strategic: National/International

INDIAN NAVY'S MOTOR CAR RALLY ON EAST COAST FLAGGED OFF FROM KOLKATA

Source: Press Information Bureau, Dt. 04 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107879

Indian Navy's Motor Car Rally Expedition on the East Coast was flagged off by Naval Officer-in-Charge (West Bengal), from **INS Netaji, Kolkata** on **03 Mar 25**. This Motor Car Rally, aimed at enhancing maritime awareness and engaging with youth and civil society, will travel from Kolkata to Chennai, continue to Kanyakumari, and return to Chennai on **21 Mar 25**. The initiative also seeks to spread awareness about career opportunities in the Indian Navy, including the ***Agnipath* Scheme**. The rally will feature visits to various schools and colleges, inspiring young men and women to join the Navy. It will also promote the Government of India's women empowerment initiative – ***Naari Shakti***. The rally team will also engage with Naval Veterans and *Veer Naaris* by updating them on the latest policy initiatives by the Government of India and the Indian Navy for their welfare.

A total of **56** Indian Naval personnel, including Officers, Sailors, and family members, are participating in this expedition, covering an approximate distance of **3,800 km**. The rally will traverse through the coastal states of West Bengal, Odisha, Andhra Pradesh and Tamil Nadu, engaging with local communities en route.

The event, supported by **M/s Hyundai Ltd**, will also explore India's rich maritime heritage, visiting historical naval sites and key locations along the ancient maritime trade routes.

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Defence Secretary presents report of the Empowered Committee to Raksha Mantri for Capability Enhancement of IAF

DRDO, DPSUs & private sector to work together to achieve the desired goal with enhanced 'Aatmanirbharta'

Source: Press Information Bureau, Dt. 04 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107847

Defence Secretary Shri Rajesh Kumar Singh presented the report of the Empowered Committee for Capability Enhancement of the lndian Air Force (IAF) to Raksha Mantri Shri Rajnath Singh in New Delhi on March 03, 2025. The Committee has identified key thrust areas and made recommendations for implementation in the short, medium and long-term so as to achieve the desired capability enhancement goals of the lAF in an optimal manner.

The report also underscores the need for impetus to enhance 'Aatmanirbharta' in the Aerospace domain with the private sector complementing the effort of DPSUs and DRDO. Raksha Mantri appreciated the work of the Committee and directed that the recommendations one to be followed up in a time bound manner.

The Committee was formed on the directions of Raksha Mantri to holistically examine all issues and prepare a clear plan of action. It was chaired by the Defence Secretary with the Vice Chief of Air Staff, Secretary (Defence Production), Secretary, Department of Defence R&D and Chairman DRDO, DG Acquisition as members and Deputy Chief of the Air Staff as Member Secretary.

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INDIAN NAVY'S FIRST TRAINING SQUADRON REACHES PHUKET DEEP SEA PORT, THAILAND

Source: Press Information Bureau, Dt. 04 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107813

As part of the ongoing training deployment of the First Training Squadron (1TS) to South East Asia, **INS Shardul, INS Sujata and ICGS Veera** arrived at Phuket Deep Sea Port, Thailand on **01 Mar 25**. The ships were accorded a warm welcome by the Royal Thai Navy (RTN) amidst fanfare of the RTN band. Senior Officer, 1TS, Capt Anshul Kishore along with Commanding Officers of the ships called on Rear Admiral Suwat Donsakul, Commander, Third Naval Area Command. The discussions were centered on regional security, avenues for joint training exercises and goodwill activities.

A reception was hosted onboard 1TS for senior leadership of RTN, diplomats, and members of the Indian Diaspora. During the port call, the Indian Navy and the Royal Thai Navy will engage in a series of dynamic activities aimed at strengthening maritime cooperation and enhancing operational synergy. The visit includes professional interactions, yoga sessions, cross training visits, friendly sports fixtures, Naval band performance, and PASSEX.

The Indian Navy and Royal Thai Navy have maintained a close and friendly relationship, which has strengthened over the years. The visit reinforces better understanding and enhanced interoperability between the two Navies.

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National duty of every citizen to contribute to the welfare of soldiers & their families: Raksha Mantri at CSR Conclave

Source: Press Information Bureau, Dt. 04 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107711

Raksha Mantri Shri Rajnath Singh has called upon the people to contribute whole-heartedly to the welfare of the soldiers and their families, terming it as the national duty of every citizen. Addressing the Armed Forces Flag Day Corporate Social Responsibility (AFFD CSR) Conclave in New Delhi on March 03, 2025, he stated that India’s soldiers always stand firm, vigilant and ready at the borders in difficult conditions to protect the country from all kinds of threats with courage & promptness. While the Government is committed to strengthening India’s security apparatus and

ensuring the welfare of its soldiers & their families, it is the nation's collective responsibility to come forward and support them in every way possible, he said.

