PRAJYA

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New plant species discovered in Nagaland

Hoya nagaensis

A rare flowering plant species

INTERNATIONAL
MOTHER LANGUAGE DAY
21ST FEBRUARY

THE PRAJYA TEAM

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FROM THE EDITOR'S DESK

"The law is the bedrock of justice in any society."

Viewing animals as lesser creatures is an erroneous perspective and premise to begin with. Unfortunately humans have adopted this approach in most parts of the world. We have used them for our needs, comforts and even entertainment. After decades of facing the consequences, humanity is yet to set right this mistake completely.

However there are a few glimmers of hope here and there. The Canadian law that bans keeping highly intelligent species in captivity is a vanguard in legislation. It is a noteworthy move toward improving the welfare of animals and recognising the ethical issues involved in keeping social creatures in enclosures.

In a first of its kind, the Supreme Court of India permitted passive euthanasia or withdrawal of life support to Harish Rana, a young patient who had remained in coma for over 12 years. With virtually no possibility of recovery as observed by his doctors, this judgement ensured Harish was entitled to the constitutional right to 'die with dignity'. This also possibly brought relief to his parents who had endured the agony of seeing their beloved son in a vegetative state for an extended period.

"The law is simply justice seasoned in rules."

Read, reflect and revert with your thoughts and feelings.
We look forward to your support and suggestions.
Editorial Team

- Editorial Team

Dear Readers,

There have been requests from quite a few readers for hard copies of Prajya. We understand that quite a high percentage of our young readers keep revisiting some articles, and a handy print version within reach induces one to read more often, highlight things and make notes. This also partly contributes to students spending less screen time. The Prajya team is happy to bring to you the issue in print.

However, there are few things that we want to be careful about:

A. We don't want to print more than what is required and

B. Keep the cost of the print version (plus postage) within reasonable limits.

Please note that the access to free online e-version will continue.

So, it will greatly help us if you could fill in the details in the link provided.

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Content :

International Current Affairs

National Current Affairs

Shri Nagarajan R

India's gifts to the world

India sends rice to drought-hit Malawi

Did you know that kindness can travel thousands of kilometres? That's exactly what happened when India sent **1,000 tonnes of rice** to Malawi, a country in Africa, after a terrible drought caused by *El Niño*, a weather pattern that makes some parts of the world much drier than usual. Because of it, Malawi's crops failed and many families struggled to find food. When India heard about this, it quickly stepped in to help.

This isn't the first time India has shared food and supplies with other nations. As a country known for its spirit of "*Vasudhaiva Kutumbakam*" — meaning "the world is one family" — India shows that compassion knows no borders. So, next time you help a classmate or share your lunch, remember — **every act of kindness, no matter how small, makes the world a better place.** Who knows? Maybe one day, you'll lead a mission that changes lives across the globe!

India gifts Maldives its first high-speed ferry

Did you know that a ferry can travel as fast as a racing car on water? Recently, India gifted Maldives its first high-speed ferry, marking a new chapter of friendship across the Indian Ocean.

The Maldives is a group of tiny islands surrounded by beautiful blue waters. For many people there, boats are like school buses — they connect families, markets and schools spread across islands.

This is the first of 12 high-speed ferries to be delivered by India under the High Impact Community Development Project (HICDP) Phase III agreement. The total grant value is Maldivian rufiyaa (MVR) 100 million (approx. ₹55 crore) The ferry will operate under the **Raajje Transport Link (RTL) system** connecting Faafu and Dhaalu Atolls. The India-Maldives ferry project aims to enhance

connectivity, boost local mobility and support economic activities across remote islands. This gesture highlights strengthening maritime ties and improving essential public infrastructure in the Maldives.

This ferry isn't just about speed — it represents trust and teamwork between two neighbouring nations. By sharing technology and support, India is helping the Maldives grow stronger while making the region's waters a sea of cooperation. It's a great reminder that generosity builds powerful bridges — or in this case, waves of friendship!

Shri Ramaswamy R

NEW WORLD LEADERS

Country	Area in sq.kms. (Ranking)	Population (millions)	Language	Capital	Currency (For 1 USD)	Economy (Ranking) (Nominal/PPP)
Netherlands	41, 850 (131	18.4	Dutch	Amsterdam The Hague as admin centre and seat of govt	Euro (0.87)	(18/28) Highly developed economy
Peru	1285, 216 (19)	34.7	Spanish	Lima	Sol (3.45)	(47/48) Upper middle income
Chile	756,102 (37)	20.1	Spanish	Santiago	Peso (909)	(46/43) High income

Netherlands gets youngest ever Prime Minister

The Netherlands is a northwestern European country, with more than one-third of its land lying below sea level. The Dutch have long managed to reclaim the lowlands, utilising dykes and pumping systems. After World War II, the country underwent rapid economic reconstruction with support from the United States and with broader European cooperation. Traditionally reliant on agriculture and trade, the Dutch economy gradually transitioned toward industrialisation.

A major turning point came in 1959 with the discovery of natural gas reserves in Groningen, which significantly boosted economic growth. Although the country faced economic difficulties in the early 1980s, it recovered through policies of austerity, wage moderation and structural reforms. The 1990s marked a period of economic expansion, accompanied by increased labour migration and demographic changes, which contributed to a more diverse, secular and liberal society. Today, the Dutch economy is closely integrated with that of Germany and is known for its advanced infrastructure, high-tech multinational corporations and strong agricultural exports.

The country is a constitutional monarchy combined with a representative democracy, where the monarch plays a largely symbolic role; and real political power rests with the elected parliament and the Prime Minister. In **October 2025,** snap general elections were held in the country after the coalition government led by Geert Wilders of the Party for Freedom (PVV) dissolved, chiefly due to disputes regarding asylum policy. The elections saw participation from several major parties, including the nationalist PVV, centre-left alliance of PvdA/GreenLeft, social liberal D66, conservative liberal VVD, Christian democratic CDA and the right-wing populist JA21.

In recent political developments, **Rob Jetten (38) leader of D66 party,** became the youngest prime minister in the country's history, to head a minority government supported by the VVD and CDA. His party secured only 26 seats in the 150-member parliament, reflecting the fragmented nature of Dutch politics. Despite this, the new government, sworn in by King Willem-Alexander on 23rd February 2026, has taken a cautious stand on asylum seekers.

Jetten, who rose rapidly in national politics, is known particularly for his opposition to homophobia. Having entered parliament in 2017 and previously served as climate minister under Mark Rutte, he now faces pressing domestic challenges. These include overcrowded asylum centres, housing shortage estimated at 4,00,000 homes for a population of 18 million and rising living costs..

Despite these challenges, the Netherlands remains a highly developed nation, consistently ranking among the top countries globally in quality of life, innovation and economic competitiveness.

Peru has an interim President

Peru is located on the Pacific northwestern coast of South America, bordered by Ecuador and Colombia to the North, Brazil to the East, Bolivia to the Southeast and Chile to the south. The country established its independence from Spain between 1821 and 1824 and remained undisturbed by the two World Wars. Peru is famous for Andes Mountains, Amazon rainforests, Machu Picchu and other important archeological sites.

Site	Belonging to period (approx.)	Description	Location	Uncovered by)	Uncovered Year
Machu Picchu	1450 CE	Ancient City	Urubamba Province	Hiram Bingham	1911
Caral-Supe	2600 BCE	Ancient Pyramids	Coastal valley of Caral. 200 kms north of Lima	Ruth Shady	1994
Sechin Bajo	3500 BCE	Ruins of ancient monuments	Casma Valley of Nrthern Peru	Peter Fuchs	2008
Nazca Lines	500 BCE to 500 CE	Group of Geoglyphs	Nazca Desert in Southern Peru	Toribio Mejia Xesspe	1927
Penico	1500 BCE	Ancient City	Huaura Province Northern Lima.	Ruth Shady	2018

On 18th February 2026, Peru's parliament known as Congress appointed **José María Balcázar (83)** of the **leftist Free Peru (Peru Libre) Party** as **Interim President.** As the country's eighth leader in a decade, he will serve until a new president is elected on 12th April and takes office in July.

Peru, although democratic having elections and power transfers, has frequent tussle between President and Congress, resulting in multiple leadership changes. The Congress has representatives from political parties subscribing to right wing, leftist, conservative and socialist ideologies.

Post WWII, Peru has been witnessing political rule alternating between dictatorship and democracy and that of economy swinging between poverty and periods of economic stability.

Year	President	Key Events
1946 - 1952	Gabriel Gonzalez	Outlawed Communists in 1948 during the Cold War. Strengthened ties with USA.
Caral-Supe	Carlos Ibanez del Campo	Return of the populist dictator, social inequity and high inflation. Rise of Christian Democratic Party.
Sechin Bajo	Eduardo Frei Montalva	From CD Party. Implemented agrarian reforms.
Nazca Lines	Salvador Allende	Socialist reforms led to severe economic crisis and deep political polarization.
Penico	Augusto Pinochet	Pinochet overthrew Allende in a military coup. Violation of human rights, rapid privatisation and deregulation.

Persistent political turmoil (2016–Present): Despite economic progress, Peru has been deeply affected by political corruption and instability, featuring six presidents between 2018 and 2023, frequent Congress-Executive conflicts and mass protests.

