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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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DRDO News

DRDO's MALE UAV Archer-NG to take first sortie next month; weaponised version expected in 3 years

Source: Asianet News, Dt. 10 Feb 2025,
URL: https://newsable.asianetnews.com/india/drdo-s-male-uav-archer-ng-to-take-first-sortie-next-month-weaponised-version-expected-in-3-years-ddr-srgyho

Defence Research and Development Organisation (DRDO) is waiting for clearance certification for its advanced Medium Altitude Long Endurance (MALE) unmanned aerial vehicle (UAV) Archer-NG (Next Generation) to conduct the first flight. It is expected that the UAV will take first sortie next month. The weaponised version will take another three years to be completed.

Designed and developed for a number of roles, including surveillance and combat, the Archer-NG has completed the taxi trials, recently.

Asianet Newsable spoke to Archer-NG's Project Director Vivek Kumar Patwey to understand about the platform's capabilities.

"Archer NG is our indigenously developed UAV (Unmanned Aerial Vehicle), a MALE (medium altitude long endurance) class UAV. Its main role is ISR (Intelligence Surveillance Reconnaissance). Other than surveillance purposes, it can be used for strike purposes."

"It can carry 300-kg of weapons and also it is a cheaper and optimised version. It is a single engine version which is also called Single Engine Twin Boom (STEB). It is a weaponized UAV and can carry a plethora of payloads, including electro optics payloads, radar payloads and situational awareness payloads."

"It can conduct the mission day and night, and also all weather. It has a very deep penetration role, it can work network centric, it can also be manned and unmanned teaming and can accomplish the mission," Vivek Kumar Patwey said.

"The range is beyond sight, we call it 1000-km, the altitude is 30,000-feet and endurance are up-to 34-hour. But normally we call it 24-hour with electro optics payloads."

"It is in a very advanced stage of development. We are already conducting taxi trials and very soon we will be going for the first flight trial as we are waiting for certification clearance."

"The final version with the weapon and other things will take another 3 years."

"If we compare it to other UAVs, it is very close to Hermes. Heron Mk2 and MQ-9B are above it," he said.

"The Indian Air Force is working together with us, providing requirements, and based on that, we have been able to develop this world-class platform," Patwey added.

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350 cutting edge technologies displayed in Aero India: DRDO Director General

Source: MSN, Dt. 10 Feb 2025,
URL: https://www.msn.com/en-xl/news/other/350-cutting-edge-technologies-displayed-in-aero-india-drdo-director-general/ar-AA1yLu6A

Bengaluru (Karnataka) [India], February 10 (ANI): Defence Research and Development Organisation (DRDO) Director General (Electronics and Communication Systems) BK Das on Monday said that nearly 350 "cutting edge" technologies are exhibiting at the Aero India event.

"Today, in this Aero India, we have showcased at least nearly 350 such technologies across the defence technology roadmap. Most of them have either fully matured or almost matured and are ready to be injected into the complete system," Das told ANI.

He said that the DRDO laboratories have been mandated to identify a set of technologies as the research and development organisation was poised to develop the next generation systems.

"DRDO is poised to develop the next generation systems through the cutting edge technologies. To do that every lab of DRDO has been mandated to identify a set of technologies and with those technologies, we are realising the systems," Das added.

He said that the race for making more high-tech engines for fighter aircraft was ongoing.

"Having said that, it is not that India cannot do it (make engines). STFE engine is already an offshoot of the Kaveri engine that has been integrated with our missiles and it is flying. However, the race for making more high-tech engines for the fighter aircraft is going on," Das said.

Meanwhile, DRDO Director General (Armament & Combat Engineering Systems) Prateek Kishore said that European countries indulged in discussions for the Pinaka multi-barrel rocket launcher (MBRL).

"Pinaka in its own class is one of the best systems and accordingly, a lot of European countries also have started now showing interest in the weapon system and discussions are going on as per the procedure. We are very sure that we will have a positive output of that," Kishore told ANI.

Defence Minister Rajnath Singh on Monday said that strengthening domestic defence manufacturing is going to be a major growth pillar for the Indian economy to facilitate the transition from a developing to a developed country by 2047.

Singh said this while addressing the CEO's roundtable conference at Aero India 2025. The Defence Minister asserted that there is a "continuous involvement of the government at every stage" of the defence industrial system.

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Defence News

Defence Strategic: National/International

Raksha Mantri Shri Rajnath Singh inaugurates India, iDEX & Karnataka Pavilions at Aero India 2025 in Bengaluru

Source: Press Information Bureau, Dt. 10 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101326

Raksha Mantri Shri Rajnath Singh inaugurated the India, iDEX and Karnataka Pavilions at Aero India 2025 in Bengaluru, Karnataka on February 10, 2025. The India Pavilion is showcasing the design, development, innovation and manufacturing capabilities of the domestic defence industries through state-of-the-art products and technologies.

It signifies the 'Flight of Self-Reliance' which encapsulates synergy among the three Services and the space sector and India's journey towards becoming a global aerospace and defence powerhouse. After the inauguration, Raksha Mantri visited various stalls set-up in the pavilion and interacted with the representatives of the companies, inspecting their products.

At the India Pavilion, more than 275 exhibits are being displayed through various mediums, represented by complete defence ecosystem of the country including Defence PSUs, design houses and private companies including MSMEs and start-ups. The exhibits at the Central Area include a striking display of marquee platforms including Advanced Medium Combat Aircraft, Combat Air Teaming System and Twin-Engine Deck-Based Fighter.

At the iDEX Pavilion, leading innovators are displaying indigenously-developed products spanning a wide range of advanced domains including Aerospace, DefSpace, Aero Structures, Anti-drone systems, Autonomous Systems, Robotics, Communication, Cybersecurity, Surveillance & Tracking, Unmanned Ground Vehicles etc. The Pavilion is also featuring a dedicated section highlighting the winners of the ADITI (Acing Development of Innovative Technologies with iDEX) scheme, showcasing their ground-breaking works in critical and niche technologies.

Raksha Mantri unveiled three publications - iDEX Report 2024, iDEX Coffee Table Book and iDEX Finance Manual on the occasion. The iDEX Report and Coffee Table Book highlight the key milestones of the defence innovation ecosystem, celebrating the contributions of innovators & stakeholders. The iDEX Finance Manual simplifies the existing finance procedures to enhance the pace of projects, and facilitate ease of doing innovation for the iDEX winners.

The Karnataka Pavilion is showcasing cutting-edge technologies from the defence and aerospace industries from the state. These innovations highlight Karnataka's robust ecosystem in defence and

aerospace, supported by over 2,000 SMEs. Deputy Chief Minister of Karnataka Shri DK Shiva Kumar was present on the occasion.

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Aero India is the Kumbh of research: Rajnath Singh

Source: The Hindu, Dt. 10 Feb 2025,
URL: https://www.thehindu.com/news/national/rajnath-singh-inaugurates-aero-india-2025-says-by-being-strong-we-can-work-for-better-world-order/article69201753.ece

Speaking at the inaugural ceremony of the 15th edition of Aero India, at the Air Force Station in Yelahanka, Bengaluru, on February 10, Mr Singh said, "While Maha Kumbh is the Kumbh of introspection, Aero India is the Kumbh of research. While Maha Kumbh is focusing on internal strength, Aero India will centre on external strength. While Maha Kumbh showcases the culture of India, Aero India will display the power of India."

Aerial prowess

He added that this edition of Asia's biggest aerospace and defence exhibition will showcase, over the next five days, India's aerial prowess and indigenous cutting-edge innovations alongside state-of-the-art products of global aerospace companies.

"Aero India 2025, a confluence of critical and frontier technologies, will provide a platform to further strengthen relations among like-minded countries based on mutual respect, mutual interest and mutual benefit to deal with today's uncertainties," he said.

The Defence Minister said that between the last edition of the Aero India and now, India has come up with many high-tech products such as Astra Missile, New Generation Akash Missile, Autonomous Underwater Vehicle, Unmanned Surface Vessel, Pinaka Guided Rocket, which are being manufactured within the country.

He assured that the government will resolve to surpass the ₹1.27 lakh crore defence production and ₹21,000 crore defence exports figures in the coming times, and ensure that the defence sector moves ahead at an unprecedented pace.

The allocation of ₹6.81 lakh crore to the Ministry of Defence in Union Budget 2025-26, including ₹ 1.80 lakh crore for capital acquisition, is proof that the government considers defence as a top-priority sector.

The Surya Kiran Aerobatic Team performs during the inauguration of #AeroIndia2025 at Yelahanka Air Force Station, in #Bengaluru on Feb 10.

The event will see the participation of over 900 exhibitors, including 150 foreign companies.

Peace and prospertity

In the present environment of global uncertainty, India is one such big country which is witnessing peace and prosperity. "India has never attacked any country nor has it been involved in any great

power rivalry. We have always been an advocate of peace and stability. It is part of our fundamental ideals," he said.

LCA Tejas supply as originally planned from 2025-26: Secretary Defence ProductionKarnataka Deputy Chief Minister D.K. Shivakumar appealed to the Defence Minister to consider and give incentives to manufacturers of aircraft and helicopters to set up their industry in Karnataka and in India.

"Karnataka, particularly Bengaluru, boasts some of the best talent in the aerospace industry, making it an ideal location to establish aircraft and helicopter manufacturing facilities. By offering incentives to manufacturers, we could retain this talent within India, prevent brain drain," Mr. Shivakumar said.

He added that Karnataka plays a crucial role in India's aerospace sector, contributing 67% of the country's aircraft and helicopter manufacturing for defence services, and 65% of India's aerospace-related exports.

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Self-reliance push drives Indian defence industry: Rajnath Singh

Source: The Hindu, Dt. 11 Feb 2025,
URL: https://www.thehindu.com/news/national/indian-defence-ecosystem-driven-by-policies-of-self-reliance-in-defence-production-rajnath-tells-global-ceos/article69203334.ece

Stating that the Indian defence ecosystem is driven by policies of self-reliance in defence production, facilitated by a conducive policy regime, Defence Minister Rajnath Singh on Monday (February 10, 2025) asked Chief Executive Officers (CEOs) of global defence companies to utilise the opportunities offered by the domestic defence ecosystem.

Listing out measures taken in this regard, he said the portal, Defence Exim, had made the export authorisation process seamless and 46 joint ventures and companies were given foreign investment approval in the defence sector till date.