Shri Rajnath Singh asserted that CSR is not about 2% contribution, it is a matter of heart-to-heart connection with the brave soldiers and their dependants. "Whatever contribution you make, it will not be ordinary. You should take full care that tomorrow, when your real balance sheet is ready, it has more assets of satisfaction and happiness than liabilities," he told the top corporate heads present on the occasion.

Raksha Mantri reiterated Prime Minister Shri Narendra Modi-led Government's commitment to enhance the participation of the private sector, stating that the goal of *Aatmanirbhar* and *Viksit Bharat* can be achieved through the concerted efforts of all stakeholders. He exuded confidence that with the growing private sector participation, India will find a place among the top-three economies of the world by 2027. He commended the corporate houses for their generous contributions towards AFFD Fund and felicitated top CSR donors on the occasion.

The Department of Ex-Servicemen Welfare, Ministry of Defence has been working for the welfare and rehabilitation of war widows, wards of fallen soldiers and ex-servicemen, including disabled ones by providing financial assistance for their identified personal needs such as penury grant, children's education grant, funeral grant, medical grant and orphan/disabled children grant.

Contributions the AFFD Fund can be made through cheque/DD/NEFT/RTGS drawn in the following bank accounts:

S No	Bank Name & Address	Account Number	IFSC Code
1.	Punjab National Bank Sewa Bhawan, RK Puram New Delhi-110066	3083000100179875	PUNB0308300
2.	State Bank of India RK Puram New Delhi-110066	34420400623	SBIN0001076
3.	ICICI Bank IDA House, Sector-4, RK Puram New Delhi-110022	182401001380	ICIC0001824

Payment can also be made through the QR Code given below:

Raksha Rajya Mantri Shri Sanjay Seth, Chief of the Air Staff Air Chief Marshal AP Singh, Secretary (Ex-Servicemen Welfare) Dr Niten Chandra, other senior officials of MoD, members from the CSR fraternity and serving & retired personnel of the Armed Forces attended the conclave.

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Raksha Mantri meets Princess Astrid of Belgium & Defence Minister in New Delhi

Discusses the possibility of defence engagements in Indo-Pacific

Source: Press Information Bureau, Dt. 04 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107706

Raksha Mantri Shri Rajnath Singh held a meeting with Princess Astrid of Belgium and the Defence Minister Mr Theo Francken in New Delhi on March 03, 2025. Both sides discussed the possibility of defence engagements in the Indo-Pacific, particularly in maritime domain. They also discussed ways and means to enhance defence industrial cooperation between the two countries.

Raksha Mantri welcomed Belgian investments in the defence sector. He suggested that the Belgian companies could play an important role by expanding their footprint in India and integrating the Indian vendors in their supply chains. Further, both countries agreed to explore an institutionalised defence cooperation mechanism.

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Private sector to play a major role in development of India's fifth-generation AMCA fighter jet?

Source: The Week , Dt. 04 March 2025,
URL: https://www.theweek.in/news/defence/2025/03/03/private-sector-to-play-a-major-role-in-development-of-indias-fifth-generation-amca-fighter-jet.html

Even as Russia and the US have been trying to sell their fifth-generation fighter jets—Sukhoi Su-57 and F-35 respectively—to India, the defence ministry recently formed a panel to look into increasing the role of private sector players in the development of India's own fifth-gen Advanced Medium Combat Aircraft (AMCA).

According to a recent report by news agency ANI, the committee has been formed under Defence Secretary Rajesh Kumar Singh and will have members from the Indian Air Force (IAF) and Hindustan Aeronautics Limited (HAL), which is developing the twin-engine fighter for India.

The government is reportedly looking at different models of increasing private sector participation in the development of AMCA, including a possible joint venture between HAL and a private firm, defence officials said.

There is also the possibility of considering the private sector merely as a partner for design and development. Besides the state-run HAL, Tata Group has some experience in aircraft integration.

HAL is already outsourcing a major amount of work to the private sector in the development of jets.

The fifth-generation AMCA, which is expected to have a Mach 2 plus at top speed and a combat range of more than 1,600 km with a 6,500 kg fuel capacity, is likely to be inducted into service in the next 10 years. The fighter jet, according to Director General of the Aeronautical Development Agency (ADA) Jitendra Jadhav, will have sixth-generation technology embedded into it.

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Rajnath Singh makes an earnest plea to people to contribute generously for well-being of India's soldiers

Source: The Week, Dt. 03 March 2025,
URL: https://www.theweek.in/news/defence/2025/03/03/rajnath-singh-makes-an-earnest-plea-to-people-to-contribute-generously-for-well-being-of-indias-soldiers.html

India's soldiers always stand firm, vigilant and ready at the borders in difficult conditions to protect the country from all kinds of threats with courage and promptness, Defence Minister Rajnath Singh said even as he urged people to contribute generously to the welfare of the soldiers and their families.