Demographic and social shifts: Peru has undergone rapid urbanisation, with over 11 million or one third country's population concentrated in and around Lima. The 1993 constitution created a "democratic" framework often accused of facilitating parliamentary fragility.

Peru is a leading global producer of silver, copper and gold, but has high economic disparity, institutional corruption and social unrest. Despite being an upper-middle-income economy with robust economic growth and a high Human Development Index (HDI), the country still contends with issues of informality, inequality and infrastructure.

Chile's new President

Chile is a long, narrow country located on the western edge of **South America**, stretching over 6,400 kms along the Pacific Ocean. Situated between the Andes Mountains to the east and the Pacific Ocean to the west, it shares borders with Peru, Bolivia and Argentina.

Chile formally declared its independence from Spain on **12th February 1818.**

José Antonio Kast (60) from the **Republican Party** was sworn in as the President of Chile on 11th March 2026, for the 2026–2030 term, marking a significant shift to the right. The conservative leader succeeded former president Gabriel Boric and has promised a tough stance on crime; stricter immigration policies and improved economic growth, including building a border barrier.

Key details about the new administration

- **Policies:** Kast has promised to combat illegal immigration by building a border barrier on the northern border, following similar initiatives to those in the U.S.
- **Focus:** His platform includes a crackdown on organised crime, economic reform, and a shift toward more conservative social values.
- **Election:** Kast secured victory in a December 2025 runoff election against competitor Jeannette Jara.

Key socio-political eras after WWII

Chile is generally considered a high-income, developing nation with advanced economic indicators, rather than a fully developed country. It ranks highest in South America for GDP per capita, stability and human development, having joined the OECD in 2010. Yet, it continues to struggle with considerable income inequality and infrastructure issues.

OECD - The Organisation for Economic Co-operation and Development consists of 38 member countries, primarily developed economies committed to democracy and market economies. Founded in 1961, it facilitates policy discussion on economic growth, sustainability and social well-being. Key partners include Brazil, China, India, Indonesia and South Africa.

Smt Kavya R

2026 Winter Olympics

The **Olympic Winter Games Milano Cortina 2026** brought close to 2,900 athletes across 16 disciplines and 116 events to the stunning landscapes of northern Italy, delivering what many observers have called one of the most memorable editions of the Winter Games in recent memory. From 6th to 22nd February 2026, the Games unfolded across the co-host cities of Milan and Cortina d'Ampezzo, combining world-class sport with the grandeur of Italian culture.

At the top of the final medal standings stood **Norway;** and the numbers were extraordinary. Norwegian athletes won the most medals overall with **41**, surpassing their own previous record of 39 set at the 2018 Winter Olympics. The architect of much of that dominance was **cross-country skier Johannes Høsflot Klæbo**. The 29-year-old came into the Games with five gold medals and added six more to his tally, shattering the nearly 50-year record set by American speed skater Eric Heiden, who won five golds at the 1980 Lake Placid Olympics. It was a performance for the history books.

The United States, meanwhile, had cause for celebration of their own. **Team USA** fielded its biggest Winter Olympics team ever with 232 athletes and broke the record for its most gold medals at a single Winter Games, finishing with **33** total medals. In a fitting conclusion to the spectacle, ice hockey powerhouses Canada and the United States brought the curtain down with a men's final for the ages, with Jack Hughes scoring in overtime to give Team USA a 2-1 victory and their first men's ice hockey gold since 1980.

The Games also delivered standout individual moments across other disciplines. **American figure skater Ilia Malinin**, known as the "Quad God" for executing the most difficult jumps, delivered a dominant performance to help the US win gold in the team figure skating event. **Chinese freeskier Eileen** Gu closed her Games with a flourish, winning the women's halfpipe gold to become the most decorated freeskier in Olympic history, extending her career haul to six medals.

For India, the Games marked another appearance on winter sport's grandest stage. Alpine skier Arif Khan carried the tricolour as flag bearer, with cross-country skier Stanzin Lundup also competing. No medals came India's way, but in a country where winter sports infrastructure remains limited and athletes often train abroad at personal expense, reaching the Olympic start line is a modest beginning.

Brazil and Georgia both won their first medals in Winter Olympic history, a reminder that these Games, for all their record-breaking headline acts, never lose sight of the smaller, equally powerful stories of nations stepping onto the world stage for the first time.

Shri Sridhar P

Extinct species reappear

Extinction of species and loss of biodiversity is an ongoing phenomenon of life on earth. A careful observation and analysis as to why some go extinct and some survive will reveal the intricacies involved. Reasons for extinction could be many. Loss of habitat, slow reproductivity, adaptability, invasive species, natural processes etc.

Palaeontologists confirm that there has been 6 waves of extinction so far. **The long term extinction rate prior to the arrival of modern man is 1 to 10 per decade for every million species. However the rate is 100 to 1000 times faster today.** Humans have evolved as the most powerful evolutionary force. The unprecedented economic growth in the past 250 years has trampled and ripped apart the inimitable, mystical world of natural selection and evolutionary process. Natural selection has given way to economic selection. The proliferation of specific species and their success is very much tied to our own success. The fine, intricate web of complex but self-sustaining biomes now stand vulnerable. Naturalist and evolutionary biologist Alfred Russel Wallace remarked, some 150 years ago, that we live in a zoologically impoverished world.

However, sometimes species that are thought to be extinct do make a dramatic reappearance. Sometimes it is the community effort that is responsible. Some species are so endemic that their

relative seclusion confers a certain curtain of safety but once extinct, chances of a recovery is remote. Marsupials are one of a kind and are largely endemic to Australia and nearby remote islands. That's why the remarkable reappearance of 2 marsupials is special.

Pygmy long fingered Possum and New genus glider: These 2 marsupials were rediscovered alive in West Papua New Guinea by a team lead by Tim Flannery, a Professor at Melbourne Sustainable Society Institute. The animals were found in a remote rainforest of Vogelkop peninsula in Papua New Guinea. The possum has a specialised elongated digit used for extracting wood boring larvae. The ring tailed glider, a tree dweller is a distant relative of the greater glider. These findings were published in an Australian scientific journal. Local community were careful to leave these habitats undisturbed.

The Blue Macaws: The Blue Macaw, a parrot species that inspired the film "Rio' returned to Brazil's wild after 20 years. It was believed to be extinct 20 years ago and declared so in the year 2000. It has been reintroduced since to Brazil's Caatinga region. The first wild hatchlings were born in 2003 after being released from captive breeding. This critically endangered species were released into the protected area in Bakia, Brazil.

Scientists identify *Homo juluensis*, a newly recognised human species in China: It is now firmly established that humans did branch out of Africa, having evolved 2.5 million years ago. They did so perhaps in search of food, escaping adverse climatic conditions etc. But as they did so, colonising the world they had to adapt to the local climatic conditions, availability of food etc. Their body structure, skull size, height and weight varied considerably. Hence humans who migrated to Europe and further north were more muscular, developed lighter skins and are referred to as Neanderthals. Humans who migrated east to parts of Indonesia, Java are referred to as *Homo soloensis.* Some of them from the island of Flores developed dwarfism. Siberia had Denesovians. Recently scientists have identified *Homo juluensis,* a newly recognised ancient human species who lived in central Cina some 2,20,000 years ago. They had large heads with large cranial capacities. They also sported thick skulls and unique tooth structures that are different from other known species. Their findings were reported in the science journal ***Nature*** by Christopher Bae and Xiujie Wu. Palaeontologists opine that 6 different humans lived simultaneously in the distant past and *Homo sapiens* emerged the ultimate winner and is the dominant genus member now.

Shri Sampath D

India and Canada signed a landmark CAD 2.6 billion (USD 1.9 billion) deal on 2nd March 2026, for **Cameco Corporation** to supply approximately 10,000 tonnes of uranium to India from 2027 to 2035. This agreement aims to fuel India's nuclear expansion and signals a reset in diplomatic relations following recent tensions between the two countries.

India currently consumes about 1,500–2,000 tonnes of uranium each year. In 2025, the country's requirement was about 1,884 tonnes. With the expansion of nuclear power, annual uranium demand could rise to about 5,400 tonnes. Even then, only around 30% of this demand is likely to be met through domestic production.

Canada is the world's second-largest producer of uranium, accounting for 13% to 15% of global output, while India being the world's third-largest consumer of energy.

Given its burgeoning economy, India is on a quest to secure uranium supplies as it expands its nuclear power footprint tenfold to 100 gigawatts by 2047; and both sides are looking to partner on that front.

Cameco Corporation is the world's largest publicly traded uranium company, based in Saskatchewan province. The company is the majority owner of Cigar Lake, the world's highest-grade uranium mine located in northern Saskatchewan.

Although India has uranium deposits, the quality of its ore is relatively low. The uranium concentration in Indian mines ranges between 0.02 and 0.45%. This is far lower than the global average of 1–2%. In comparison, some mines in Canada contain uranium concentrations as high as 15%.

The relations between the countries nosedived following the death of a Sikh separatist in the province of British Columbia.

A cycle of accusations and denials soured relations to the point of expulsions of several diplomatic personnel on both sides and a near stalling of bilateral trade talks between both countries. However, in November, incumbent Prime Minister Mark Carney approached his Indian counterpart PM Narendra Modi in a bid to put an end to the row and repair soured relations.