Mr. Singh was addressing a "CEO Round Table" at Aero India 2025 with the theme "Enabling Defence Cooperation through Global Engagement" (EDGE), which saw Original Equipment Manufacturers (OEMs) from 19 countries, including 35 Indian private companies and 16 defence public sector undertakings.

Elaborating on steps taken by the government to "make the domestic defence industry an important component" of the national economy in order to facilitate India's transition from a developing to a developed country by 2047, the Minister said, "We have allowed FDI up to 75% through the Automatic Route for companies seeking new defence licence, while 100% is allowed under government approval route."

Mr. Singh told the audience that more than 250 MoUs were signed for the establishment of industrial units in the Defence Industrial Corridors set up in Uttar Pradesh and Tamil Nadu. The Defence Testing Infrastructure Scheme was introduced to provide financial assistance to the aerospace and defence sector for setting up six-eight greenfield testing and certification facilities.

As a testimony to the emergence of India as a defence export nucleus, India has seen 31-fold growth "in the export of products in the last 10 years as compared to Financial Year 2013-14", he said.

He further said over 500 start-ups and micro, small and medium enterprises (MSMEs) were working under the aegis of Innovations for Defence Excellence (iDEX), with focus on innovative projects in defence sector.

"Our overall ease-of-doing-business environment has improved tremendously. This is showing great results as India has the third largest start-up ecosystem in the world today. This is expected to witness Year on Year growth of 10-12%. We possess a young generation of highly-skilled workforce, which constantly updates itself in the face of the fast-changing ecosystem of the world. You must not miss the opportunity to leverage the advantages of this ecosystem," Mr. Singh added.

The nature of communication and data sharing in military operations is getting much more complex, the Minister said, adding that reliance on space-based navigation systems, communication and surveillance implies that such assets would have to be integrated into operational plans.

"The use of drones in recent conflicts indicates that the future would depend on the integrated efforts of manned, unmanned and autonomous warfare systems. Hence, our defence manufacturing has to focus on creating counter measures for these emerging challenges," he stated.

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HAL's Hindustan Jet Trainer-36 is now Yashas

Source: The New Indian Express, Dt. 11 Feb 2025,
URL: https://www.newindianexpress.com/states/karnataka/2025/Feb/11/hals-hindustan-jet-trainer-36-is-now-yashas

Hindustan Aeronautics Limited (HAL) Chairman and Managing Director Dr DK Sunil on Monday said that they were working on developing the upgraded training aircraft — Yashas — renamed and upgraded version of Hindustan Jet Trainer (HJT)-36- Sitara — for the Indian Air Force (IAF).

"They are talking of four initially we have prepared two. Certification for two more is needed. The Bengaluru AST can be used for testing of the aircraft," he told TNIE.

Elaborating, Dr Sunil said that it has risen like a phoenix, and it is an important one for the IAF.

Group Captain and trainer A Menon said that this is the best trainer aircraft in the world under the stage-2 aircraft category. With the turbo-cop, this will replace the Kiran and jet trainers. So after training in this, pilots need not go from aircraft to aircraft. This has auto and voice control panels, and the entire cockpit is made of glass.

Explaining the features, Dr Sunil said that trials of spin, sea level, crosswind, stall, and spin have been done, and partial weapon trials have also been done. HAL has worked on this for the last 8-9 years. Extensive changes have been done inside the cockpit and on the outer design, and all old issues have been addressed. The aircraft is now with a new look and a new cockpit for training.

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India, U.K. announce several defence agreements, U.K. sets up dedicated cell in its MoD focussed on India

Source: The Hindu, Dt. 10 Feb 2025,
URL: https://www.thehindu.com/news/national/india-uk-announce-several-defence-agreements-uk-sets-up-dedicated-cell-in-its-mod-focussed-on-india/article69203574.ece

The United Kingdom on Monday (February 10, 2025) announced the formal launch of "Defence Partnership–India", or DP-I, a dedicated cell within the U.K. Ministry of Defence for deepening cooperation with India. The Aero India also saw several defence cooperation agreements between India and the U.K., which covered production of Man Portable Air Defence Systems (MANPADS) and Lightweight Multirole Missiles (LMM), as well as establishment of an Advanced Short-Range Air to Air Missile (ASRAAM) assembly and test facility in India. A Statement of Intent (SoI) was also signed to design and develop an Integrated Full Electric Propulsion (IFEP) system for Indian Navy ships.

U.K. Defence Minister Lord Vernon Coaker announced the DP-I while opening the U.K.-India Defence Partnership pavilion at Aero India, and the dedicated programme office within the U.K.'s Ministry of Defence will serve as a one-stop shop for strengthening bilateral defence collaboration, the U.K. High Commission said in a statement. Thales U.K. and Bharat Dynamics Limited (BDL) signed a contract that will deliver Laser Beam-Riding MANPADs (LBRMs), with an initial supply of STARStreak high-velocity missiles and launchers set for delivery this year.

In another development, following the signing of this initial LBRM contract, both Thales and BDL will further collaborate to produce LMMs, the statement said. This "develops and expands the partnership between Indian and British industry, laying the foundation for BDL and Indian industry to form an integral part of Thales' global supply chain", it stated. "It will address mutual security concerns, create jobs in both countries and enable interoperability by both armies."

The statement further announced that MBDA U.K. and BDL were working on the installation of a first-of-its-kind ASRAAM assembly and test facility in Hyderabad, for missiles that would be carried by the Jaguar and Light Combat Aircraft-Mk1A. Officials said that the missiles would be manufactured here for export too. On the maritime front, the event saw a SoI to design and develop an IFEP system for the Navy's next generation Landing Platform Dock (LPD) fleet. Meanwhile, the General Electric (GE) Vernova and Bharat Heavy Electricals Limited (BHEL) are working to develop India's first maritime Land-Based Testing Facility to deliver LPDs in the water by 2030, the statement added.

India is taking significant steps in its journey to become Atmanirbhar (self-reliant) in its defence capabilities, Lindy Cameron, British High Commissioner said. “The U.K. is really looking forward to working with India as a partner of choice in supporting this ambition: collaborating on defence technologies lies at the heart of this. These are landmark agreements that support our economic growth and joint security.”

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Aero India 2025: Stealth aircraft from Russia and U.S. showcase their aerial capabilities

Source: The Hindu, Dt. 11 Feb 2025,
URL: https://www.thehindu.com/news/cities/bangalore/aero-india-2025-russia-and-us-showcase-their-stealth-capabilities/article69202533.ece

Delegates and business visitors witnessed a scintillating display of two of the most advanced fifth generation fighter aircraft on the inaugural day of Aero India 2025.

Russian Su-57

At 2.30 p.m. the Russian Su-57, which is making its debut at the airshow, took off from the tarmac of the Air Force Station Yelahanka and for next few minutes Sukhoi’s chief test pilot Sergey Bogdan performed a series of manoeuvres showcasing the unique aerial capabilities of the stealth aircraft.

The Su-57, developed by Sukhoi Design Bureau is Russia’s first operational stealth fighter with supersonic cruising speeds, advanced sensor integration, and a wide range of weapons. It can be recalled that India was part of the joint Fifth Generation Fighter Aircraft (FGFA) programme with Russia before withdrawing in 2018.

US’s F-35 Lightning II

Minutes after the Russian fifth generation fighter landed, the US’s F-35 Lightning II took to the skies to demonstrate its capabilities. After performing some of its signature manoeuvres, the aircraft landed. Though the F-35 Lightning II which is developed by Lockheed Martin had confirmed its participation in the airshow, it was unclear whether it would be part of the flight demonstration.

This is the second time the US stealth aircraft is taking part in the Aero India. The F-35A Lightning II is the newest fifth-generation fighter of the USAF with stealth, supersonic, and multi-role capabilities. After the US flighter landed the Su-57 again took to the skies.

F-35 was piloted by Major Justin “SCOUT” Deaver.

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First LCA-Mk2 prototype likely to roll out by end of year, AMCA by early 2027

Source: The Hindu, Dt. 11 Feb 2025,
URL: https://www.thehindu.com/news/national/first-lca-mk2-prototype-likely-to-roll-out-by-end-of-year-amca-by-early-2027/article69203857.ece

The first prototype of the country's fifth-generation fighter jet, the Advanced Medium Combat Aircraft or AMCA, is expected to roll out by the end of 2026 or early 2027, while the first prototype of the Light Combat Aircraft-Mk2, which is a bigger and more capable version of the LCA, is expected by the end of this year, said officials from Aeronautical Development Agency (ADA). The two programmes are critical for the Indian Air Force's modernisation plans, with force strength down to 31 fighter squadrons.

"The LCA-MK2 is in very advanced stage. All the jigs and fixtures have been completed. The airframe is on the assembly line. We will be making a roll out by year-end and flying in the first quarter of 2026," said Jitendra J. Jadhav, Director-General of ADA.

"We are very confident it will get inducted from 2028-29, he said, adding "It has all indigenously weapons and about 11 weapon stations. So it will be one of the mighty lethal weapon platforms for the IAF."

Given the huge delays in new inductions and rapid modernisation of fighters by China and Pakistan, there is pressure to speed up development process.

"The full-stealth AMCA aircraft programme was sanctioned by the government in April 2024. The development phase has just begun and we are anticipating that this aircraft will touch the sky towards the end of 2028. The total duration of the development phase is 10 years. The aircraft will be certified by 2032 and the plan for induction will be 2034 in the IAF," said Krishna Rajendra Neeli, Outstanding Scientist and Officiating Project Director of the AMCA programme, speaking to The Hindu at Aero India 2025.

The AMCA is a fifth-generation fighter aircraft (FGFA) and its primary role is as a stealth aircraft. While armament of around 1.5 tonnes can be carried internally, the AMCA can also carry weapons at its wing station as a non-stealth aircraft, Mr. Neeli elaborated.

The first prototype of the country's fifth-generation fighter jet, the Advanced Medium Combat Aircraft or AMCA, is expected to roll out by the end of 2026 or early 2027.

In terms of timelines, Mr. Neeli explained that five prototypes are planned to be manufactured for development and testing and initially, four aircraft would be manufactured per year for a couple of years, by which time the manufacturing line will stabilise to ramp up production.

The AMCA project is particularly critical as it is India's only FGFA that is planned for induction at a time when a series of such FGFA development projects are already inducted or in advanced stages. China has made great progress in the development and deployment of FGFAs, with two jets already deployed, and had recently unveiled two near-sixth generation jets.