Addressing the Armed Forces Flag Day Corporate Social Responsibility (AFFD CSR) Conclave in New Delhi on Monday, the defence minister said while the government is committed to strengthening India's security apparatus and ensuring the welfare of its soldiers and their families, it is the collective responsibility of the nation to support the soldiers in every way possible.

"Whatever contribution you make, it will not be ordinary. You should take full care that tomorrow, when your real balance sheet is ready, it has more assets of satisfaction and happiness than liabilities," Singh said.

In a release, the defence ministry stated that the Department of Ex-Servicemen Welfare has been working for the welfare and rehabilitation of war widows, wards of fallen soldiers and ex-servicemen, including those who are disabled, by providing financial assistance for their identified personal needs such as penury grant, children's education grant, funeral grant, medical grant and orphan/disabled children grant.

Further, the defence minister praised corporate houses for their generous contributions towards AFFD Fund.

Singh said he is confident that with increasing private sector participation in making the country self-reliant, India will find a place among the top-three economies of the world by 2027.

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Not just spending, share of defence in budget declined over past decade, shows PRS analysis

Source: The Print , Dt. 04 March 2025,
URL: https://theprint.in/defence/not-just-spending-share-of-defence-in-budget-declined-over-past-decade-shows-prs-analysis/2529267/

Funds earmarked for the Ministry of Defence (MoD) declined both as a share of the Centre's budget and GDP, according to an analysis of the demand for grants 2025-26 by PRS Legislative Research published last month. This, despite its allocation in the Union Budget being the largest across ministries at 13 percent of the government's total expenditure.

Besides the allocation towards the three defence services, the annual defence budget also includes expenditure on research and development (R&D) and border roads. It covers costs incurred on

salaries of armed forces personnel and civilians, pension, modernisation efforts, production establishments and R&D.

In the financial year (FY) 2025-26, the Centre allocated Rs 6,81,210 crore towards the MoD. Giving a comparison of previous year's budget, the report said, "In 2014-15, the Centre spent 17 percent of its total budget on defence which reduced to 13 percent as per the budget estimates of 2025-26."

According to the analysis by PRS, between 2013-14 and 2025-26, compared to an annual increase of 9 percent in defence spending, total central government expenditure increased at an annual rate of 10 percent.

Noting that funds allocated to the armed forces under revenue and capital heads were 20 percent lower than their projected needs between FY 2015-16 and FY 2024-25, PRS pointed out that allocations for the armed forces are based on projections submitted by them during the budget-making stage.

While the revenue budget refers to recurring expenses such as salaries and pensions, which are day-to-day expenses, the capital budget refers to long-term investments in the defence sector such as weapons and equipment procurement.

According to the report, the funds allocated to the armed forces between 2015-16 and 2024-25 were 20 percent lower than their projected needs. By comparison, in the past, the shortfall was higher for the capital budget than the revenue budget.

This was not true for 2023-24 and 2024-25, when the capital budget was in line with projections.

The report further observed that the share of MoD's budgeted expenditure spent on capital outlay declined. While this was 32 percent in 2013-2014 and less than 30 percent between 2014-15 and 2024-25, it is estimated to spend 28 percent in 2025-2026.

By contrast, in the case of the revenue budget, defence pension increased at an annual rate of 11 percent between 2013-2014 and 2025-2026. "This has been higher than the annual growth in total defence expenditure at 9 percent," the PRS report said.

As a result, report said, "a substantial share of the defence budget has been spent on pension". For 2025-2026, it is estimated that 24 percent of the total budget will be spent on pensions.

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Indian Air Force to Transform Into an Aerospace Force by 2047, Focus on Space, AI, and High-Tech Military Operations

Source: The Republic, Dt. 03 March 2025,
URL: https://www.republicworld.com/defence/indian-armed-forces/indian-air-force-to-transform-into-an-aerospace-force-by-2047-focus-on-space-ai-and-high-tech-military-operations

The Indian Air Force (IAF) has set its sights on a major transformation—becoming an aerospace power by 2047. At the Chanakya Dialogues Conclave, Air Chief Marshal AP Singh made it clear

that the IAF isn't just looking at fighter jets anymore. "We would like to be an aerospace power by 2047... We have already taken steps towards educating our people to be more space-oriented," he said.

This isn't just about flying high—it's about owning the skies and space. With warfare shifting towards advanced satellite-based intelligence, surveillance, and precision strikes, the IAF is preparing to dominate both air and space, ensuring India remains a force to reckon with.

What Does "Aerospace Power" Really Mean?

It's not just a buzzword. Aerospace power is about seamlessly integrating air and space operations —meaning fighter jets, long-range missiles, drones, and satellites working together to create a complete war-fighting ecosystem. The Air Chief explained that speed, reach, flexibility, and lethal precision are key to ensuring India's military stays ahead in the game.