Both sides appear to be following up on that; and the bilateral trade between Canada and India being only USD 30 billion, efforts are made to double it by the end of the decade.

Because of the lower ore quality, extracting uranium in India is more expensive than importing it. Due to these limitations, more than 70% of India's uranium needs are currently met through imports. It is seen that domestic production still plays an important role. It supports India's nuclear weapons programme and provides a buffer in case global supply chains are disrupted.

Shri Sridhar P

Canada bans captivity of elephants and great apes

Canada has passed a significant legislation commonly known as the **Jane Goodall Act** (or Bill S-15), which restricts the captivity, breeding and import of highly intelligent animals. This landmark law aims to phase out the use of these highly intelligent species for entertainment, allowing for exceptions only for welfare, conservation or research purposes.

Why are animals maintained in captivity? Human animal relationship has been special. Domestication of wild species provided humans with milk, meat, fur, transportation and as draught power. Definitely it has helped humans but animals had to endure a degree of curtailed freedom. However sheer number of people and their appetite for energy, wood, land and food has played havoc with the natural habitat for the existing wild species. The fine web of our ecosystem stands disturbed beyond redemption. Human-induced threat to their habitats and extinction is real. Hence captive breeding of animals to save endangered species seems to be a very good initiative. Animals are also held in captivity for scientific study and educative purposes and as haven for rescued animals; and sometimes for entertainment. Sometimes the habitat destruction is so severe that some critically endangered species cannot survive and breed in the wild. When the conditions improve and habitats are restored, they are released from captivity, increasing their odds of survival.

Highlights of the law

- **Targeted species:** The law focuses on elephants, chimpanzees, gorillas, orangutans and other sensitive species.
- **Restrictions:** The ban is on new captivity, breeding and most transfers of these species in traditional zoo settings, effectively phasing out their captivity.
- **Exceptions:** Retains allowances for accredited sanctuaries, conservation programmes and specialised care.

This act follows Canada's previous ban on the captivity of whales and dolphins, continuing a trend of strengthening animal protection laws in the country.

Shri Sampath D

PM's visit to Israel

Modi is the first Indian Prime Minister to receive this prestigious recognition and awarded for his leadership in strengthening strategic relations between India and Israel.

Prime Minister Modi made a State visit to Israel on 25th and 26th February 2026, elevating the partnership to a "**Special Strategic Partnership for Peace, Innovation and Prosperity**". It is PM's second visit to Israel since 2017 and is seen as a test of India's foreign policy as it tries to balance its ties with Israel and other Middle Eastern countries.

This visit is therefore seen as an opportunity to review progress and chart the course for future collaboration. Importantly, the visit took place against the backdrop of rising tensions in the Middle East. Conducted at a time of heightened geopolitical tensions in West Asia, the visit underscored India's pragmatic foreign policy and its commitment to strengthening bilateral ties with key global partners.

The PM of Israel, Benjamin Netanyahu stated that their countries would work towards pursuing a free trade agreement. During the visit, PM toured **Yad Vashem, Israel's Holocaust memorial**, and addressed the Knesset, where he condemned the October 2023 Hamas-led attack on Israel. He was conferred with **Speaker of the Knesset Medal, the highest honour bestowed by Israel's parliament**. Modi is the first Indian Prime Minister to receive this prestigious recognition and awarded for his leadership in strengthening strategic relations between India and Israel.

PM Modi also met Israeli President Isaac Herzog and participated in ceremonial events, reinforcing diplomatic goodwill and mutual respect between the two nations.

The two countries also concluded over a dozen **bilateral agreements, including on cyber security, trade, space exploration, education, investment, agriculture and economic cooperation**. It was decided to establish the **Critical and Emerging Technologies**

Partnership which will give a new momentum to co-operation in areas such as AI, quantum technology and critical minerals. Additionally, Israel pledged to allow another 50,000 Indian workers into the country over the next five years and India has said that it would extend its landmark digital payment system UPI to Israel, boosting digital **finance cooperation** between the two countries.

Defence cooperation remains a cornerstone of the bilateral relationship. During the visit, both countries explored ways to enhance collaboration in advanced military technologies and security systems. Discussions reportedly included integration of cutting-edge Israeli defence technologies into India's security framework. The visit also emphasised joint efforts in counterterrorism, intelligence sharing and cyber security—areas of mutual concern.

The leaders highlighted the importance of joint research initiatives and partnerships between start-ups, academic institutions and industries. The visit reinforced the role of innovation as a key driver of future growth.

Israel's expertise in agriculture and water conservation continues to be of great value to India. During the visit, both sides reaffirmed their commitment to expanding cooperation in these areas. Technologies such as drip irrigation, desalination and efficient water usage were discussed as solutions to India's agricultural and water challenges.

PM Modi called for cooperation on multilateral projects, including the **India-Middle East-Europe Economic Corridor** (IMEC) and the **I2U2**, consisting of India, Israel, the United Arab Emirates and US.

PM Modi's visit to Israel reinforced the strong foundation built over the past decades and set the stage for deeper cooperation across multiple sectors.

The visit highlighted the importance of strategic partnerships in an increasingly complex global environment. By focusing on defence, technology, innovation and economic collaboration, both nations demonstrated their commitment to a future-oriented relationship.

Moreover, the visit reflected India's evolving foreign policy—one that is pragmatic, balanced and driven by national interest. As India and Israel continue to strengthen their ties, the outcomes of this visit are likely to have a lasting impact on bilateral relations and global geopolitics.

Smt Meenakshi

Indonesia bans social media for children

The government of Indonesia has announced that it will ban social media for children under the age of 16. The country joins a growing cohort of nations that are considering measures to protect young people from a host of online harms.

In a statement on Friday, Communication and Digital Affairs Minister of Indonesia Meutya Hafid said that she had signed a government regulation that will block children under the age of 16 from having accounts on "high-risk" digital platforms, which include YouTube, TikTok, Facebook, Instagram, Threads, X, Bigo Live and Roblox. She added that the ban would make Indonesia "the first non-Western country to delay children's access to digital spaces according to age".

The policy forces social media firms to block users under 16 from having accounts on their platforms, rather than penalising young people or their parents. Government figures shows that more than 4.7 million under-16 accounts "had been either deactivated or removed" since the ban came into effect.

Addressing potential public pushback, Hafid acknowledged that the implementation would bring challenges. She stated that while the policy may cause complaints from children and confusion among parents, the ban is still necessary to mitigate online threats such as porn, cyberbullying, fraud and addiction. Although the broad age-based bans were introduced to protect youth, human rights organisations have critiqued such policies. They describe the ban as an "ineffective quick fix." They feel the most effective way to protect children and young people online is by protecting all social media users through better regulation, stronger data protection laws and better platform design.

DO YOU KNOW ?

It was Australia that introduced the world's first social media ban for under 16, due to growing concern that children are being harmed by exposure to unregulated social media content.

Smt Sarada Devi Ravutu

PRAHAAR

National counter terrorism policy

India has been facing the problem of terrorism for many decades. To protect its citizens, PRAHAAR, India's first comprehensive National Counter-Terrorism Policy and Strategy, was unveiled by the Ministry of Home Affairs recently. It aims to create a "zero-tolerance" framework against terrorism.

Key features

P – Prevention of terror attacks

Government agencies collect information and stop attacks before they happen. They also keep a close watch on the internet, as terrorists often use social media and messaging apps to spread harmful ideas.

R – Response to threats

Ensures effective coordination among Central, State and District authorities during a terror attack. Guided by a Standard Operating Procedure (SOP) and the principle of **"One Nation, One Response,"** all agencies act in a unified manner, with local police serving as first responders.

A – Aggregating internal capacities

Security agencies such as the Central Armed Police Forces and the National Security Guard focus on upgrading tools and technology to combat evolving threats like drone technology, crypto-funding and cyber-terrorism. They are also trained in new skills and methods to handle terrorist situations.

H – Human rights and rule of law

Even while dealing with terrorism, the government follows laws and respects the rights of all individuals, ensuring justice and fairness.

A – Attenuating conditions leading to terrorism

Authorities work with community leaders and NGOs to spread awareness and discourage extremist influence among youth.

A – Aligning international efforts

India has entered into various agreements with other countries, such as Mutual Legal Assistance Treaties (MLAT), Extradition Treaties (ET/EA), Joint Working Groups (JWG) and Memorandums of Understanding (MoU), to share information and evidence and to support legal cooperation.

R – Recovery and resilience

India follows a whole-of-society approach in countering terrorism. The government engages doctors, psychologists, lawyers and other members of civil society, including NGOs, religious leaders and community leaders, to support and reintegrate the affected community.

Overall, PRAHAAR reflects India's commitment to combating terrorism while ensuring security, cooperation and social harmony.

Shri Mrithyunjay GN

India AI Impact Expo 2026

A defining moment for India's AI ambitions

The India **AI Impact Expo 2026,** held alongside the global **India AI Impact Summit 2026** in February marked a significant milestone in India's technological journey. Hosted at Bharat Mandapam in New Delhi, the event brought together global technology leaders, startups, researchers and students on an unprecedented scale to discuss the future of AI.

A global showcase of AI innovation

The Expo featured **over 300 exhibitors from more than 30 countries**, showcasing applications of artificial intelligence across sectors such as healthcare, agriculture, education, governance and sustainable industry.