Aero India 2025 gets off to a spectacular start in BengaluruThe AMCA project got sanction from the Cabinet Committee on Security (CCS) in March 2024. It is envisaged as a 25-tonne twin engine stealth aircraft with internal weapons bay and Diverterless Supersonic Intake which has been developed in India for the first time. It is intended to have an internal carriage of 1,500 kg of payload and 5,500 kg of external payload, with 6,500 kg of internal fuel.

The Hindustan Aeronautics Limited (HAL), which is the production agency for the project, has already initiated manufacturing activities. The development is planned to be carried out in two phases, a MK1 with the General Electric F414 98 kN engine and a Mk2 with a 110 kN engine planned to be co-developed in partnership with Saran of France for which discussions are under way.

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Govt seeks targeted solutions in strong Make in India pitch

Source: Hindustan Times, Dt. 11 Feb 2025,
URL: https://www.hindustantimes.com/india-news/govt-seeks-targeted-solutions-in-strong-make-in-india-pitch-101739213280416.html

Defence Minister Rajnath Singh on Monday urged global defence manufacturers to develop "targeted solutions and counter measures" for challenges posed by the prevailing geopolitical volatility and rapidly evolving warfare technology, while highlighting opportunities in India's expanding defence sector. Speaking at Asia's largest defence exhibition, Aero India 2025, Singh emphasised that security transcends borders in today's interconnected world. "Our security or peace does not exist in isolation as these are shared constructs that transcend national borders," he said at the Yelahanka airbase.

"In these challenging times, where the global security situation is fragile, the rules-based order is being challenged and technologies are creating new opportunities and vulnerabilities, this roundtable will have a significant impact on how various initiatives are taken to boost security," Singh told industry leaders.

The five-day biennial airshow has drawn over 900 exhibitors and officials from around 80 countries, including 120 CEOs of leading defence firms, showcasing India's growing defence manufacturing capabilities and technological advancement. Singh highlighted how modern warfare is increasingly shifting from hardware-centric systems to software-based ones. "Our reliance on space-based navigation systems, communication and surveillance requires these assets to be integrated with our operational plans. The use of drones in recent conflicts indicates that the future will depend on the integrated efforts of manned, unmanned and autonomous warfare systems. Our efforts in defence manufacturing must focus on these emerging areas," he said at a CEOs roundtable.

The minister said the airshow would strengthen international cooperation, calling it "a confluence of critical and frontier technologies" that will "provide a platform to further strengthen relations among like-minded countries based on mutual respect and interest to deal with today's uncertainties."

The defence minister's push for modernisation comes against the backdrop of India having allocated ₹6.81 lakh crore for defence spending in the 2025-26 Union Budget, including ₹1.8 lakh crore for military modernisation. The country has earmarked 75% of the modernisation budget for domestic procurement to boost self-reliance.

Highlighting the private sector's crucial role, Singh said: "The private sector is going to play a big role in the economic mainstreaming. Due to its drive, resilience and entrepreneurship, the sector is capable of bringing in a new wave of prosperity." He noted that in many advanced nations, private industry leads defence production, adding that "the time has come for the sector to be an equal partner in the Indian defence industry too."

"We often interact as buyers and sellers, where our relations are at a transactional level. However, we forge partnerships beyond the buyer-seller relationship to the level of industrial collaboration," Singh said, adding that the presence of foreign participants demonstrated their shared vision for the sector.

The government's emphasis on domestic manufacturing received a boost as British engine maker Rolls-Royce announced plans to double its sourcing from India by 2030. The company currently sources high-precision parts and engine components for its defence, civil aerospace and power systems businesses from Indian firms. "India plays a significant role in our long-term strategy, both as a sourcing hub and as a strategic partner in advancing defence technologies," said Alex Zino, who handles business development and future programmes at Rolls-Royce.

Singh said India must protect its people and territory in a "hostile environment," emphasising the government's focus on modernizing armed forces through "a strong, efficient, resilient and future ready defence industrial ecosystem."

The minister noted that India has emerged as "the preferred global destination for aerospace components and complex system assembly," with both public and private sectors playing crucial roles in this transformation. He emphasised how the defence industrial sector, previously separate from the national economy, has now been fully integrated and serves as "a motor powering the growth engine of the Indian economy." The exhibition aims to facilitate co-development and co-production opportunities through strategic partnerships and joint ventures to accelerate indigenous production.

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HAL's indigenous LCA Mk-1A makes air show debut amid delays

Source: Hindustan Times, Dt. 11 Feb 2025,
URL: https://www.hindustantimes.com/india-news/hals-indegnious-lca-mk-1a-makes-air-show-debut-amid-delays-101739211239898.html

India on Monday unveiled its newest indigenous fighter jet at Aero India, attempting to allay lingering concerns about its readiness for induction into the Indian Air Force (IAF) after delays. Four Light Combat Aircraft (LCA) Mk-1As performed in the inaugural flypast, demonstrating

their capabilities before an international audience that included defence ministers from 30 countries among officials from 80 nations at the Yelahanka airbase.

The fighters flew in the 'Yodha' formation, also known as 'finger four' --- with one aircraft on one side of the leader and two on the other. State-run manufacturer Hindustan Aeronautics Limited (HAL) is yet to complete critical trials involving the indigenous Astra beyond-visual-range missile, locally made electronic warfare suite and Israeli Elta radar.

"The lead aircraft are poised to get military type certificate and enter service," HAL said in a statement, adding that the Mk-1A is "a significantly upgraded variant of the Mk-1 aircraft and is slated to be a part of the IAF in the coming months."

The debut came a day after Air Chief Marshal AP Singh and army chief General Upendra Dwivedi flew in a two-seater trainer version of the operational LCA Mk-1, demonstrating jointness in the armed forces and the air force's support for the indigenous fighter program.

The IAF has expressed concerns about potential delays in the LCA Mk-1A program affecting its combat readiness. The air force ordered 83 Mk-1A fighters for ₹48,000 crore in February 2021 and plans to acquire 97 more at approximately ₹67,000 crore. The first aircraft's delivery, originally scheduled for March 31, 2024, was delayed due to certification issues and US manufacturer General Electric Aerospace's failure to deliver F404 engines on time. The company was supposed to supply six engines in financial year 2023-24, but the first delivery is still pending. The Mk-1As that participated in Monday's display used reserve F404 engines.

"The Mk-1As debuting at Aero India 2025 is an encouraging development as it indicates that the fighters are ready for induction and are just waiting for the new engines. I hope the deliveries begin soon. HAL must ramp up production of the Mk-1As to address the delay," said Air Marshal Anil Chopra (retd), former director general of the Centre for Air Power Studies.

While GE hasn't committed to a specific delivery schedule for the 99 engines on order, it has indicated to HAL that production issues causing the delay have been resolved, with initial deliveries possibly beginning in March. HAL plans to deliver the first few LCA Mk-1As with reserve engines, which will be replaced when GE starts supplying new ones. To meet the IAF's requirements, HAL has established a new production facility in Nashik. The company says it can manufacture 16 LCA Mk-1As annually in Bengaluru, with the Nashik line increasing total production capacity to 24 jets per year.

The LCA is poised to become central to IAF's combat capabilities in the coming decades. The air force, ranked fourth largest globally, is expected to operate approximately 350 LCAs across variants (Mk-1, Mk-1A and the future Mk-2). A third of these aircraft have already been ordered or inducted, with the remainder featuring prominently in the air force's modernisation plans and likely to be contracted in the coming years. HAL is targeting March 31 to deliver the first fighter jet to the IAF after completing necessary certification requirements.

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Indian Navy's First Training Squadron Visit To Singapore

Source: Press Information Bureau, Dt. 10 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101575

Indian Navy's First Training Squadron (1TS) comprising INS Sujata, INS Shardul and ICGS Veera visited Changi Naval Base, Singapore from 06 - 09 Feb 25. During the port call, Capt Anshul Kishore, Senior Officer, 1TS called on Col Rinson Chua Hon Liat, Commander, Maritime Training and Doctrine Command. The interactions focused on training aspects and avenues for future collaboration in Training and Operations. Dr Shilpak Ambule, High Commissioner of India to the Republic of Singapore visited the ships of 1TS and emphasised the role of the Indian Navy towards 'Building Bridges of Friendship'. A solemn Wreath Laying Ceremony was held at the Kranji War Memorial to pay homage and honour the fallen soldiers.

Strengthening people-to-people ties, Indian and Singapore Navy trainees participated in friendly sports fixtures. Indian Naval Trainees visited Information Fusion Center (IFC) and Changi Regional HADR Coordination Center (RHCC) enhancing understanding of regional maritime security. They also visited RSN Museum, gaining valuable insights into Singapore's maritime heritage. School Children from Yuva Bharti and Delhi Public School, Singapore visited the ships of the squadron. Towards Indian Navy's commitment to community outreach, a lunch was organised at Sree Narayana Old Age and Nursing Home.

The visit concluded with a reception onboard ships of 1TS. The event was attended by Ambassadors of various countries, officers and trainees of the Republic of Singapore Navy (RSN), diplomats and members of the Indian diaspora in Singapore. The successful completion of the visit highlights the enduring maritime partnership between India and Singapore, in line with the Government of India's policies of 'Neighbourhood First', 'Act East' and SAGAR (Security and Growth for All in the Region).

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Raksha Mantri holds bilateral meetings with Defence Ministers of Tanzania & Zambia and Minister Delegate to the Minister of National Defence, Chief of Staff of People's National Army of Algeria on the sidelines of Aero India 2025

Source: Press Information Bureau, Dt. 10 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101504

On the sidelines of Aero India 2025, Raksha Mantri Shri Rajnath Singh held bilateral meetings with Minister for Defence & National Service of Tanzania Dr Stergomena Lawrence Tax, Minister Delegate to the Minister of National Defence, Chief of Staff of People's National Army of Algeria General Saïd Chanegriha and Minister of Defence of Zambia Mr Ambrose Lwiji Lufuma in Bengaluru on February 10, 2025.

In his meeting with the Defence Minister of Tanzania, both leaders discussed cross-border terrorism and bilateral defence cooperation in a number of areas, including dockyard development & shipbuilding. Both sides welcomed co-hosting of maiden Africa India key Maritime Exercise in April 2025.

The meeting with Minister Delegate to the Minister of National Defence, Chief of Staff of People's National Army of Algeria gave further impetus to defence engagement with the North African nation in diverse fields. Possibility of signing of Terms of Reference for a Joint Commission in the Military Field to reap full benefits of the MoU was also discussed.