This concept is already in action. The IAF maintains 24/7 operational readiness, with fighter jets, radars, and missile systems on constant alert. Any airspace violation is met with an immediate response. The rapid deployment of IAF paratroopers in the 1988 Maldives crisis was a prime example of how quickly air power can change the game.

From Gaganyaan to Ax-4: IAF's Big Role in Space

The IAF isn't just guarding the skies—it's going to space. The force has played a critical role in India's first manned space mission, Gaganyaan, training the four 'Gaganauts,' all of whom are IAF officers. The force also had a say in setting safety protocols for the mission.

Adding to this, Group Captain Shubhanshu Shukla has been selected as the prime astronaut for ISRO's Gaganyaan and Axiom Mission 4 (Ax-4), where he will fly alongside astronauts from NASA, ESA, and Hungary. This marks a significant moment—an IAF officer representing India in an international space mission.

What Will the IAF Look Like in 2047?

Air Chief Marshal Singh gave a glimpse of what's ahead:

- **Fleet upgrade:** By 2047, the IAF expects to have only 4.5-generation or higher aircraft, meaning that Rafale, upgraded Su-30s, and indigenous stealth fighters will dominate Indian skies.
- **Seamless warfare:** The IAF will be fully integrated with ground, naval, and space forces, ensuring real-time data sharing and coordinated strikes.
- **Automation and AI:** The force will use AI and automation to process battlefield data instantly, enabling quicker decision-making and strategic superiority.

The IAF is shifting gears from traditional air dominance to a full-spectrum aerospace force, ensuring that by 2047, India isn't just defending its airspace but dictating the future of warfare. With space-based operations, next-gen aircraft, and cutting-edge technology, the IAF is making sure India is not just a regional powerhouse, but a global aerospace leader.

As India gears up for its 100th year of independence, the Air Force is preparing for a future where wars aren't just fought in the skies—but beyond them.

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Science & Technology News

Hydrogen based fuel cells for uninterrupted power supply to telecom towers

Source: Press Information Bureau, Dt. 03 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107798

An innovative hydrogen fuel cell-based backup power solution for telecom towers, developed using a plug-and-play model can support national renewable energy goals while ensuring seamless connectivity for millions and promoting clean energy in the telecom sector.

India has more than a million telecom towers, with tens of thousands in remote areas, where maintaining 24/7 operations is challenging due to limited grid access. Traditionally, diesel generators have been used as backup power sources, but they are expensive and contribute significantly to carbon emissions.

A PEM (Proton Exchange Membrane) fuel cell is an efficient and clean energy solution for powering telecom towers, particularly as a backup during grid outages. These fuel cells provide reliable electricity with quick start-up times and operate at relatively low temperatures, making them a viable alternative to diesel generators.

PEM fuel cells (PEMFC) generate electricity with only water vapour as a by-product, offering an environmentally friendly solution with high power density in a compact size. They run on hydrogen fuel, which can be stored and transported for refuelling, and require significantly less maintenance than traditional backup power sources. The working principle involves an electrochemical reaction where hydrogen gas is fed into the anode, oxidized to release protons, which then travel through a polymer membrane to the cathode, where they react with oxygen to produce electricity and water.

In accordance with the global environmental demand, the Department of Telecommunications and the Telecom Regulatory Authority of India (TRAI) actively promote greener energy solutions. TRAI's 2012 directive mandates that at least 50% of rural telecom towers and 33% of urban towers transition to hybrid renewable energy sources. Integrating PEMFC with telecom towers aligns with this vision, offering a sustainable and efficient alternative to traditional backup systems.

The Centre for Fuel Cell Technology (CFCT) at the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous institute of Department of Science and Technology has developed an innovative fuel cell-based solution. A key feature of this project is the adoption of a plug-and-play model, ensuring easy handling and transport while eliminating security concerns, making the solution practical and adaptable for widespread deployment.

In a first-of-its-kind demonstration, ARCI showcased a mobile PEMFC-based backup power solution for telecom towers using a plug-and-play model.

Unlike fixed installations, this setup allows the power generation unit to be shared among multiple towers, providing backup power where needed. This would considerably facilitate telecom towers

to utilize shared back up power and be transported to locations where diesel generator setups are difficult to reach or maintain.

The demonstration was conducted at a telecom tower of a reputed service provider in the Pune Municipal Corporation limits, with Resicorre Technologies, Nashik, as the industrial partner. Resicorre Technologies Private Limited envisions green solution for the Indian society both in vehicular as well as stationary power backup sectors. The current demonstration is part of the sponsored project under the Advanced Hydrogen and Fuel Cell Call – 2021 by the Department of Science and Technology, India. The aim of the project was to establish a reliable fuel cell-based backup power solution that ensures a steady hydrogen supply and power resilience during outages.

With India's expanding digital infrastructure and growing focus on sustainability, fuel cell technology offers a promising solution for cleaner and more reliable telecom operations. This breakthrough is a game-changer in the telecom sector.