Organised under the **IndiaAI Mission**, the event was structured around three core "*sutras*" (themes), **The People, The Planet and Progress**. These guiding principles reflected a shift in global AI discourse, from abstract concerns about safety to discussing the realistic impact and implementation on our day-to-day lives.

The Expo was of great public interest, leading to the organisers' extending its duration.

Among the many highlights were demonstrations of indigenous AI models, multilingual systems and real-world deployment tools. Startups and research labs used the platform to showcase not just prototypes, but scalable solutions designed for India's diverse population.

The participation of global leaders such as Sundar Pichai and Sam Altman further reinforced the event's significance. In his speech Pichai opined, "We are on the cusp of hyperprogress and new discoveries that can help emerging economies leapfrog legacy gaps." He also spoke of the importance of investing in these emerging technologies for human development as a whole.

Ranvir Sachdeva: The youngest voice on the global stage

Amid discussions led by CEOs, ministers and researchers, one of

the most memorable moments came from an unexpected speaker. **Eight-year-old Ranvir Sachdeva** became the youngest keynote speaker at the summit.

Standing before a rapt audience, Ranvir presented his ideas on artificial intelligence and about linking traditional Indian philosophical thinking with modern AI systems, offering a perspective that was both unique and thought-provoking.

Ranvir is said to be the world's youngest programmer. He became an Apple Swift Programmer in 2023 at just 5 years. Apple CEO Tim Cook invited him to the California headquarters for the WWDC event.

During his address, he explained his approach, saying, "**I'm linking ancient Indian philosophies to modern-day technologies**" and spoke of developing AI that is both accessible and independent so that it can serve people across the globe and not just business interest.

In many ways, Ranvir's speech became one of the defining moments of the summit, **reminding audiences that the future of AI will be shaped not only by institutions, but by individuals who begin their journeys early.**

Sarvam AI: From idea to a world class tool

Indian startups demonstrated the country's growing technical depth and the most prominent among them was **Sarvam AI**, which showcased a new generation of large language models at the Expo.

Sarvam AI's journey reflects the trajectory of India's startup ecosystem itself. What began as an idea to build foundational AI models tailored for Indian languages and use has evolved into a company presenting cutting-edge systems on a global stage.

Sarvam AI is an Indian artificial intelligence company headquartered in Bengaluru. Founded in 2023, the company develops large language models (LLMs) and multimodal AI systems with a focus on Indian languages and region-specific use cases.

At the summit, the company unveiled advanced models, including **30-billion and 105-billion parameter systems**, alongside speech and vision technologies designed for multilingual environments.

In addition to software, Sarvam AI introduced hardware innovations such as smart glasses, demonstrating how their AI can be used to interact with the real world easily.

Their presence at the Expo is a testament to the fact that Indian AI startups are no longer limited to application layers or service models, they are increasingly building foundational technologies that can power global systems.

It also highlighted the importance of government initiatives, research collaboration and access to large datasets that have enabled startups like Sarvam AI to scale rapidly and confidently.

A turning point for India's AI ecosystem

The India AI Impact Expo 2026 was a space where global leaders debated policy, startups unveiled breakthrough technologies and even an eight-year-old stood on stage and contributed meaningfully to the conversation.

The event demonstrated three key shifts. First, AI in India is moving from experimentation to implementation. Second, innovation is becoming more inclusive, both linguistically and demographically. Third, India is positioning itself not just as a participant in global AI development, but as a leader shaping its direction.

One thing is clear, India is no longer asking how it can adapt to artificial intelligence but rather actively defining how artificial intelligence can adapt to the needs of India, and through it, to the world.

Smt Kavya R

World leaders visit India

February and March 2026 marked a significant stretch in India's diplomatic calendar, as two prominent world leaders touched down on Indian soil within weeks of each other, **French President Emmanuel Macron and Finnish President Alexander Stubb.** Together, the visits underscored India's growing centrality in global conversations around technology, trade and geopolitics.

Macron's visit, which took place in February was his fourth official trip to India since 2017 and it wasted no time in delivering results. In Mumbai, Macron and Prime Minister Modi jointly inaugurated the **India-France Year of Innovation 2026**, launching a **digital platform designed to connect the two nations' businesses, universities and research institutions.** The highlight of the visit, however, was a significant diplomatic upgrade: the two leaders agreed to elevate their relationship to a "**Special Global Strategic Partnership**", a step that signals deeper long-term ambitions across defence, space, artificial intelligence and clean energy. From defence, over a hundred French companies accompanied Macron on the trip, reflecting just how commercially significant the visit was.

Macron also attended New Delhi's AI Impact Summit where both nations reaffirmed their shared vision for artificial intelligence that is safe, inclusive and respectful of linguistic diversity.

Barely two weeks later, Finnish President Alexander Stubb arrived in New Delhi in March 2026 for his first state visit to India in his current role. He served as chief guest and keynote speaker at the **11th edition of the Raisina Dialogue**, India's flagship conference on geopolitics and geo-economics.

The visit carried considerable weight as the two countries agreed to elevate their bilateral relationship to a strategic partnership in digitalisation and sustainability, a framework that sets the tone for cooperation in areas such as **5G, 6G, quantum computing, clean energy and green hydrogen**. Both leaders also agreed to aim for doubling bilateral trade by 2030, a target they intend to pursue in part through the recently concluded India-EU Free Trade Agreement. President Stubb also extended an invitation for Prime Minister Modi to visit Finland, which was accepted.

Taken together, the two visits paint a picture of an India that is increasingly sought after as a strategic partner on the world stage. From the AI revolution to the clean energy transition, both France and Finland appear to be making clear that when it comes to shaping the future, they want India in their corner.

Smt Laxmi A

Railway news

AI enabled apps to fix grievances and manage crowds before chaos

Indian Railways has integrated Artificial Intelligence into seven key passenger-facing applications to improve grievance redressal, ticket confirmation prediction, housekeeping services and crowd management.

Rail Madad

- AI classifies and prioritises complaints based on urgency and type.
- Identifies complaint trends and gauges passenger sentiment.
- Integration with **Bhashini** allows voice-to-text conversion in 12 languages, enhancing accessibility and multilingual grievance reporting.

RailOne: AI predicts waiting ticket confirmation percentage more accurately.

Coach Mitra: AI supports on-board housekeeping services (currently operational in 74 trains).

The Centre for Railway Information Systems (CRIS), the technological arm of Indian Railways, is embedding AI into 15 additional systems, including,

- Generation of Optimised and Automated Loco Links (GOAL)
- Coaching Crew Link Management System (CCLMS)
- Track Management System

AI for railway crowd management and bottleneck prediction

It will predict which platform will experience heavy crowding on an hourly basis. AI will correlate ticket purchase timestamps with train schedules to map footfall density.

AI in predictive maintenance and safety

Instead of reactive maintenance after breakdowns, the system will predict which assets - tracks, locomotives, wagons, signalling systems require repair in advance.

Indian Railways is also leveraging GST data to map commodity movement to boost freight loading.

'Rail Parcel App' for doorstep freight booking

South Central Railway has taken a major digital leap with the launch of the next-generation Rail Parcel App at Rail Nilayam in Secunderabad. The new SCR Rail Parcel App aims to transform traditional parcel booking into a seamless digital freight experience.

HIGHLIGHTS

- Doorstep pickup and delivery services
- Real-time parcel tracking
- Automated SMS and app notifications
- Secure digital payment options
- Transparent booking interface

Unlike traditional parcel systems that required physical visits to railway parcel offices, the SCR Rail Parcel App offers an end-to-end logistics solution. By integrating these services, South Central Railway aims to enhance customer convenience and improve operational efficiency. The app reduces dependency on manual processes and streamlines freight handling.

Pilot rollout in seven cities

- This App is being implemented as a pilot project across seven major locations including Hyderabad, Vijayawada, Bengaluru and four other key freight hubs under the SCR zone.
- This phased rollout will allow SCR to test operational efficiency, customer response and infrastructure readiness before expanding nationwide.
- SCR signed an MoU with IIM, Bangalore to conduct a comprehensive study of India's freight logistics market.

Food grains arrive in Mizoram via rail for the first time

In a significant historic milestone, the first-ever Food Corporation of India (FCI) food grain cargo train arrived at Sairang Railway Station on 3rd March 2026.

Achievement

- Nearly seven months after the first train chugged into Aizawl, Railways have transported its maiden food grain consignment to Mizoram capital — in a push for freight-loading in north eastern parts of the country.
- The cargo train comprised 42 wagons carrying around 25,900 quintals of rice from Punjab.

Why is it important?

- This marks an important step in

strengthening rail-based freight connectivity in the state and improving the supply chain of essential commodities.

- The successful unloading of the inward FCI food grain rake at Sairang signifies the growing operational capability of the station and highlights the expanding role of railway infrastructure in supporting Mizoram's logistics and food distribution network.

Other facilities

- Indian Railways has also initiated measures to strengthen parcel logistics, including the introduction of refrigerated parcel van services to facilitate transportation of horticultural and perishable produce, thereby expanding market access for local farmers and traders.
- The first freight rake had 21 cement wagons.