In his meeting with the Minister of Defence of Zambia, both leaders reviewed and agreed to strengthen bilateral defence cooperation, especially in the areas of capacity building and UN peacekeeping operations. Both sides agreed to early finalisation of Terms of Reference for institutionalizing a Joint Defence Cooperation Committee.

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India-France strategic ties to get major boost with Rafale & Scorpene deals

Source: The Times of India, Dt. 11 Feb 2025,
URL: https://timesofindia.indiatimes.com/india/india-france-strategic-ties-to-get-major-boost-with-rafale-scorpene-deals/articleshow/118127294.cms

India's expansive strategic partnership with France is set to get a further boost with two mega deals being virtually finalised for direct acquisition of 26 Rafale-Marine fighters, as well as the construction of three additional Scorpene submarines, which will collectively be worth almost Rs 1 lakh crore (Euro 10.6 billion).

As PM Narendra Modi left for Paris on Monday, government sources told TOI that the Rs 63,000 crore deal for 22 single-seat Rafale-M jets and four twin-seat trainers for Navy is now with the cabinet committee for security (CCS), awaiting the final nod.

The Rs 33,500 crore deal for 3 additional diesel-electric Scorpene submarines, to be constructed by Mazagon Docks (MDL) in collaboration with French Naval Group, in turn, will soon head for CCS after inter-ministerial consultations. "CCS will take up the Rafale-M deal after the PM returns from France-US trip. The cost negotiations for Scorpenes took a little longer because MDL had originally quoted a high price. The aim is to ink both deals before this fiscal ends on March 31," a source said.

The two countries are also discussing a possible collaboration between French major Safran, which already makes helicopter engines in India, and DRDO to co-develop the 110 kilonewton jet engine for the Indian fifth-generation stealth fighter project, AMCA (advanced medium combat aircraft). But that is in the future. The impending government-to-government Rafale-M deal includes weapons, simulators, crew training and five-year performance-based logistics support as well as spares for the 36 Rafales already inducted by IAF under the Rs 59,000 crore contract in Sept 2016.

The 26 Rafale-M jets manufactured by Dassault Aviation, with "specific enhancements" to operate from the deck of indigenous aircraft carrier INS Vikrant, will be delivered in 37 to 65 months after inking of the contract. "The new inter-governmental agreement mirrors the one inked in the IAF deal. All jets are to be delivered by 2030-31," a source said.

The first of the three additional Scorpenes, in turn, will roll out of MDL in six years, followed by the other two at intervals of a year each, after the contract is inked. The deal's cost does not yet include the price of fitting them with the fuel cell-based air-independent propulsion (AIP) developed by DRDO for greater underwater endurance.

The three new Scorpenes will have "some design modifications and improvements" over the first six such Kalvari-class vessels constructed at MDL for over Rs 23,000 crore. The plan is to fit them with the indigenous AIP, while the first six operational Scorpenes will progressively get it when they come for their scheduled refits.

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Tata Advanced Systems unveils advanced loitering suicide drone with 250 km range suitable for LAC

Source: The Economic Times, Dt. 11 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/tata-advanced-systems-unveils-advanced-loitering-suicide-drone-with-250-km-range-suitable-for-lac/articleshow/118126566.cms?from=mdr

A new long-range, autonomous suicide drone that is capable of operations from high altitude areas and forward landing grounds has been unveiled by Tata Advanced Systems Ltd (TASL), with company executives saying that the entire system has been developed indigenously and will be on offer to the armed forces.

Named the Advanced Loitering System (ALS), the drone has a range of over 250 km and is designed to take off from advanced landing grounds that are located at altitudes of above 10,000 feet. Several such advanced landing grounds dot the border with China, particularly on the Ladakh border.

The extended distance precision attack loitering system conducts targeting through visual means and can operate in all weather conditions. In particular, the system has been designed to operate in environments where Global Positioning Systems (GPS) are not available or have been jammed.

The stand-off weapon can carry anti-tank warheads and other munitions, based on the requirements of the user. It can take off from a short runway and is based on a design that has already been delivered to the armed forces - the ALS 50 which has a range of around 50 km.

Unlike the shorter-range system that is battery operated, the new weapon is powered by an internal combustion system that gives it much longer range as well as a higher payload capacity. "It is a completely Indian design that includes all avionics, guidance and the ground control system. It is a globally competitive system," a company executive said.

The company in May 2023 delivered the ALS 50 suicide drone to the air force. This system is capable of vertical take-off and landing and has been successfully tested in high-altitude areas of Ladakh and in hot conditions in Rajasthan.

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Russia seeks to re-enter India's light military helicopter market, showcases new engine

Source: The Economic Times, Dt. 11 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/russia-seeks-to-re-enter-indias-light-military-helicopter-market-showcases-new-engine/articleshow/118126411.cms?from=mdr

Russia is seeking to find a way back into the large requirement of light military helicopters by Indian armed forces, years after talks were frozen as no common ground could be found on technical aspects, technology sharing and costs.

The Kamov KA 226, which was to be produced in India in partnership between Russian Helicopters and Hindustan Aeronautics Limited (HAL), never saw the light of day as the helicopter was powered by a French engine. As tensions between Russia and Europe grew over the past decade, it became clear that the French option would not be viable, given sanctions imposed on Moscow after the annexation of Crimea.

Now, Russia has sought to reintroduce the helicopter offer by unveiling a new engine that has been developed and certified recently. The VK 650 V engine has been showcased at AeroIndia and sources say that it has been developed to eliminate dependence on third party suppliers, namely France.

"The coaxial design of the Ka-226T helicopter makes it safer to fly in the mountains and over the sea. India, which already has experience operating helicopters with a coaxial design, will be able to master this unique helicopter manufacturing technology," sources said.

India has a significant requirement for light helicopters that are used in a variety of roles from delivering supplies to high altitude areas to utility missions on the seas and medical evacuation. An indigenous Light Utility Helicopter (LUH) has been developed and is undergoing final certifications for an auto pilot. However, the sheer numbers needed - the estimate is over 400 - would be difficult to meet with just one production line.

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Relations reset~I

Source: The Statesman, Dt. 10 Feb 2025,
URL: https://www.thestatesman.com/opinion/relations-reseti-1503396321.html

At this year’s 76th Republic Day celebration on 26 January, India invited the President of Indonesia, Prabowo Subianto to be the Chief Guest. Indeed it was a strategic move on the part of the Narendra Modi government to engage with the Southeast Asian nation with the largest Muslim

population in the world, and thereby deepen cooperation with the members of the Asean bloc. It transpired that energy, food security, defence and security ties emerged as the centrepieces of discussion.

Both sides are aware that their engagements – both bilaterally on issues of trade and maritime security and on the global stage through forums such as the G-20 and minilaterals such as the India-AustraliaIndonesia group – have brought the two countries into a closer, complementary and mutually beneficial partnership. This two-part article shall address two separate issues in order to posit the India-Indonesia partnership in perspective.

The first part dwells on Prabowo's handling of the domestic situation as the success or failure of his measures shall impact his foreign policy and relations with Indonesia's partner countries. The second part examines the outcome of Prabowo's India visit and what it brought to the table for providing dividends to both sides.

The initial evaluation of Prabowo's policy choices raises questions on his over-reliance on the military to sustain his democratic structure. By making his choice of officials in critical positions, the President has given people reason to worry if the political culture of past authoritarian leader Gen Suharto who lost power three decades ago is making a re-run. There are enough signs in peoples' unease that see a flashback of Suharto in Prabowo turning to the once-all powerful military to carry out a governing vision.

was Indonesia's former defence minister. People now suspect that as President he would be replacing civilian functions with the military, thereby raising comparison to the Suharto-era doctrine called dwifungsi (dual function) that allowed the armed forces to crush dissent and dominate public life. The fears of the people are not without reasons. After Probowo stormed into the highest office of Presidency three months ago with a landslide election victory, he quickly expanded the armed forces' roles in several public areas, including running much of his flagship project to serve free school meals.

For now Prabowo has the support of allies. The allies in parliament are also preparing legislation that would allow Prabowo to appoint active military officers into senior government positions, dismantling some of the safeguards put in place after Suharto was overthrown in 1998 following an economic crisis and popular uprising. Since Prabowo's resounding victory in last year's election was largely driven by younger voters, a generation with little or no memory of Suharto's military-backed "New Order" regime, he feels emboldened to face the opposition.

As the son-in-law of Suharto, Prabowo was a special forces commander under the former's repressive 32-year reign and was later dismissed from the military amid unproven allegations of human rights abuses. Supporters of Prabowo, who denied past rights abuses, say tapping the military for important projects offers efficiencies.

Critics have noticed Prabowo's recent moves, including a recent expansion of the military command structure. This is a worrying lurch towards remilitarization in the world's largest Muslim-majority country. Critics who question that Prabowo is not abiding by civil supremacy believe he wants to restore the glory of the military, where various kinds of civic works can be done by the military as he feels those would be faster and more effective.

Although not replicating the “dual function” of the past, Prabowo’s early reliance on the military is raising concerns among Indonesian ob servers about the undoing of democratic reforms that sprang up after Suharto was ousted. Analysts suspect many of Prabowo’s actions replicate what existed under his late father-in-law Suharto. Under Suharto, there were no checks and balances. The military was also involved in business. The same pattern, if chosen by Prabowo now, could erode democratic oversight of government institutions, affecting policy making. During his first 100 days in office, Prabowo enjoyed 91 per cent approval ratings.

That is being dissipated after the armed forces started taking charge of large projects. In the past three months that Prabowo has been in office, he has handed over large projects to the armed forces, the most visible example being the $28 billion signature project to provide free meals. Air Force Col. Satrya Dharma Wijaya is a case in point.

His usual job is aircraft maintenance, but since November he has been busy ordering stoves, refrigerators and frying pans to cook meals for thousands of children at a base in Indonesia’s capital, Jakarta. The military is now running 100 of the 190 kitchens operated by the project’s launch in collaboration with the newly formed National Nutrition Agency, cooking and delivering food for 570,000 children.

A plan is underway for the military to form 100 special “territorial development” units assigned to farming, fisheries and animal husbandry. Prabowo has also moved swiftly to vastly expand other military-run projects established when he was defense minister. Prabowo has also developed a programme whereby soldiers are required to clear land for cultivation.

This has increa – sed fifty-fold, boosting Indonesia’s food security from an initial 60,000 hectares to a projected 3 million hectares ~ an area about the size of Belgium. He has also ordered the expansion of another of his projects, directing the Air Force to convert its idle land into rice and corn fields to be managed by soldiers and villagers to supply food for the free-meals project. Other projects include nationwide extension of a small military civil-works initiative involving laying water pipes for irrigation in remote areas.