The successful deployment and demonstration of PEM Fuel Cells for the power supply to telecom tower shall promote the usage of clean energy for India's telecom sector, ensuring uninterrupted service while significantly reducing carbon footprints.

Figure: (Left) Telecom tower powered by mobile PEM Fuel Cell unit with the inset showing the current rating drawn from Fuel Cell at the Base Transceiver Station. (Right): The Fuel cell system along with the demonstration team.

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Dr. Jitendra Singh addressed the celebrations of India's National Science Day at the Indian Embassy at Tokyo in Japan

Dr. Singh dedicates year 2025-26 as the India-Japan Year of Science, Technology, and Innovation Exchange

Dr. Jitendra Singh traces the remarkable progress made since 2014 under the leadership of Prime Minister Narendra Modi, marking the beginning of a new chapter in Indo-Japan cooperation

Celebrating 40 Years of Indo-Japan Science & Technology Cooperation

A Landmark Shift in India-Japan Cooperation Under PM Modi's Leadership: S&T Minister Dr. Singh

India's Space Program: A Global Leader in Cost-Effective Innovation

Source: Press Information Bureau, Dt. 03 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107794

In a landmark initiative, Union Minister Dr. Jitendra Singh addressed the celebrations of India's National Science Day at the Indian Embassy at Tokyo in Japan.

Tracing the four decades of successful science and technology (S&T) collaboration between India and Japan, Dr. Jitendra Singh, Minister of State for Science and Technology, dedicated the year 2025-26 as the India-Japan Year of Science, Technology, and Innovation Exchange.

Dr. Jitendra Singh traced the remarkable progress made since 2014 under the leadership of Prime Minister Narendra Modi, marking the beginning of a new chapter in Indo-Japan cooperation. He highlighted the significant achievements since 2015, such as the selection of around 7,000 Indian science students by the Department of Science and Technology for the Sakura Science Program, which allowed them to visit Japan and gain exposure to cutting-edge scientific research.

This event marks a significant milestone in the ongoing S&T partnership between the two nations and sets the stage for further deepening collaboration in critical areas such as Artificial Intelligence (AI), Machine Learning, Quantum Technology, and Space.

Gracing the NSD celebrations virtually, Union Minister of State (Independent Charge) for Science and Technology, Minister of State (Independent Charge) for Earth Sciences, MoS PMO, Department of Atomic Energy and Department of Space and MoS Personnel, Public Grievances and Pensions, Dr. Jitendra Singh said "The Inter-Governmental Agreement between India and Japan has laid the foundation for numerous initiatives over the years, and this year marks a momentous 40 years of impactful partnership," emphasizing that the Indo-Japan S&T cooperation has been one of the most robust and enduring aspects of India's international S&T engagements.

Building on the strong foundation of this bilateral cooperation, Dr. Jitendra Singh announced that the 11th meeting of the Indo-Japan Joint S&T Committee is expected to be held in June 2025. The meeting will review ongoing collaborations and channel new initiatives to explore the full potential of S&T synergies between the two nations.

Highlighting the long-standing association, Dr. Singh pointed out that the Japan Society for the Promotion of Science (JSPS) has been instrumental in supporting more than 300 joint projects since 1993, with thousands of scientists from both countries engaging in exchange visits. Additionally, the partnership has facilitated numerous seminars, workshops, and collaborative initiatives in emerging fields like AI and Machine Learning.

“Together with Japan’s Science and Technology Agency (JST), we are pioneering joint programs focused on the future of technology. The collaboration between our two countries in these fields is key to addressing the global challenges of tomorrow,” Dr. Singh remarked.

Dr. Singh revealed that the future of India-Japan cooperation will see an increase in the exchange of students and researchers, with a particular focus on long-term stays, joint supervision, and internships in Japan. Special emphasis will be placed on nurturing talented women scientists. In a bid to further strengthen bilateral ties, the Department of Science and Technology (DST) has also invited Japanese science students for exposure visits to India. Last year, ten students and their two supervisors visited India as part of this initiative.

Celebrating India’s remarkable transformation over the past decade, Dr. Jitendra Singh shared that India has significantly improved its global position across various innovation benchmarks. India now ranks 3rd globally in research publications, PhDs, and start-ups, and is 9th in the quality of research publications. The nation has also risen to 3rd in terms of unicorns and 39th in the Global Innovation Index, a significant leap from its position of 80th in 2014.

Dr. Jitendra Singh also took pride in India’s space achievements, particularly highlighting the success of the Chandrayaan-3 mission, which marked the first soft landing on the south pole of the Moon. He noted that this achievement is not only a monumental success for India but for the entire world. “India’s space program is now among the strongest, most ambitious, and cost-effective in the world. Our 2017 achievement of launching 104 satellites in a single mission by ISRO is a world record,” he remarked.