Indian Railways and Indian Army open massive post-retirement jobs

On 26th February 2026 Indian Railways and the Indian Army launched a Framework of Cooperation to expand post-retirement employment opportunities for **Agniveers** and ex-servicemen. Nine Railway Divisions have signed MoUs with Army organisations.

Key reservation provisions for Agniveers and Ex-Servicemen in Railways

- 10% horizontal reservation in Level-2 and above posts for ex-servicemen.
- 20% reservation in Level-1 posts for ex-servicemen.
- 5% reservation in Level-2 and above posts for ex-Agniveers.
- 10% reservation in Level-1 posts for ex-Agniveers.

What is horizontal reservation?

It refers to the equal opportunity provided to other categories of beneficiaries such as women, veterans, the transgender community and individuals with disabilities, cutting through the vertical categories (SC/ST/OBC/ General). It is a minimum guarantee applied independently within each vertical category, ensuring these groups are represented at all levels of caste or merit.

Example scenario: If 100 seats are available and 30% are for OBCs (Vertical) with a 10% horizontal quota for women, 10% of those 30 OBC seats must go to OBC women.

Significance

- National infrastructure development.
- Security coordination.
- Utilisation of military discipline and technical skills.
- Smooth civilian career transition.

- This immediate engagement mechanism ensures that veterans are not left waiting during lengthy recruitment cycles.
- The policy aligns with the broader objective of leveraging the experience and professionalism of armed forces personnel in nation-building sectors.
- The reservation framework strengthens structured engagement of veterans within the existing recruitment system of Indian Railways.

WORLD'S LARGEST SEMICONDUCTOR CLEAN ROOM

India has reached an important milestone in its semiconductor journey. Recently, Micron Technology started operations at its new ATMP facility in Sanand, Gujarat; and **shipped its first DRAM memory module to Dell Technologies.** This is a major step for India as it builds its own electronics and chip-making industry.

The new Micron plant is special because it is India's first advanced memory ATMP facility. ATMP stands for Assembly, Testing, Marking and Packaging. This means the factory takes semiconductor wafers and turns them into finished memory products that can be used in computers, smartphones and data centres.

One of the most impressive parts of the plant is its 5,00,000 square foot clean room, which Micron says is the largest raised-floor clean room of its kind in the world. **A clean room is a highly controlled space where even tiny dust particles are removed because they can damage sensitive electronic parts.** The chips and gold wires used in the factory are so tiny that even one particle can cause problems.

The Sanand facility will work on two important types of memory:

- **DRAM (Dynamic Random Access Memory)** which is the main working memory used in devices like laptops and phones.
- **NAND (NOT-AND)** flash memory, which stores data in devices such as SSDs.

Prime Minister Modi inaugurated the plant. Micron plans to invest USD2.7 billion in the project across two phases. The company says it expects to produce tens of millions of chips this year, with a goal of making nearly one billion chips every year by 2027. The plant also brings jobs and training opportunities. Out of the 1,300 employees, around 700 are fresh engineering graduates from Gujarat and nearby states. They were trained in semiconductor skills and also received hands-on experience at Micron's facilities in Malaysia and Singapore.

Micron says the factory uses the same advanced automation, AI tools and quality systems as its plants around the world. **This means India is not just joining the chip industry—it is entering at a high global standard.** This new facility is a big step toward making India stronger in technology, electronics and self-reliance.

Governor appointments 2026

President Droupadi Murmu approved the appointment and reshuffle of Governors and Lieutenant Governors across nine states and Union territories, in early March. Out of these, three are new appointments while five are transfers and one has been entrusted additional responsibility. Let us have a look at the profiles of the Governors.

R.N.Ravi: Subsequent to the sudden resignation of the **West Bengal** Governor C.V.Ananda Bose, R.N.Ravi has been appointed the Governor of West Bengal. Hailing from Patna, Ravi is an IPS officer of repute and has served the nation in various capacities. He has served in the CBI and the IB with distinction. In 2014 he was appointed as the chairman of the Joint Intelligence Committee and in 2018 he became the deputy NSA. After his retirement he was appointed the Governor of Nagaland in 2019 and later he held additional charge as the Governor of Meghalaya. In September 2021 he was appointed the Governor of Tamil Nadu and had a stormy stint.

Kavin Gupta: Born in 1959 in Jammu Kavinder Gupta is a seasoned politician who rose from the ranks of the RSS,VHP and the BJYM to become the Speaker of the J&K Assembly in 2014 and the Deputy chief Minister of the State in 2018. Like many RSS leaders he had also served a jail term for 13 months during the emergency in 1975-76. He has now been appointed as the Governor of **Himachal Pradesh**. Prior to this assignment he was the Lieutenant Governor of Ladakh.

Taranjit Singh Sandhu: A retired Diplomat of the Indian

Foreign Service, he has served the nation with distinction. In 1990 he was posted to the Embassy of India in Moscow. In 1992 he helped establish the Indian Embassy in Kyiv, Ukraine. After his return to India he served as the OSD in the Ministry of External Affairs. From 1997 to 2000 he served as the First Secretary in the Indian embassy at Washington DC and subsequently in Colombo and New York before returning to India. After a two year stint as the Joint Secretary in the MEA he served as the Consul General of India at Frankfurt and then as the Deputy Chief of Mission

in Washington D.C., and as the High Commissioner of India at Sri Lanka before becoming the Ambassador of India to US. He has now taken charge as the **Lieutenant Governor** of **Delhi**.

Rajendra Vishwanath Arlekar: A politician from Goa, he has assumed the responsibility as the Governor of **Tamil Nadu** and **Kerala**. A member of the BJP, he has served as the speaker of Assembly and then as a cabinet minister in Goa. He had earlier been the Governor of Himachal Pradesh and subsequently Bihar before his transfer to Kerala in 2025.

Shiv Pratap Shukla: Born in 1952, Shukla is a veteran politician of BJP. He has been a cabinet minister of Uttar Pradesh under two CMs - Kalyan Singh and Rajnath Singh. He later became a member of Rajya Sabha and was the Minister of State for Finance in the first Modi ministry. He served as the Governor of Himachal (2023- 2026) and currently Governor of **Telangana.**

Syed Ata Hasnain: Born in 1952, Lieutenant General(Retd.) Syed Ata Hasnain is a former General Officer of the Indian Army. Commissioned into the 4th Battalion, Garwhal Rifles initially, he commanded the same battalion later. He participated in Operation Pawan in Sri Lanka and was also part of the counter insurgency operations in Punjab (1990-91). He then served with the UN in Mozambique and later in war-torn Rwanda. He served in J&K as a Brigadier on the Line of Control at Uri. As Lieutenant General he served as the General Officer Commanding (GOC) XXI Corps in Bhopal. In 2010 he returned to Kashmir as the GOC of XV Corps during which time he held several meetings to redress the grievances of the common citizens. **He conceived the "Hearts Doctrine" and brought the Army closer to the people which is his significant contribution to improving the security situation in Kashmir.** Another activity in this direction is his major role in starting the **Kashmir Premier League** in 2011. In 2012 he assumed office as the Military Secretary. He also introduced the Scholar Warrior concept to the Indian Army, aimed at incorporating military intellectualism and strategic culture in India.

Post his superannuation, General Hasnain has continued his intellectual pursuits with prominent think tanks like the Vivekananda International Foundation and the Delhi Policy Group. He is also part of the Institute of Peace and Conflict studies. He writes regularly in many national newspapers and is a prominent face in TV debates. He was also part of the National Disaster Management Authority and the empowered Committee for Information and communication set up by the PMO.

He has innumerable awards and decorations to his credit – from the **Vishisht Seva Medal** to the **Param Vishisht Seva Medal** and many more. He has now assumed charge as the Governor of **Bihar.**

Jishnu Dev Varma: Born in Agartala, Tripura in 1957, Varma is a veteran politician of BJP.

He was the Deputy CM of Tripura (2018 – 2023) and during his term he has handled the portfolios of Finance, Power, Rural Development, Planning and coordination, TREDA, Science, and Technology & Environment. In 2022 he was chosen as the Chairman of the North East Regional Power Committee (NERPC). He was appointed as the Governor of Telangana in July 2024 and has now been transferred to **Maharashtra**.

He is part of the Tripura Royal family and is quite active in the cultural sphere. He is also a patron of arts and sports. He has also been the Head of the Badminton Association of India.

Nand Kishore Yadav: He is one of the most experienced and popular leaders of the Bihar BJP. He was born in 1953 and joined RSS at the age of 16. He was an active participant of the Jaya Prakash Narain movement in the mid seventies and spent about a year in jail. He has been a Bihar MLA for seven consecutive terms from the Patna Sahib constituency and has held many ministerial responsibilities like Road Construction, Tourism and Health. He was also the Speaker of the Assembly(2024 -2025). He is now the Governor of **Nagaland.**

Vinai Kumar Saxena: The 1958-born business executive who started his career with the JK group rose to become the CEO and Director of the Dholera port Project. He also led the construction of the Sardar Sarovar project. In 2015 he was appointed as the Chairperson of Khadi and Village Industries Commission (KVIC) and it was under his stewardship that the KVIC registered its highest turnover of INR 1.15 lakh crores.