With a military background, Prabowo justifies that turning to soldiers to help run large programmes is effective, as according to him the army follows a strong chain of command and that rules are in place to prevent military repression. The people are assured that there is no question of a return to the New Order of the Suharto era. Be that as it may, the key area of concern remains when legislation as planned is passed allowing Prabowo to appoint active duty military officers to top government jobs for the first time in decades. Since the President’s coalition controls 74 per cent of seats in parliament, passing of the law would not be difficult.

The president has already tapped former military officers for top roles ~ such as Foreign Minister Sugiono, who served in the army’s special force before retiring. Prabowo’s Gerindra party would be free to appoint active officers anywhere in the government. If such strategic programmes that are normally run by persons who are disciplined and experienced are to be passed on to the military, this would indicate a return to the Suharto era and a murder of democracy. The fear of militarisation under Prabowo with centralisation of power would mean democratic backsliding.

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Relations reset~II

Source: The Statesman, Dt. 11 Feb 2025,
URL: https://www.thestatesman.com/opinion/relations-resetii-1503396748.html

When Indonesian President Prabowo Subianto joined as the chief guest at India's Republic Day celebration on 26 January 2025, it became his first trip to India as head of state. He was the fourth Indonesian leader to be chief guest at the Republic Day celebrations.

For the record, President Suharto was the chief guest at the first Republic Day in 1950, the others being Susilo Bambang Yudhoyono (2011) and Joko Widodo (2018) along with other Asean leaders. The two leaders ~ Prabowo and Prime Minister Narebdra Modi ~ used the opportunity to discuss bilateral issues to deepen the relationship. Issues such as security, energy security, defence and security cooperation dominated the discussion.

Other issues included trade and investment, healthcare and digital technologies. Several MoUs and announcements were finalised. Prabowo participated in a forum as part of an effort to enhance trade and investment. During the discussion, India pledged to support the Southeast Asian nation's defence modernisation programme through experience and expertise sharing, besides taking steps to resolve outstanding tariff and non-tariff barriers to trade.

Other areas covered in the discussion were counter terrorism, health and pharmaceuticals, food security, infrastructure and connectivity, science and technology, space cooperation, education and skill development, climate change and disaster resilience and IndoPacific initiatives. The most significant takeaway of Prabowo's visit was Indonesia's interest in acquiring the BrahMos missile system from India.

Both sides reached a broad understanding on the pricing of the deal, expected to be worth around $450 million. As a goodwill gesture, India briefed a top-level Indonesian team about the Missile when it visited the BrahMos Aerospace headquarters and was briefed on the capabilities of the supersonic cruise missile. The delegation was led by Navy chief Admiral Muhammad Ali. During the visit, he interacted with Dr. Jaiteerth R. Joshi and senior officials from the JV enterprise.

The delegation was informed about the supersonic BrahMos weapon system and its formidable capabilities. The BrahMos missile is an IndoRussian joint venture. If the deal goes ahead, Indonesia will become the second foreign buyer of the missile after the Philippines. In January 2022, India signed a deal worth almost $375 million to equip the Philippine Marines with three batteries of the missiles. The development came at a time when Indonesia was engaged in negotiations with India to acquire the missile system.

The weapons showcased during the ceremonial parade witnessed by Prabowo included the BrahMos missiles. The parade included a 160- member Indonesian military marching contingent and 190- member band contingent from that country. With its conventional precision-strike capabilities the BrahMos missile has become the mainstay of the Indian armed forces. Defence cooperation is being expanded as both India and Indonesia find synergy in the wake of the need to establish peace and stability in the IndoPacific region. A high-level delegation from Indonesia is likely to visit India soon to fast-track defence collaboration following the ratification of a bilateral defence cooperation agreement.

The Indian Prime Minister assured the visiting Indonesian leader that the two countries shall work together in defence manufacturing and supply chains. In April 2024, India delivered the first batch of BrahMos missiles and launchers to the Philippines. BrahMos is the fastest cruise missile in the world with a speed of Mach 2.8, nearly three times the speed of sound. BrahMos variants can be launched from land, air and sea, and all three variants are in service with the Indian armed forces.

The ones being exported to the Philippines can strike targets at a distance of 290 km, though India has also developed another variant with a range of almost 500 km. Amid tensions in South China Sea, Modi and Prabowo reaffirmed the importance of maintaining and promoting peace, stability, maritime safety and security, freedom of navigation and over-flight in the region and other lawful uses of the sea, including unimpeded lawful maritime commerce.

In a joint statement issued a day after the bilateral meeting, they also sought peaceful resolution of disputes in accordance with universally recognised principles of international law, including the 1982 United Nations Convention on the Law of the Sea (UNCLOS). They supported the full and effective implementation of the Declaration on the Conduct of the Parties in the South China Sea (DOC) in its entirety and look forward to the early conclusion of an effective and substantive Code of Conduct that is in accordance with international law, including the 1982 UNCLOS.

Both Modi and Prabowo agreed to continue their combined efforts for the safety of navigation in the Straits of Malacca and Singapore through existing mechanisms to enable unhindered economic growth of the region. Defence cooperation also embraced manufacturing, opening the path for further expansion in the defence sector. Both leaders agreed that the defence ministers of the two countries shall have a meeting soon to discuss implementation of cooperation in the field of Defence agreement (DCA). India agreed to support the on-going defence modernisation programmes of Indonesia through experience and expertise sharing.

Both also strongly condemned terrorism in all its forms and manifestations and reaffirmed their commitment to enhancing cooperation in combating this threat through bilateral and multilateral initiatives. Both leaders also underscored the importance of stren – gthening global efforts to combat terrorism, including eliminating terror financing and preventing recruitment of terrorists, without any double standards. Both emphasised the need for all countries to work collectively to deny safe havens and support network terrorist groups, in accordance with international obligations and commitments.

Recognising the evolving nature of security challenges, the two leaders agreed to work together in preventing the spread of online radicalisation and strengthening mechanisms to counter extremist ideologies. It was heartening that Prabowo sought Indian participation in Indonesian projects ranging from the setting up of tertiary and specialist hospitals to the development of Sabang port in Aceh province.

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Science & Technology News

Union Minister Dr. Jitendra Singh today launched India's first indigenous Automated Bio Medical Waste Treatment Plant at AIIMS New Delhi

Source: Press Information Bureau, Dt. 10 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101416

Union Minister Dr. Jitendra Singh today launched India's first indigenous Automated Bio Medical Waste Treatment Plant at AIIMS New Delhi. The Automated Biomedical Waste Treatment Rig, named "Sṛjanam," was officially dedicated to the nation by the Minister at a ceremony held in the AIIMS auditorium. Following the ceremony, he, accompanied by Director General of CSIR Dr. N. Kalaiselvi and Director of AIIMS Dr. M. Srinivas, walked to the site within the AIIMS premises where the machinery had been installed and formally switched it on.

This innovative, environmentally friendly technology, developed by CSIR-NIIST (National Institute for Interdisciplinary Science and Technology), offers a significant advancement in the sustainable management of biomedical waste. Speaking on the Commissioning, Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh called for a paradigm shift from 'Waste to Wealth' and emphasized the importance of sustainability and environmental concerns. He noted that India's economy has transitioned from being part of the fragile five to a member of the First Five and is poised for continued growth. He highlighted the significance of the new biomedical waste treatment rig, which is set to revolutionize waste management in healthcare facilities.

The "Sṛjanam" rig can disinfect pathogenic biomedical waste such as blood, urine, sputum, and laboratory disposables, without the use of costly and energy-intensive incinerators. Additionally, the rig imparts a pleasant fragrance to the otherwise foul-smelling toxic waste. With a daily capacity of 400 kg, the equipment is capable of handling 10 kg of degradable medical waste per day in the initial phase. Once validated, this technology will be ready for full-scale implementation after receiving approval from relevant authorities. With the growing demand for better waste disposal solutions, the "Sṛjanam" rig offers a safer and more efficient approach, eliminating the risks associated with human exposure to harmful waste and minimizing the chances of spills and accidents. The technology has been third-party validated for its antimicrobial action, and studies have shown that the treated material is safer than organic fertilizers like vermicompost.

Dr. Jitendra Singh lauded CSIR-NIIST for its innovative and cost-effective solution to dispose of pathogenic biomedical waste in an eco-friendly manner. He referenced the 2023 annual report of the Central Pollution Control Board (CPCB), which indicated that India generates 743 tonnes of biomedical waste daily, presenting a significant challenge in its safe and proper disposal. The new technology addresses this issue and presents an environmentally responsible alternative to traditional incineration methods.

Dr. Jitendra Singh further explained that improper segregation, open dumping, open burning, and inadequate incineration of biomedical waste lead to severe health hazards, including the release of carcinogens and particulate matter. He emphasized the need for effective waste management to prevent the spread of infectious diseases and reduce the risk of antimicrobial resistance. Dr. Jitendra Singh also acknowledged the efforts of Prime Minister Narendra Modi, whose leadership continues to drive India's progress in science, technology, and green initiatives. He praised Shri. Tanmay Kumar, Secretary, Ministry of Environment, Forest, and Climate Change (MoEFCC), for his prompt actions in securing the necessary clearances for this project.

In his address, Dr. Singh mentioned other technological milestones achieved by India, including the first indigenous DNA vaccine, the development of India's first HPV vaccine to combat cervical cancer, and rapid advancements in space technology. He also highlighted India's breakthrough in pharmaceuticals with the creation of the indigenous antibiotic 'Nafithromycin' and India's first gene therapy trial for hemophilia, supported by the Department of Biotechnology (DBT). Vice-President of CSIR, Dr. Jitendra Singh, recalled the 'One Week One Lab' initiative, which aims to raise awareness about CSIR's groundbreaking projects, such as the first hydrogen buses developed by NCL Pune, off-season tulips developed by CSIR Palampur, the 108-petal lotus, and more.

The Science and Technology Minister also emphasized the priorities of the government during its first 100 days, which include the approval of India's first Bio E3 policy, the sanctioning of 1000 crores for Viability Gap funding for space startups, 2000 crores for Mission Mausam, and 50,000 crores for the Anusandhan National Research Foundation (NRF). Furthermore, he highlighted the recent Union Budget, which proposes 20,000 crores for Bharat Small Modular Reactors (SMRs).