Reaffirming the theme "Empowering Indian Youth for Global Leadership in Science & Innovation for Viksit Bharat," Dr. Jitendra Singh highlighted India’s unwavering commitment to creating a level playing field for women and young scientists, ensuring their active participation in the nation’s scientific and technological journey. He emphasized the importance of a multi-stakeholder approach, involving academia, research and development institutions, and entrepreneurs, to foster an inclusive ecosystem where talent from all corners of society can thrive.

In his address, Dr. Singh also touched upon India’s growing role in pioneering innovations in AI, quantum technology, cybersecurity, biotechnology, and vaccine production. He noted that India’s space sector is now open to private sector investments, unlocking new opportunities for collaboration with global players, including Japan.

In a bold move, Dr. Singh referred to the recent Union Budget announcement, which opened up the nuclear energy sector to non-government entities. He described this as an unprecedented step that will allow the creation of BharatSmall modular reactors (SMRs) in India, marking a new era in the country’s energy landscape.

Concluding his remarks, Dr. Jitendra Singh expressed his vision for a future of deepened scientific and technological engagement between India and Japan. With a focus on mutual benefits and shared growth, the next decade promises to bring even greater achievements in science, technology, and innovation, positioning both nations at the forefront of global progress.

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India's R&D Spending More Than Double in Last Decade, from Rs 60,196 cr in 2013-14 to ₹1.27 Lakh Crore: Dr. Jitendra Singh

Homegrown Innovations in AI, Biotechnology, and Quantum Computing to Shape India's Economic Future: Dr. Jitendra Singh

DISHA Program to Propel India's Knowledge Economy, Strengthening Atmanirbhar Bharat, says the Minister

AI-Driven Healthcare to Revolutionize Accessibility, But Human Expertise Remains Indispensable: Dr. Jitendra Singh

Young Innovators to Lead India's Tech Transformation Towards Global Leadership by 2047, Affirms the Minister

Source: Press Information Bureau, Dt. 03 March 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2107792

"India R&D spending (GERD) is double in last one decade during the government headed by Prime Minister Narendra Modi, from Rs 60,196 cr in 2013-14 to ₹1,27,381 cr and is shaping the future economy of India which will be defined by homegrown innovations in artificial intelligence, biotechnology, and quantum computing," Dr. Jitendra Singh said, underscoring the role of government-backed initiatives in catalyzing scientific advancements.

Speaking at the DISHA event at India Habitat Centre here, the Union Minister of State (Independent Charge) for Science and Technology; Earth Sciences and Minister of State for PMO, Department of Atomic Energy, Department of Space, Personnel, Public Grievances and Pensions highlighted the government's multi-pronged strategy to position India as a global leader in deep-tech innovation and commercialization.

Dr. Jitendra Singh reiterated that India is making significant strides in fostering an intellectual property (IP)-driven innovation ecosystem, with academia, industry, and startups playing a pivotal role. He noted that the government's emphasis on research and development (R&D) funding has led to India's Gross Expenditure on Research and Development (GERD) more than doubling in the last decade, from Rs 60,196 cr in 2013-14 to ₹1,27,381 cr. "The government is not only investing in research but also ensuring that these innovations are seamlessly transitioned from labs to industries, strengthening the foundation of Atmanirbhar Bharat," he added.

The DISHA Program, an initiative aimed at Developing Innovations, Successful Harnessing, and Adoption, is a step towards building a knowledge-based economy where research-driven solutions transform industries. The program is designed to support faculty members and students working on

disruptive technologies across disciplines, ensuring that India remains at the forefront of global innovation.

Dr. Jitendra Singh emphasized that initiatives like DISHA align with the Anusandhan National Research Foundation (ANRF), which seeks to create a unified research ecosystem bridging science, humanities, and social sciences. This integrated approach will empower Indian researchers to engage in cross-sectoral collaborations, pushing the boundaries of discovery and implementation.

One of the key highlights of Dr. Jitendra Singh's address was India's policy shift in allowing private sector participation in strategic fields such as space technology and nuclear research. "What was once solely the domain of government institutions is now open to private enterprises, enabling faster technological advancements, higher efficiency, and global competitiveness," he stated.

The space sector, in particular, has witnessed a surge in innovation, with startups actively contributing to satellite development, launch services, and space-based applications. The government's decision to open up the nuclear energy sector to private players is another transformative step aimed at leveraging indigenous expertise to drive energy security and sustainability.

Highlighting the transformative impact of artificial intelligence in healthcare, Dr. Jitendra Singh pointed out the success of AI-driven mobile telemedicine units in providing healthcare access to remote areas. "AI-powered diagnostics and telemedicine solutions are already redefining patient care, making high-quality healthcare services accessible and affordable for all," he noted.

However, he stressed the importance of maintaining a balance between AI and human expertise. "The role of AI is to complement human intelligence, not replace it. A hybrid approach will ensure that technology enhances, rather than diminishes, the role of skilled professionals in healthcare and other critical fields," he added.