During his tenure as the KVIC chief, the organisation launched several environmental initiatives like the campaign for plantation of *Moringa oleifera* to promote beekeeping and raise awareness about the plant's nutritional and medicinal properties; and the initiative of BOLD (Bamboo Oasis on Lands in Drought) through which about 31,000 bamboo saplings were planted.

After a controversial stint as the Lieutenant Governor of Delhi he is now the Lieutenant Governor of **Ladakh.**

Role of Governors and the current context: The office of the Governor is defined under Articles 153 to 162 of the Indian Constitution and the appointment is specifically governed by Article 155. Although Governors are only nominal Heads of States they are endowed with executive, legislative and discretionary powers; and their role is significant. While governors are primarily agents of the central government, they have the important role of Centre-State coordination and maintaining the constitutional balance between the Centre and the States.

2026 is crucial from a political perspective. States like Tamil Nadu, West Bengal, Kerala, Assam and Puducherry are going to the polls in April and three out of these are currently opposition ruled. Having trusted and seasoned administrators as governors would help avert constitutional crises in case hung assemblies emerge in some states.

It is often felt that governors are not needed in the system. However, given the way our polity is evolving politically, wherein party political interests often tend to supersede the interest of the states or the nation, governors are crucial to maintain the federal balance that is enshrined in the constitution. While almost all the current incumbents at the Lok/ Raj Bhavans have immense merit and vast administrative experience, how many of them will act strictly as per the constitution is a million dollar question!

- **CBI – Central Bureau of Investigation**
- **IB – Intelligence Bureau**
- **NSA – National Security Advisor**
- **VHP – Vishwa Hindu Parishad**
- **BJYM – Bharatiya Janata Yuva Morcha**
- **OSD - Officer on Special Duty**
- **MEA – Ministry of External Affairs**
- **TREDA – Tripura Renewable Energy Development Agency**

Smt Anuradha V R

Sports news

India's Tejaswin Shankar strikes gold in men's heptathlon

India's Tejaswin Shankar wins gold in men's heptathlon at the **Asian Indoor Athletics Championships 2026 in Tianjin, China**, setting a new national indoor record with 5,993 points.

This marked India's **only gold medal at the championship.** With this achievement, Tejaswin Shankar also set a new national indoor record, surpassing his earlier best.

India finished the tournament with five medals and secured sixth place in the overall standings.

Achievements

High Jump	Gold in 2016
National Decathlon Record	7826 points in 2025 in Poland
Asian Games	Silver Medal in 2023

The men's indoor heptathlon consists of the following events in which the first four are conducted on the first day and remaining three on day two :

- 60 metres
- Long Jump
- Shot put
- High Jump
- 60 metre hurdles
- Pole vault
- 1000 metres

Points system

The heptathlon scoring system was devised by a Viennese mathematician - **Dr Kaul Ulbrich.** The formula is constructed to set a **bench mark** performance to

score **1000 points**. Each event even has a minimum recordable performance level corresponding to zero points. The formulae are devised so that a successive constant increment in performance corresponds to gradual increase in points.

Smriti Mandhana wins

BBC Indian Sportswoman of the year 2025

World Cup-winning cricketer Smriti Mandhana has been named BBC Indian Sportswoman of the Year for 2025. Mandhana, 29, was India's vice-captain as they won the 2025 ICC Women's World Cup, scoring 434 runs across the tournament.

Mandhana was chosen by a distinguished grand jury comprising Grand Slam tennis champion Leander Paes, Paralympic medallist Deepa Malik and World Championship long-jump medallist Anju Bobby George.

Mandhana made her debut for India aged 16 and has scored

17 international centuries across the three formats of the game - a record she shares with Australia's Meg Lanning.

She has also won two Women's Premier League titles with Royal Challengers Bengaluru.

Kum Pavithra S

INDIA'S FIRST DIGITAL TWIN PLATFORM IN PORT

On 23rd February 2026, V.O. Chidambaranar Port in Tamil Nadu crossed new technological territory. Union Minister Sarbananda Sonowal inaugurated India's first Digital Twin platform for port operations, transforming how the nation manages its maritime infrastructure.

A digital twin isn't just a 3D model or computer simulation. It is a dynamic virtual replica that lives and breathes alongside its physical counterpart. Think of it like an advanced version of Minecraft: every time a real ship enters Tuticorin harbour, a virtual ship appears in the digital system at the same coordinates, carrying the same cargo and reacting to the same conditions.

Unlike traditional simulations that operate in isolation, this digital twin receives constant real-time updates from the physical port. This creates a "predictive sandbox" where engineers can test complex scenarios, like navigating a massive container ship through a storm, without any real-world risk.

The port's nervous system

The platform's sophistication relies on what can be described as the port's "nervous system." LiDAR mapping fires millions of laser pulses per second to create precise 3D scans of every crane, building and dock. Drones provide aerial surveillance from angles impossible for ground cameras. Thousands of IoT sensors monitor everything from crane motor temperatures to vibration patterns during ship arrivals.

GPS tracking ensures every container truck and vessel is visible on the digital map in real-time. Together, these technologies create a unified digital awareness of the entire port ecosystem.

The AI brain

The massive data stream from sensors would overwhelm human operators. AI algorithms analyse patterns to predict equipment failures before they happen, allowing repairs during breaks rather than emergency shutdowns.

Measurable impact

The platform targets a 25% reduction in vessel turnaround time through intelligent scheduling. For massive container ships, this reduction saves thousands of dollars in fuel and labour costs while making the port more attractive to international shipping lines.

The green port revolution

Energy and emissions tracking monitor the power usage across every crane and vehicle, identifying inefficient practices like ships idling too long. The digital twin also manages VOC Port's renewable energy investments, predicting solar and wind production based on weather forecasts.

Safety and the future workforce

Predictive alerts notify supervisors when sensors detect dangerous conditions like leaning container stacks. This technology doesn't replace workers—it enhances their capabilities, letting crane operators see hidden angles and logistics managers solve complex problems in minutes.

National vision

As India's first major port to implement digital twin technology, VOC Port has set a benchmark for facilities nationwide under **Maritime India Vision 2030 and Amrit Kaal Vision 2047**. Chairperson Susanta Kumar Purohit emphasised that this marks a critical modernisation milestone, proving India isn't merely adopting global technology, it is creating a maritime digital revolution in India.

LiDAR (Light Detection and Ranging) is a remote sensing technology that uses pulsed laser light to measure distances (ranges) to objects, creating precise 3D maps of the environment. It works similarly to radar but uses light waves instead of radio waves.

Smt Manju Aildasani

MOBILE LABS TO CHECK NH STANDARDS

India has one of the **largest road networks** in the world, with **National Highways** forming the backbone of inter-state connectivity. These highways carry a significant share of passenger and freight traffic.

The **Ministry of Road Transport and Highways (MoRTH)** in India has initiated a pilot programme deploying **Mobile Quality Control Vans (MQCVs)**, often referred to as "**laboratories on wheels**," to monitor and enforce construction standards on **National Highways.** The **MQCVs** are designed to improve construction quality, safety and ensure structural durability; and provide real-time, non-destructive testing (NDT) to prevent subpar highway builds.

These mobile labs are equipped with advanced testing tools like ultrasonic pulse velocity meters, rebound hammers, asphalt density gauges and reflectometers that allow engineers to check road strength without damaging the structure and ensure world-class road standards. The government is developing a **National Highway Quality Monitoring Portal** to digitise the monitoring process. This portal will upload test reports generated by the mobile vans. The system will feature real-time **GPS tracking** of MQCVs. This ensures transparency in inspections and prevents misuse. Officials can monitor van movements and quality checks remotely, making the entire system more accountable and data-driven.

The pilot phase of this **MoRTH** initiative is currently underway in four states – **Rajasthan, Gujarat, Karnataka and Odisha**. These states were selected to test the efficiency of **Mobile Quality Control Vans** under different climatic and soil conditions. Based on the results, the programme may be expanded nationwide by **June 2026**.

The pilot runs will help refine processes before full-scale implementation.

In the next phase, the mobile quality control system using MQCVs will be expanded to 11 more states including Uttar Pradesh, Maharashtra, Bihar, Jharkhand, Andhra Pradesh, Telengana, Tamil Nadu, Madhya Pradesh, Chhattisgarh, Assam and Meghalaya.

As highway expansion continues under various infrastructure programmes, quality monitoring mechanisms like MQCVs become essential to maintain construction standards.

Smt Sandhya Nair

Guinness record for Mega plantation campaign

Varanasi, the parliamentary constituency of Prime Minister Modi, has entered the Guinness Book of World Records by planting over 2.5 lakh saplings within a single hour. The large-scale environmental initiative was undertaken by the Varanasi Municipal Corporation on 1st March drawing participation from more than 20,000 residents.

The plantation was conducted in the Domari area along the Ganga riverfront, where authorities are developing a major urban forest project named "**Namo van**". A total of approximately 2.51 lakh saplings were planted within 60 minutes using the Miyawaki plantation method. To facilitate the project, a 10,827-metre-long pipeline, ten bore wells, and 360 rain gun systems have been installed in the designated forest area, which aims to ensure efficient irrigation and water conservation.