Dr. Jitendra Singh concluded by urging for increased academic collaboration between institutions and proposed making postgraduate students co-guides in exchange programs, fostering synergy and shared learning. He emphasized the government's unwavering support for science, technology, and innovation under the leadership of PM Modi. He said "This initiative aligns with the government's vision of a "Viksit Bharat" by 2047, and with continued progress in innovation and sustainable technologies, India is set to become a global leader in environmental and healthcare solutions".

The ceremony was attended by distinguished dignitaries including Dr. V. K. Paul, Member, Niti Aayog, Dr. Rajiv Bahl, Secretary, DHR and DG, ICMR, Tanmay Kumar IAS, Secretary MoEFCC, Dr. N. Kalaiselvi, Secretary DSIR and DG, CSIR, and Dr. M. Srinivas, Director, AIIMS.

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Celebrating a Decade of Progress

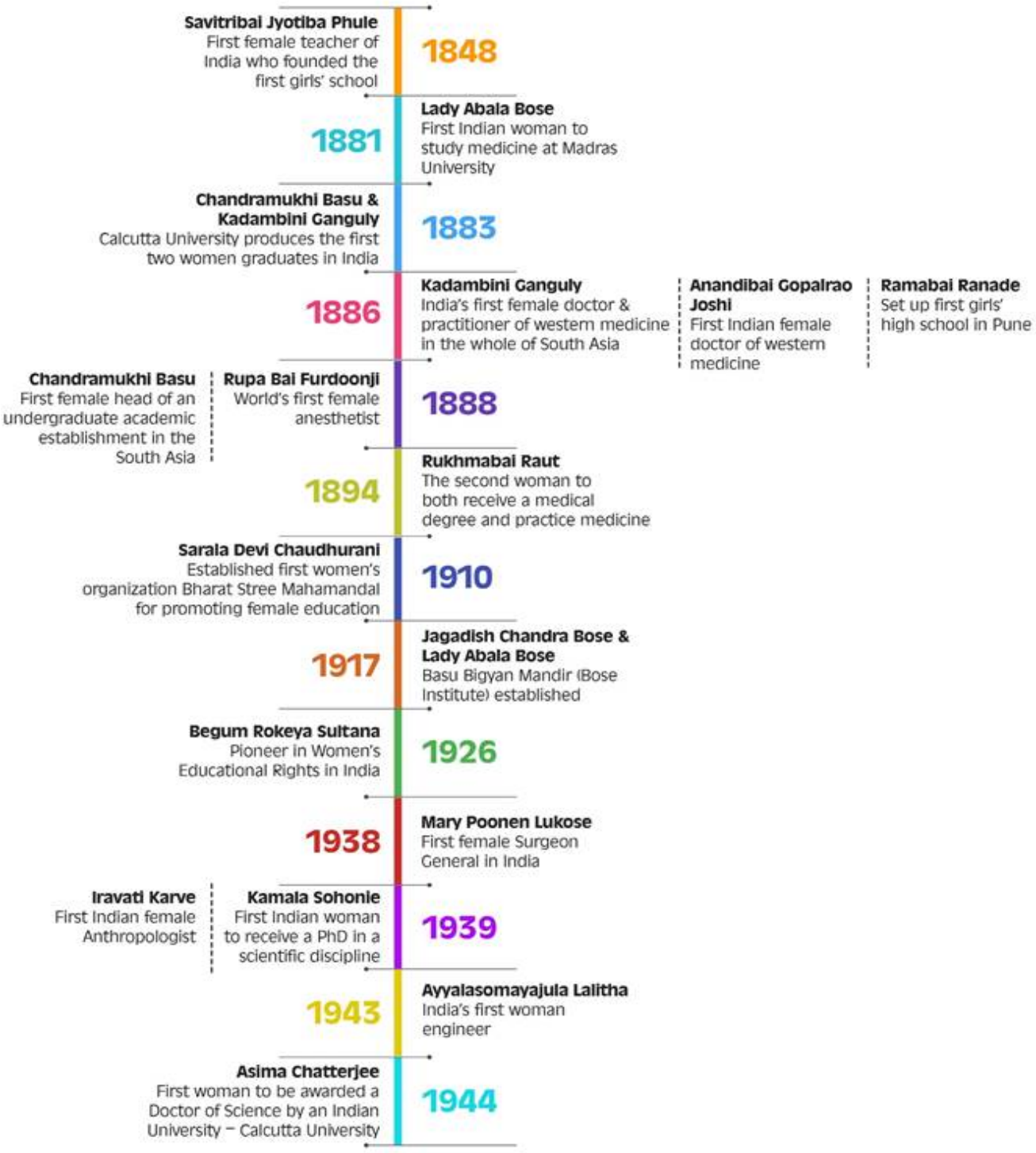
International Day of Women and Girls in Science

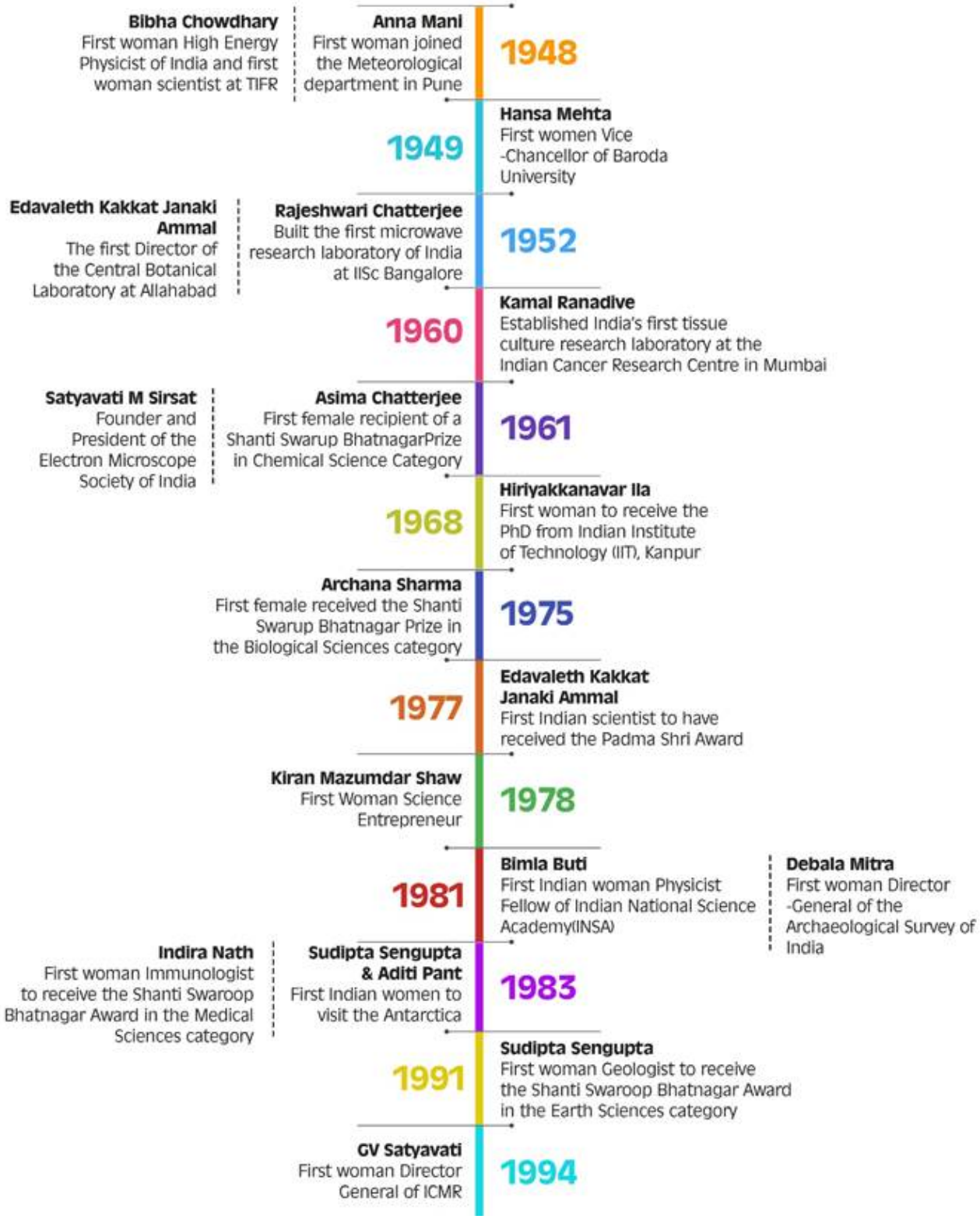
Source: Press Information Bureau, Dt. 10 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101395

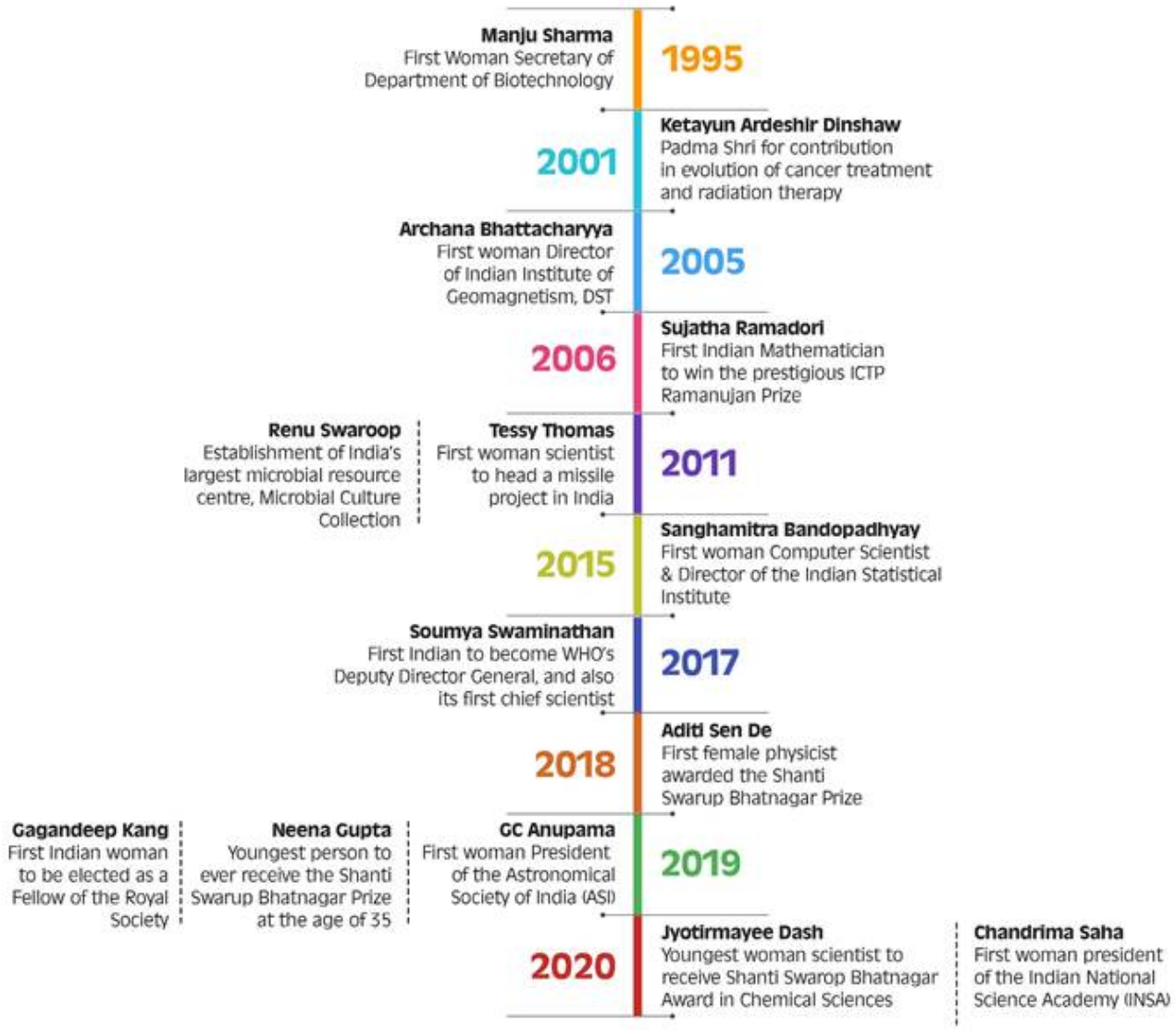
Women have played a pivotal role in shaping the world of science, making groundbreaking discoveries and driving innovation across various fields. With increasing efforts to promote gender