With India set to complete 100 years of independence in 2047, Dr. Jitendra Singh urged young innovators to take the lead in shaping the country's technological future. "The responsibility of building a technologically advanced India lies with the next generation. What we invest in today will determine our standing in the global economy decades from now," he said.

As the government continues to invest in deep-tech research, skill development, and industry-academia collaboration, programs like DISHA will play a crucial role in making India an innovation powerhouse. The Minister's address reinforced the vision of an India that is not just a consumer of technology but a leading creator and exporter of cutting-edge solutions to the world.

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IInvenTiv-2025: India's young, brightest minds showcase future tech at IIT Madras

Source: The Week, Dt. 03 March 2025,
URL: https://www.theweek.in/news/sci-tech/2025/03/03/iinventiv-2025-indias-young-brightest-minds-showcase-future-tech-at-iit-madras.html

Interesting technology innovations from various fields, including defence, maritime and healthcare, were showcased at the IInvenTiv - 2025 at IIT Madras by premier technical institutes from across the country.

Besides, AI & advanced manufacturing technologies like 3D Printing and additive manufacturing were showcased to the industry with a view of converting lab research into real solutions.

For instance, the biotechnology sector featured contributions, particularly from SRM University, which showcased biosurfactants derived from glucose and biowaste, and a microbial pigment from Gram-positive bacteria, serving as a natural dye with antimicrobial and anti-cancer properties. NIT Arunachal Pradesh revealed herbal skincare solutions, including antibacterial and anti-cancer moisturisers and turmeric-infused lip balms.

Additive manufacturing was another major focus, with IIT Madras demonstrating laser powder bed fusion technology, with a key exhibit being a titanium alloy cranial implant. AI and robotics were also showcased. IIT Madras also presented RoBuoy, an autonomous underwater glider, and a multi-modal robotic research platform with walking and grasping capabilities. IIT Kanpur displayed a quadcopter drone with a gripper, showcasing AI-driven precision handling for industrial and defense applications.

Then there was IIT Gandhinagar's Lingo Lab that exhibited Ganga, a ChatGPT-style AI model for Indian languages, now available in Hindi and English, with Telugu and Tamil versions in progress. Representatives from IIT Delhi revealed next-generation human-machine interfaces using ultrasound, a leap in biomechatronics.

Environmental remediation developments were also part of the fest. IISER Kolkata exhibited a water toxin sensor chip, enabling real-time water safety monitoring. NIT Trichy revealed an innovative carbon dioxide-to-methanol conversion process, achieving 16 per cent efficiency in a single pass, offering promise in carbon capture and sustainable fuel production.

Another interesting aspect of the technology showcased was sustainable construction. IIT Bombay exhibited polymer composite coatings, derived from industrial waste, which enhance soundproofing, thermal insulation, and corrosion resistance. IIT Delhi showcased LC3, a blend of limestone, calcined clay, gypsum, and cement, which reduces CO_2 emissions by 40 per cent while maintaining strength and cost-effectiveness. IIT Dharwad exhibited 3D concrete printing techniques, which significantly reduce material waste and enhance construction efficiency. NIT Silchar and IIT Tirupati showcased geopolymer and fly ash incorporated bricks, a low-carbon alternative to conventional concrete bricks.

In the healthcare space, IIT Madras incubated Hemosync's showcased a non-invasive hemoglobin and vital monitoring device, while another research team exhibited an edible, real-time breath sensor made from rice starch, aloe vera, and ginger, offering a safe and innovative health-tracking solution.

In addition to that the Chintan Shivir panel discussions at IInvenTiv 2025 explored key advancements in sustainability, healthcare, marine technologies, additive manufacturing, AI/ML, rural technologies, and aerospace innovation. The session on circularity and sustainability addressed challenges in renewable energy, resource efficiency, and carbon neutrality.

Experts highlighted the long road to EV sustainability, emphasising emissions from battery production, grid power reliance, and end-of-life concerns. Discussions also focused on circular economy models, advocating for return, reuse, and recycling strategies to minimise waste.

The need for alternative hydrogen generation methods and groundwater conservation was underscored as key to achieving sustainable energy transitions. The healthcare panel examined barriers to translating research into real-world applications. Experts stressed the need for structured regulatory frameworks, industry-academia collaboration, and investment support. The lack of an FDA-equivalent in India remains a key challenge, leading to IP transfers overseas.

Additive manufacturing discussions highlighted innovations in 3D printing for industrial, medical, and construction applications, showcasing its role in cost-effective and sustainable production. The AI/ML panel explored applications in automation, predictive analytics, and ethical AI deployment. The rural technologies panel focused on affordable solutions for agriculture, water management, and decentralized energy systems.

The marine technologies panel, featuring government, industry, and academic experts, covered ocean technology missions, shipbuilding concerns, automation, and eco-friendly fuels. Aviation, defence, and space experts emphasised the need for indigenous innovation and supply chain resilience.