Miyawaki method

The Miyawaki method involves dense plantation of native species to accelerate forest growth and enhance biodiversity.The urban forest spans 350 *bighas* and is divided into 60 sectors, each named after famous Ganga Ghats in Kashi, including Dashashwamedh, Manikarnika, Kedar and Lalita. Approximately 4,000 trees have been planted in each sector, with a focus on 27 native species such as **sheesham, arjun, teak** and **bamboo.** The initiative also includes fruit-bearing trees like **mango, guava** and **papaya**, in addition to medicinal plants such as **ashwagandha**, **shatavari** and **giloy**. Plans are in place to develop this area into an '**oxygen bank**' in the years to come.

Officials believe the dense urban forest will improve air quality, restore ecological balance, and strengthen the riverbank along the Ganga.

The project plans include a four-kilometre walking track, designated meditation and yoga zones, a four-hectare flower park and a two-hectare herbal park. Additional amenities such as a children's play area and an open-air gym are under development.

Broader environmental significance

The large-scale plantation aligns with national efforts to expand green cover and enhance climate resilience in urban centres. By combining ecological restoration with public infrastructure, the initiative reflects a model of integrated urban planning aimed at sustainable development and long-term environmental stability.

DO YOU KNOW ?

- **Miyawaki technique was developed by Japanese botanist Dr. Akira Miyawaki. Urban forests improve air quality, biodiversity and climate resilience.**
- **1 *bigha* = 6.25 acres.**

Smt Shubha T R

Heimtextil 2026

Meghalaya earns global recognition

From the misty hills of Meghalaya to the spotlights of Frankfurt, Meghalaya's textile heritage has successfully transitioned from the local looms into the global spotlight.

Meghalaya's Ilamonbanrisa Thagkhiew has transformed the traditional **Khasi weaving technique** into a global design sensation and was named **one of the 12 highlights at Heimtextil 2026** one of the largest international textile fairs held in Frankfurt, Germany.

Growing up in Meghalaya, she was surrounded by the rich traditions of Khasi culture and the beauty of handmade textiles. These early influences shaped her love for craft and storytelling.

Inspired by the traditional weaving practices, she joined the **National Institute of Design** and built her career through continuous learning and creativity. Wanting to explore design further, she pursued a master's degree in textiles from the prestigious **Royal College of Art** in London.

Currently based in London, her practices are deeply rooted in Khasi culture and traditions. Her designs focus on storytelling, heritage, creating hand-woven textiles and surface designs using **natural materials such as ramie, cotton, silk and bamboo**.

She also collaborates with artisans from Meghalaya to preserve traditional weaving techniques while integrating contemporary design elements.

Her work was showcased through the **New Talents programme**, which features emerging designers who are bringing fresh ideas to the textile industry.

Along with this honour, her designs have been featured in **"8 Women in Design to Watch"** by **New Designers** (U.K's leading magazine) highlighting her innovation and talent.

She has received awards including the **Prime Awards in Shillong** (2021) and the **House of Directory Award for Tradition and Storytelling** in London (2025).

In an era of rising Indian soft power, designers like **Ilamon Thagkhiew** are emerging as the cultural ambassadors, demonstrating that India's heritage can lead the world in sustainable innovation.

DO YOU KNOW ?

- **Khasi weaving in Meghalaya is a traditional, women-centric craft, notably using the *Thain Madan* (floor loom) and back strap looms to create eri silk (*Ryndia*) and cotton fabrics. Known for intricate, symbolic patterns and natural dyes, this, along with *Ryndia* silk, recently secured a Geographical Indication (GI) tag in 2025.**
- **"*Ryndia*" is the Khasi name for eri, named after the *ryndia* (castor) plant that nourishes the eri silkworms. *Ryndia* or eri silk, commonly known as peace or *ahimsa* silk. It derived its term, peace silk, from the age-old tradition of extracting silk from the cocoons without killing the silkworm.**

Smt Ramamani N

NCL develops dimethyl ether gas

India's home-grown solution to LPG dependence

India's LPG vulnerability

India's dependence on imported liquefied petroleum gas (LPG) has become a major concern in recent years. The country consumes nearly 31.3 million metric tonnes of LPG every year, of which 60–67% is imported. What makes this dependence even more risky is that over 90% of these imports pass through the Strait of Hormuz, one of the world's most sensitive geopolitical chokepoints. Whenever tensions rise in that region, India's LPG supply is immediately threatened.

Recent disruptions caused by the Iran–US–Israel conflict sharply reduced weekly LPG imports by nearly 30%. The supply of commercial cylinders was also halted, forcing the government to invoke the Essential Commodities Act to ensure that household cooking gas remained available. This situation exposed a hard truth: millions of Indian homes depend on a fuel supply chain that is beyond the country's control.

An indigenous alternative: Dimethyl ether

At this crucial moment, India already has a promising indigenous alternative—Dimethyl Ether (DME). On 10th March 2026, Dr Raghunath Mashelkar, former Director General of CSIR, highlighted on social media that India possesses a cooking-fuel technology capable of reducing dependence on imported LPG. This technology has been developed by the Council of Scientific and Industrial Research's National Chemical Laboratory (CSIR-NCL), Pune.

DME is a clean-burning fuel that can effectively substitute LPG. More importantly, it can be produced from domestic feedstocks such as coal, biomass or even captured carbon dioxide, giving India a realistic pathway toward greater energy self-reliance.

How the technology works

CSIR-NCL has been working on DME technology since 2017 under the CSIR's Catalysis for Sustainable Development mission-mode project.

Scientists have developed a patent-protected process in which methanol is dehydrated using a specially designed catalyst to produce DME.

One of the greatest strengths of DME is that its physical properties are very similar to LPG. It exists as a gas under normal conditions but can be liquefied under moderate pressure, making it easy to store and transport in ways similar to LPG. This means that DME can be integrated into the existing cooking gas ecosystem without requiring costly changes in cylinders, regulators or pipelines.

According to the Bureau of Indian Standards (BIS), DME can be blended with LPG up to 20%, while up to 8% blending requires no changes at all to existing infrastructure. This makes DME a practical and scalable option for India.

Cleaner, more efficient fuel

DME is not only a strategic alternative but also a more environmentally friendly fuel. CSIR-NCL has successfully demonstrated a burner stove that works on 100% DME. **Trials have shown that it offers 10–15% greater efficiency than conventional LPG burners.**

In addition, DME burns more cleanly. **It produces lower nitrogen oxides, lower sulphur oxides and no soot, making it a healthier and more eco-friendly option for household cooking.** In an era where clean energy is becoming increasingly important, DME offers both energy security and environmental benefits.

Scaling up for the future

The technology has already moved well beyond the laboratory stage.

The pilot facility at CSIR-NCL, which once produced only 20–24 litres of DME per day in 2020, has now scaled up to approximately 250 kilograms per day. The technology has reached Technology Readiness Level (TRL) 6–7, which means it is ready for larger demonstrations and commercial planning.

Scientists are now working with engineering partners to establish a 2.5-tonne-per-day demonstration plant. If successful, this could become the bridge to large-scale commercial production.

Partnerships and national importance

Several institutions are now joining hands to take DME forward. Engineers India Limited has signed a Memorandum of Understanding with CSIR-NCL to develop and commercialise DME technology. At the same time, CSIR-IICT Hyderabad and BHEL Corporate R&D are developing a CO_2-to-DME pathway under the Department of Science and Technology's Carbon **Capture and Utilisation initiative**.

Private industry is also showing confidence. In December 2025, Godavari Bio-refineries Limited launched a pilot project to convert industrial CO_2 directly into DME.

Researchers estimate that replacing just 8% of India's LPG consumption with DME could save nearly ₹9,500 crore annually in foreign exchange. With 330 million Indian households relying on cooking gas, DME is more than a scientific innovation—it is a strategic national necessity. India now has the opportunity to turn this indigenous technology into a powerful symbol of energy independence and self-reliance.

Shri Arpith Vijayan

Flora & fauna news

New blind ground water fish discovered in Assam

Scientists have discovered a new kind of fish living deep underground in the state of Assam, India. This fish is very special because it lives in dark water inside underground spaces called aquifers. These are places where water is stored beneath the ground.

The newly found fish cannot see. Since it lives in complete darkness, it has no need for eyes. Instead, it uses other senses to move around and find food. Its body is pale because sunlight never reaches its home.

The team found the fish while studying groundwater systems. They believe this fish has adapted over a long time to survive in such a unique environment. It may feed on tiny organisms that also live in the underground water.

This discovery is important because it helps us learn more about life in hidden places under the earth. Scientists plan to continue their research to learn more about the fish and its habitat.

Tri colour freshwater species discovered in Karnataka

A new kind of freshwater crab has been discovered in the forests of Western Ghats in Karnataka. The crab, named ***Ghatiana dhritiarum***, was found in Uttara Kannada district by forest workers. Scientists later confirmed the discovery. This is the 77th freshwater crab species found in India.

The crab lives in very special places. It stays in water-filled holes inside tree trunks and gaps between old rocks called laterite. These rocks are millions of years old. The crab eats many things like moss, dead leaves, tiny insects, worms and fungi. It prefers wet and shady places, especially during the rainy season.

This crab looks different as it grows. When it is young, its head is black and its legs are bright orange. As it grows, its body changes colour. Adult crabs become mostly white with some orange on their legs. It also has a wide shell and thin

eye stalks, which makes it easy to recognise.