equality in education and research, women are now leading scientific advancements, challenging stereotypes, and redefining the landscape of global science. In 2015, the United Nations General Assembly declared 11 February as the International Day of Women and Girls in Science. The day serves as a global reminder of the importance of gender equality in STEM fields, and this year we celebrate its 10th anniversary.

A Timeline of Women in Science in India




Bibha Chowdhary
First woman High Energy Physicist of India and first woman scientist at TIFR
Anna Mani
First woman joined the Meteorological department in Pune
1948
1949
Hansa Mehta
First women Vice -Chancellor of Baroda University
Edavaleth Kakkat Janaki Ammal
The first Director of the Central Botanical Laboratory at Allahabad
Rajeshwari Chatterjee
Built the first microwave research laboratory of India at IISc Bangalore
1952
1960
Kamal Ranadive
Established India's first tissue culture research laboratory at the Indian Cancer Research Centre in Mumbai
Satyavati M Sirsat
Founder and President of the Electron Microscope Society of India
Asima Chatterjee
First female recipient of a Shanti Swarup BhatnagarPrize in Chemical Science Category
1961
1968
Hiriyakkanavar Ila
First woman to receive the PhD from Indian Institute of Technology (IIT), Kanpur
Archana Sharma
First female received the Shanti Swarup Bhatnagar Prize in the Biological Sciences category
1975
1977
Edavaleth Kakkat Janaki Ammal
First Indian scientist to have received the Padma Shri Award
Kiran Mazumdar Shaw
First Woman Science Entrepreneur
1978
1981
Bimla Buti
First Indian woman Physicist Fellow of Indian National Science Academy(INSA)
Debala Mitra
First woman Director -General of the Archaeological Survey of India
Indira Nath
First woman Immunologist to receive the Shanti Swaroop Bhatnagar Award in the Medical Sciences category
Sudipta Sengupta & Aditi Pant
First Indian women to visit the Antarctica
1983
1991
Sudipta Sengupta
First woman Geologist to receive the Shanti Swaroop Bhatnagar Award in the Earth Sciences category
GV Satyavati
First woman Director General of ICMR
1994



Bridging the Gender Gap in India

India has taken significant steps to promote gender parity in STEM. The Department of Science and Technology (DST) has recently implemented the WISE-KIRAN (Women in Science and Engineering-KIRAN) scheme, a comprehensive program designed to support women at various stages of their scientific careers. Under this scheme, government has launched initiatives like:

- WISE-PhD: The programme aims to provide support to women who want to pursue a Ph.D. in 5 subject areas of basic and applied sciences.
- WISE Post-Doctoral Fellowship (WISE-PDF): The programme aims to provide opportunity to women to continue research after Ph.D. in Basic and Applied Sciences through independent project grant.
- Women's Instinct for Developing and Ushering in Scientific Heights & Innovations (WIDUSHI): WIDUSHI programme provides support to women scientists who are at the

verge of retirement or retired from Government service and also to the women scientists who are not at permanent position but are active researchers and continuously excelling in research field.

- WISE-SCOPE: The programme encourages women scientists and technologists to address societal challenges through S&T interventions.
- WISE Internship in Intellectual Property Rights (WISE-IPR) – WISE-IPR programme provides one-year training to women in the area of Intellectual Property Rights in order to develop a core professional skill in this domain.
- Women International Grant Support (WINGS): The programme provides opportunities to Indian Women scientists to undertake research in the International research labs and academic institutions.
- Consolidation of University Research for Innovation and Excellence (CURIE): CURIE Programme provides support to women institutions for establishing State-of-the art research infrastructure to enhance research facilities and improving R&D activities in order to create excellence in Science & Technology (S&T) domain.
- Vigyan Jyoti: Vigyan Jyoti programme aims to encourage girls to pursue higher education and career in STEM (Science, Technology, Engineering and Mathematics) especially in the areas where women participation is low in order to balance gender ratio across the streams. Vigyan Jyoti (School Component) is in implementation in 250 districts of 34 States/UTs of the country.
- Gender Advancement for Transforming Institutions (GATI): GATI aims to develop an indigenous Charter for Gender Equity in STEMM (Science Technology Engineering Mathematics & Medicine), with a focus on bringing about transformational changes at Institutional level.

These efforts collectively aim to bridge the gender gap, empower women in STEM, and create an inclusive scientific ecosystem in India.

Shattering the Glass Ceiling

Throughout history, women pioneers in science have defied societal norms, challenged conventions, and made groundbreaking contributions to human knowledge. Let us remember the women who dared to dream beyond the societal norms and created a legacy that continues to inspire others!

Conclusion: A Future of Equal Opportunities in Science

As we celebrate the 10th anniversary of the International Day of Women and Girls in Science, it is evident that women have made tremendous strides in STEM, overcoming barriers and reshaping the scientific landscape. India's dedicated efforts—through policies, programs, and institutional support have played a crucial role in increasing female participation in higher education, research, and innovation.


Anandibai Gopalrao Joshi
(1865-1887)
First Indian female to study and graduate with a degree in western medicine from the United States (1886). She is believed to be the first woman to set foot on American soil from India
Women
PIONEERS
Kadambini Ganguly
(1861-1923)
The first Indian woman to get admission to Calcutta Medical College (1884), becomes India's first female doctor & practitioner (1886) of western medicine in the whole South Asia
Mary Poonen Lukose
(1886-1976)
The first female Surgeon General in India, (1938). She became the first woman obstetrician of India
Edavaleth Kakkat Janaki Ammal
(1897-1984)
Renowned botanist & plant cytologist, made significant contributions to genetics, evolution, phytogeography and ethnobotany. First Director of the Central Botanical Laboratory at Allahabad, 1952
Kamala Sohonie
(1911-1998)
First Indian woman to receive a PhD in a scientific discipline. She discovered the enzyme 'Cytochrome C' which plays an essential role in the electron transport chain occurring in plants, human and animal cells for energy synthesis
Iravati Karve
(1905-1970)
First Indian female anthropologist. She founded the Department of Anthropology at the University of Pune in 1963. She also held the post of the Vice-Chancellor of SNDT University
Debala Mitra
(1925-2003)
First Indian archaeologist served as Director General of the Archaeological Survey of India, 1981. She explored and excavated several Buddhist sites

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PM Modi lands in Paris ahead of AI summit

Source: The Times of India, Dt. 11 Feb 2025,
URL: https://timesofindia.indiatimes.com/india/pm-modi-lands-in-paris-ahead-of-ai-summit/articleshow/118127293.cms

PM Narendra Modi landed in France late on Monday for a two-day visit during which he will co-chair an action summit on AI with French President Emmanuel Macron and hold a bilateral meeting with him to deepen strategic partnership between the two countries.Shortly after his arrival, Modi attended Macron's welcome dinner for leaders participating in the summit, including German Chancellor Olaf Scholz, Canadian PM Justin Trudeau, European Commission President

Ursula von der Leyen and US Vice President JD Vance. From France, Modi will travel to Washington on Wednesday for a two-day visit to the US.

Ahead of his departure, Modi said the summit in France will explore a collaborative approach to AI for innovation and larger public good in an inclusive, secure and trustworthy manner.

On his bilateral meeting with President Donald Trump, Modi said he will look to deepen ties between the two countries in technology, trade, defence, energy, and supply chain resilience. He said both will work for "mutual benefit of people of our two countries and shape a better future for the world".

"I look forward to meeting my friend, President Trump. This will be our first meeting following his historic electoral victory and inauguration in Jan, I have a warm recollection of working together in his first term in building a Comprehensive Global Strategic Partnership between India and the US," said Modi.

"This visit will be an opportunity to build upon the successes of our collaboration in his first term and develop an agenda to further elevate and deepen our partnership," he added.

On his engagement with Macron, Modi said it will provide an opportunity to review the progress on 2047 Horizon Roadmap for India-France strategic partnership along with Macron.

"We will also travel to the historic French city of Marseille to inaugurate the first Indian Consulate in France and also visit International Thermonuclear Experimental Reactor project, in which India is a member of the consortium of partner countries including France, to harness energy for the global good," said Modi, adding he will also pay tribute to Indian soldiers who laid down their lives during World Wars I and II at Mazargues War Cemetery.

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What scientists make of R&D allocations in the 2025 Union Budget Premium

Source: The Hindu, Dt. 11 Feb 2025,
URL: https://www.thehindu.com/sci-tech/science/what-scientists-make-of-rd-allocations-in-the-2025-union-budget/article69202384.ece

Abhay Karandikar, Secretary, Department of Science & Technology (DST):

The Budget provides an overall and possibly unprecedented thrust on research and innovation by setting aside Rs 20,000 crore for DST towards research in the private sector, including corporates and startups. There is a focused attempt to bring together academia, private sector and startups to work on national missions, such as the AI and quantum missions already underway, and the newly announced nuclear mission (to set up small and modular reactors), the geospatial mission, and others.