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ISRO releases second set of scientific data from Aditya-L1 mission

Source: ISRO website, Dt. 03 March 2025,

URL : https://www.isro.gov.in/Second_Set_of_Aditya_L1_Science_Data.html

ISRO releases the second set of the scientific data from the Aditya-L1 mission on 14 February 2025. The data sets comprise valuable scientific information about the Sun's Photosphere, Chromosphere and its outer atmosphere (Corona) along with the in-situ particles and magnetic field measurements at first Earth-Sun Lagrange Point L1.

The Aditya L1 datasets will be accessible from the website of the Indian Space Science Data Centre (ISSDC) portal. To access the Aditya-L1 data via ISSDC website, one has to visit https://www.issdc.gov.in/adityal1.html , navigate to data download section. Data may be accessed directly on PRADAN portal links https://pradan.issdc.gov.in/al1 or https://pradan1.issdc.gov.in/al1 . ISRO encourages the community of researchers and students to utilise these datasets. The user manuals to analyse Aditya-L1 payload data are also available on the above web address after registration.

The maiden data sets from Aditya-L1 were released by ISRO on 6 January 2025, and a national meet was organised. Aditya-L1, at present, is observing the Sun during its third revolution in the Halo orbit around L1.

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NASA, SpaceX Update Launch Date for SPHEREx, PUNCH Missions

Source: NASA website, Dt. 03 March 2025,

URL : https://blogs.nasa.gov/spherex/2025/03/03/nasa-spacex-update-launch-date-for-spherex-punch-missions/

NASA and SpaceX now are targeting no earlier than Thursday, March 6, for the launch of the agency's SPHEREx and PUNCH missions. The additional time will allow teams to complete vehicle processing and prelaunch checkouts.

The launch window opens at 10:09 p.m. EST (7:09 p.m. PST) from Space Launch Complex 4 East (SLC-4E) at Vandenberg Space Force Base in California.

The SPHEREx mission (Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer) will improve our understanding of what happened in the first second after the big bang and search for key ingredients for life in our galaxy. The PUNCH mission (Polarimeter to Unify the Corona and Heliosphere) will observe the Sun's corona as it transitions into the solar wind.

Technicians and engineers encapsulate NASA's SPHEREx (Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer) observatory and PUNCH (Polarimeter to Unify the Corona and Heliosphere) satellites within a protective payload fairing inside the Astrotech Space Operations facility at Vandenberg Space Force Base in California, on Thursday, Feb. 27, 2025.

The prelaunch news briefing now is scheduled for 3:30 p.m. on Wednesday, March 5, with coverage streaming live on NASA+. Media may ask questions via phone. For the dial-in number and passcode, media should contact the Kennedy newsroom no later than one hour before the start of the event at ksc-newsroom@mail.nasa.gov.

The SPHEREx and PUNCH live launch broadcast will begin at 9:15 p.m., Thursday, March 6, and stream live on NASA+.

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World Health Organisation identifies encephelitis as public health priority

Source: News Nine, Dt. 03 March 2025,

URL : https://www.isro.gov.in/Second_Set_of_Aditya_L1_Science_Data.html

Encephelitis is a dibilating brain condition that can be caused by infection of the tissue or by autoimmune reactions. Both infectious and autoimmune encephelitis have been identified as an increasing global threat. The World Heatlh Organisation (WHO) and Encephelitis International have released a technical brief identifying encephelitis as and urgent public health priority. The brain infection is often deadly, and can affect anyone regardless of age, sex or ethnicity. The neurological consequences can be severe, including permanent injury to the brain. Different forms of encephelitis are more common in different parts of the world. In india, Scrub Typhus is the more prevalent form.

Chief Executive of Encephalitis International, Ava Easton says, “Encephalitis is an increasing global threat. Without urgent attention and investment we will see more needless death and disability from the condition. The WHO’s recognition of encephalitis as a growing global threat marks a pivotal moment. We must act decisively to improve prevention, diagnosis, and care for those affected. Encephalitis disproportionately affects individuals in low-to-middle-income countries (LMIC), where healthcare resources are often limited. To support the implementation of the technical brief’s recommendations, Encephalitis International has launched the “Countdown to Change” pilot appeal. Donations will fund initiatives to improve diagnostics, treatment, and aftercare for those affected globally.”

Technical brief findings

The report identifies encephelitis as an under-recognised global health challenge. The disease has a substantial mortality and impact on the economy, that is not fully understood. The challenges are compounded by high population densities in low-resource settings, encroachment exposing humans to wild populations, vaccine hesitancy, intensive farming practices, and climate change. Viral outbreaks are emerging and re-emerging, which is also contributing to the spike in autoimmune encephelitis cases. Vaccination strategies, robust surveillance systems and fortifying healthcare systems. Public awareness and education also plays a crucial role in reducing the impact of encephelitis.

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