A key focus of the funding trend is to boost research, development and innovation. The dedicated fund of Rs 20,000 crore is part of the Rs 1 lakh crore corpus fund announced in the budget of July 2024 to boost private sector R&D, especially in deeptech and sunrise sectors. DST will be the

nodal ministry driving this fund. This will be a major step towards creating strategic autonomy in some key technology sectors.

The National Geospatial Mission has been announced with an allocation of Rs 100 crore for FY 2025-2026 to develop foundational geospatial infrastructure and data. The mission will help implement the National Geospatial Policy 2022, notified by DST with the goal of expanding the access and use of geospatial data and making India a world leader in the geospatial sector.

The Union Finance Minister has also announced several initiatives to boost science, technology, and innovation in the country including the Nuclear Energy Mission, initiatives in clean tech, Atal Tinkering Labs, and the Centre of Excellence on AI in Education.

Rajesh Gokhale, Secretary, Department of Biotechnology (DBT):

The Union Budget demonstrates a strong commitment to advancing India's biotechnology sector, aligning closely with the DBT's objectives. The Rs 3,446.64 crore allocation reflects a significant increase of 51.45% from the previous year's allocation.

An allocation of Rs 20,000 crore has been designated to support private-sector-driven research. Recently, the government also approved the 'Bio-RIDE' scheme to foster innovation, promote bio-entrepreneurship, and strengthen India's position as a global leader in biomanufacturing and biotechnology.

The Budget introduces several initiatives that align closely with DBT's mission to advance India's biotechnology sector. The support for private sector research is expected to accelerate advancements in areas such as gene-editing, personalised medicine, and sustainable agriculture.

The proposal for a light-touch regulatory framework based on principles and trust is a progressive step. Simplifying regulations and updating outdated laws will enhance the ease of conducting biotech research and development, facilitating faster translation of scientific discoveries into market-ready solutions.

The National Mission on High Yielding Seeds will focus on strengthening the research ecosystem and developing high-yielding, pest-resistant, and climate-resilient seeds, aligning with DBT's efforts in agricultural biotechnology.

Aligned with the government's 'BioE3 Policy' for fostering high-performance biomanufacturing, the National Manufacturing Mission (NMM) announced in the Budget aims to accelerate technology development and commercialisation. Additionally, it will drive the expansion of India's skilled workforce and boost job creation. Efforts are already underway to implement the BioE3 Policy in support of the NMM.

Similarly, some of DBT's initiatives contribute to self-reliance programmes, such as the mission on minor oil seeds (with identification of new genes/alleles for linseed, sesame, niger, and safflower for accelerated genetic improvement, productivity enhancement, and sustainability). Another is a mission programme on "Characterisation of Genetic Resources", to sequence/re-sequence and characterise available germplasm resources of pulses such as chickpea.

The Union Budget reinforces science, technology, and innovation (STI) as key enablers of national progress, aligning with CSIR's vision of advancing self-reliance and global competitiveness. The budget's focus on public-private partnerships, industry collaboration, and technology-driven entrepreneurship will accelerate innovation in manufacturing, healthcare, sustainability, and strategic sectors.

For agriculture and rural prosperity, CSIR's Aroma and Floriculture Missions align with the Agri-Districts Initiative, promoting value-added farming and boosting farmer incomes. Similarly, CSIR's Millets Mission supports self-reliance in pulses and oilseeds, ensuring nutritional security and climate-resilient farming. The CSIR Cotton Mission aligns with the National Cotton Mission, strengthening India's position in global textile markets.

The Indigenous Manufacturing and Smart Packaging Missions finds synergy with the NMM, driving innovation-led industrial growth. The Green Hydrogen Mission, spearheaded by CSIR, supports the clean energy transition.

For youth-skilling, CSIR's Jigyasa Programme complements the Atal Tinkering Labs, fostering STEM education and research exposure. The Seaweed Mission and Learn & Earn Program empower women entrepreneurs, supporting economic inclusion. Additionally, CSIR's Footwear for Healthcare and India Footwear Sizing Program align with the leather sector initiatives.

This budget cements CSIR's pivotal role in nation-building and reinforces STI as the foundation for a self-reliant, inclusive, and globally competitive India.

K.S. Parthasarathy, former Secretary, Atomic Energy Regulatory Board (AERB):

I was one among a handful of officers who joined a nascent AERB and was its secretary for nearly 17 years, almost entirely its entire formative years.

The Central government's ambitious programme to enhance the share of nuclear power to 100 GWe by 2047 and to invest heavily to support associated R&D is challenging to all stakeholders. Accepting private sector participation in the nuclear sector adds a new dimension to the programme. Success in the project to develop and install small modular reactors (SMRs) is essential in India's energy transition. As per the IAEA, SMRs are nuclear reactors of power generating capacity 300 MWe equivalent or less.

The AERB has implemented measures to regulate the safety of VVER Russian reactors, pressurised heavy water reactors of 700 MWe, the prototype fast breeder reactor, etc., all of which include first of the kind technologies.

AERB's reports to the IAEA Convention of Nuclear Safety reveal how openly and transparently it has been fulfilling its mandate. AERB staff updates its knowledge and expertise in safety-related disciplines associated with new technologies. It has linkages with the US Nuclear Regulatory Commission and the French regulatory agency among others, and exchanges its experience regularly.

C.P. Rajendran, National Institute for Advanced Studies:

The Budget indicates a significant influx of funding for science and technology, as well as for the DBT, whereas the allocation for the Department of Scientific and Industrial Research is nominal. Beyond the fine print, the less obvious factors will take time to surface.

Overall, two key points emerge: the importance of curiosity-driven science does not seem to be a major priority. Much of the funding appears directed towards mission-mode programmes such as nuclear energy, AI, the Jal Jeevan Mission, and private sector initiatives, among others. The government also plans to amend the Nuclear Liability and Damage Act 2010, which makes operators liable for nuclear damage. This will have serious ramifications. Many experts have raised concerns about SMRs.

The Finance Minister also announced the expansion of the Small Industries Development Bank of India Fund for Startups with an additional Rs 10,000 crore corpus to enhance the “deeptech ecosystem” in startups focused on AI, biotech, and space technology. India has many deeptech startups, with over 3,600 in 2023. In that year, they raised $850 million, reflecting a 77% decrease from 2022 due to investors’ lack of confidence regarding investment returns. It seems the increase in funding will primarily benefit technology development.

Curiosity-driven research is the type of research propelled by scientists’ curiosity regarding specific research questions and investigation methods that require creativity. What I observe is a growing corporatisation of science driven solely by immediate utility. Another critical issue is the rigid bureaucracy surrounding funding, which has created significant problems over the years.

Tapasya Srivastava, head, Department of Genetics, University of Delhi South Campus:

The Budget brings forth cheer to meet the increasing need of health research and biomedical devices given the recent Economic Survey report that recognised physical and mental harms of ultra-processed food leading to non-communicable diseases. The government ontinues to show excellent commitment to research, development and innovation through the Ministry of Science and Technology. Following up on the R&D fund last year, this year’s budget has made an allocation of Rs 20,000 crore towards the fund. This corpus has taken the Ministry’s allocation from Rs 8,029 crore last year to Rs 28,508 crore this year.

The percentage increase from revised estimates 2024-2025 to budget estimates 2025-2026 to Central universities (4.3%) is about half of that given to IITs (8.4%), which is disappointing given the number of students and the overhauling with respect to the National Education Policy (NEP) that universities are going through. These changes require unprecedented support from the government, which is not evident looking at these numbers.

It would have been more meaningful if the Prime Minister’s Research Fellowship became an interim research fellowship of a reasonable amount that replaces the abysmally low Rs-8000 non-NET UGC. The PMRF is competitive and is given mostly to labs sufficiently endowed with their own funding.

The AI bandwagon is something that all governments seem to want to rush into. The allocation has come into the Centre of Excellence in AI education and therefore one hopes the Centre of Excellence also sets benchmarks for adoption in a way that truly benefits Indian society, beyond

buzzwords. The Annual Status of Education Report 2024 shows some of the highest enrolment in a decade, not only recovering from COVID-19 decline but exceeding expectations.

With a significant number of youth struggling with mental health issues, overall health decline, reduced attention span and consumerism, the unprecedented advantage of a steady government for thoughtful implementation of value-based learning and life skills in school education to bring generational changes, appears to have been lost.

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Russian scientists develop space propulsion system that could reach Mars within 1-2 months

Source: Deccan Herlad, Dt. 10 Feb 2025,
URL: https://www.deccanherald.com/science/space/russian-scientists-develop-space-propulsion-system-that-could-reach-mars-within-1-2-months-3398373

Russian scientists have claimed to have developed a prototype plasma electric rocket engine that can reach Mars from Earth within 1-2 months.

According to reports by Interesting Engineering, this engine utilises a magnetic plasma accelerator as its propulsion system as opposed to the fuel combustion engines that are usually used.

“A plasma rocket motor is a type of electric motor. It is based on two electrodes. Charged particles are passed between them, and at the same time a high voltage is applied to the electrodes,” Egor Biriulin, a junior researcher at Rosatom’s scientific institute in Troitsk, told Izvestia.

“As a result, the current creates a magnetic field that pushes the particles out of the engine. Thus, the plasma receives directional motion and creates thrust,” he added.

Alexei Voronov, first deputy general director for science at the Troitsk Institute, told Izvestia, "In traditional engines, the maximum lapse rate of matter is about 4.5 km/s. This is due to the conditions of fuel combustion. In contrast, in our engine the working body is charged particles that are accelerated by an electromagnetic field, which makes it possible to achieve much higher speeds."

According to him, thanks to the new propulsion systems, the time of spacecraft flight to Mars will be reduced to one or two months (depending on the size and weight of the ship and cargo). Interplanetary trips are likely to become much faster too and locations beyond the Solar System might also become accessible.

Junior researcher of JSC 'SSC RF Trinity' Egor Biryulin said, "From the surface we still take off with the help of chemical engines, but here in space we are no longer carrying fuel, which is needed to accelerate our system, but we are carrying a small amount of gas in a cylinder and with this gas accelerate systems."

Once the extensive testing is completed, a flight model is expected to be ready by 2030.

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