This crab is very important because it is an indicator species which shows that the environment is healthy. The crab is only found in a small area near Karwar, making it rare and special.

India welcomes 9 cheetahs from Botswana

India's cheetah population has reached 48 after nine new cheetahs were brought from Botswana to Kuno National Park in Madhya Pradesh. Union Minister Bhupender Yadav released the animals into special enclosures where they will be checked and cared for before being set free. This is an important step in **Project Cheetah** India.

The nine cheetahs - six females and three males- will stay in quarantine first. Experts will watch their health and help them adjust to their new home. After that, they will slowly be released into the wild.

Cheetahs once lived in India but became extinct in 1952 due to hunting and loss of habitat. In 2022, India started Project Cheetah to bring them back. The goal is to rebuild their population and restore balance in nature. The project is already showing success as 28 cubs born in India. Scientists continue to monitor the animals to make sure they stay healthy and adapt well.

This effort not only brings back a lost animal but also helps improve grassland ecosystems. It shows how teamwork and science can help protect wildlife and nature for the future.

Mohan Pradhan of Sikkim has developed a new hybrid orchid

A new hybrid orchid called ***Seujia kaziranga*** has been developed by orchid expert Mohan Pradhan from Sikkim. He spent eight years carefully cross-breeding orchids to create this special flower. The name has a special meaning. "*Seujia*" means green and fresh in Assamese, showing the beauty of Assam's forests.

"Kaziranga" honours the national park, which is also a UNESCO World Heritage Site and home to the one-horned rhinoceros. This makes the orchid not just a plant, but a symbol of nature and pride.

Creating a hybrid orchid is not easy. It takes years of careful pollination, observation and testing before the plant becomes stable. Dr. Pradhan's success shows both scientific effort and his love for nature.

Assam is home to more than 300 types of orchids, many of which are found only in Northeast India. The new orchid garden will help conserve these plants and teach people about their importance.

Kaziranga Orchid Park inaugurated

A new orchid park has opened in Assam to support tourism and farming. CM Himanta Biswa Sarma inaugurated the Kaziranga Orchid Park at Kohora near Kaziranga National Park on March 2. The park is expected to attract more visitors and create jobs for local people.

The park is built on 20 *bighas* of land and cost about ₹15.93 crore in its first phase. It has many types of orchids, including both local and foreign species. There are seven modern glass houses to protect and display the plants. The park also includes a cultural stage, places for tourists to stay, a children's park and a restaurant. These features will make Kaziranga more than just a wildlife destination.

Assam has been growing quickly in recent years. The government says the state's economy has improved a lot, especially in farming, tourism and infrastructure. New farming methods, better irrigation and support for farmers have helped increase growth. Tourism projects like this park are also creating more opportunities.

New plant species in Assam discovered

Scientists from Gauhati University have discovered a new plant species in Assam and named it after famous singer Zubeen Garg. The plant is called ***Osbeckia zubeengargiana*** and was found in Manas National Park. This discovery is important because it adds to the list of unique plants found in the region.

Osbeckia zubeengargiana is a tall shrub that can grow up to 3.5 metres. It has pretty pink flowers and grows mainly in grasslands. The plant blooms and produces fruits from September to January. Many such plants were found growing together in the park.

The plant was named after Zubeen Garg to honour his work in music, films and poetry, as well as his support for protecting nature. Scientists wanted to recognise his contribution to Assamese culture and environmental awareness.

Henckelia monophylla rediscovered

Scientists have rediscovered a rare plant in Arunachal Pradesh after nearly 189 years. It was found in Lohit district.

The plant grows in wet forest areas and belongs to a group of plants called *Gesneriaceae*. It is a small, long-living herb with simple leaves and soft, colorful flowers. Its flowers are shaped like tubes or funnels; it produces tiny seeds that help it spread in nature.

A new flowering plant found in Nagaland

Hoya nagaensis was discovered in a protected forest in Phek district. It has star-shaped flowers and produces a milky liquid, which is common in its plant family. It is known only from a single location, leading to extremely restricted distribution. The flowers are known as waxflowers for their attractive appearance and ornamental value. The discovery highlights the importance of community-protected forests of Nagaland as a vital refuge for rare and endemic plants.

- **Growth Habitat** – Mostly climbing or hanging vines growing on trees or rocks, with twining stems and milky sap.
- **Leaves and flowers** – Have thick, leathery or fleshy leaves and waxy flowers that grow in clusters and reappear each year.
- **Habitat and distribution** – High-altitude temperate forests under community protection of Nagaland.
- **Conservation status** – **IUCN Red List** – Critically endangered (provisional classification).

Shri Ramaswamy R

GOI initiatives

RRTS replaces conventional non-air-conditioned MEMU. It benefits 8 lakh passengers daily, reducing their travel time from the earlier 2 to 4 hours by rail or road to 55 minutes.

India's first Namo Bharat RRTS launched

Namo Bharat Regional Rapid Transit System (RRTS) inaugurated by Prime Minister Modi on 22nd February 2026, is considered an important milestone in urban infrastructure.

HIGHLIGHTS

Corridor: There are 22 stations in the 82.15 km distance between Delhi, Sarai Kale Khan and Meerut, Modipuram. A 1.6 km rail bridge with thirty pillars spans the Yamuna River, linking Sarai Kale Khan to New Ashok Nagar.

Operational milestone: First system where both Namo Bharat and Meerut Metro will operate on the same track and from the same platform.

Commuters and travel time: Replaces conventional non-air-conditioned MEMU. It benefits 8 lakh passengers daily, reducing their travel time from the earlier 2 to 4 hours by rail or road to 55 minutes.

Future initiatives

The RTS have plans to implement the following 7 other schemes to decongest Delhi and surrounding areas within 200 km radius. These are

- Delhi – Gurugram – SNB - Alwar (198 km)
- Delhi - Panipat (103 km)
- Delhi - Faridabad – Ballabhgarh - Palwal
- Delhi – Bahadurgarh - Rohtak
- Delhi - Shahdara - Baraut

- Ghaziabad - Khurja
- Ghaziabad – Hapur

Germany's Deutsche Bahn would operate and maintain the Delhi–Meerut section on contract for 12 years.

The primary goal of the rapid transit is to remove traffic congestion offering efficient, high-capacity and pollution-free alternatives to car travel.

Nationwide Drive: HPV vaccination campaign

Human Papilloma Virus (HPV) is a common, highly contagious group of over 200 viruses spread through intimate skin-to-skin contact. While most HPV infections are harmless and clear on their own, certain high-risk strains can cause warts and lead to cervical, anal or throat cancer. There is no cure for the virus itself, but vaccines are available to prevent infection.

India has launched nationwide, free HPV vaccination campaign targeting adolescent girls annually to combat the disease.

The campaign

- **Target population:** Primary focus on 1.15 crore adolescent girls (9 to14 years). One time vaccination is expected to provide lifelong immunity.
- **Vaccine type:** Single dose of Gardasil-4 vaccine. Offers 93–100% effectiveness against high-risk HPV.
- **Scale and scope:** This initiative is part of the **Universal Immunisation** Programme (UIP) and is considered one of the largest free vaccination drives globally.
- **Implementation:** Structured as a three-month special campaign, after which the vaccine will be available on routine immunisation days.
- **Goal:** To eliminate the disease by ensuring high coverage of the vaccine, aligned with national goals for women's health.

The groundbreaking global initiative aims to reduce the annual cervical cancer deaths (80,000 approx.), which as of now is the second most common cause among women in the country.

India's first Ring Metro

India's first fully operational Ring Metro was inaugurated in Delhi by Prime Minister Modi on 9th March 2026, covering 71.56 km with 46 stations. Developed as part of the Delhi Metro's Pink Line, this route connects North and Northeast Delhi via the newly opened 12.3 km Majlis Park–Maujpur-Babarpur section.

HIGHLIGHTS

Location: Delhi Metro's Pink Line (Line 7).

Structure: It acts as a circular connector designed to reduce travel time and connect different parts of the city, including east, north and south Delhi.

Key connectivity

The circular corridor provides improved access across major areas such as Majlis Park, Burari, Sonia Vihar, Bhajanpura and Maujpur.

The extension includes a new bridge over the Yamuna River and a double-decker viaduct that supports both the metro line and a road flyover.

The project improves city infrastructure as part of a wider transportation plan for the capital.

With PM laying the foundation stone for 3 other routes totalling 16.1 km in length, the Delhi – NCR Metro rail network as of March 2026 stands 416 kms long with 303 stations, The network goes a long way in easing traffic congestion and reducing air pollution in the capital.

Col Shashidhar M V (Retd)

VARUNASTRA torpedo

India's underwater precision strike weapon

Varunastra is a ship-launched, electrically propelled heavyweight anti-submarine torpedo, developed by the Naval Science and Technological Laboratory (NSTL) under DRDO.

Overview

Underwater warfare is often invisible, yet decisive. Submarines operate silently, making detection and neutralisation a complex challenge. To counter this, India has developed Varunastra, a heavyweight torpedo that significantly enhances the Indian Navy's anti-submarine warfare capability. Named after the mythical weapon of Lord Varuna, it reflects both technological depth and strategic intent.

BDL and award of contract

The production backbone of Varunastra rests with **Bharat Dynamics Limited (BDL)**, a key defence public sector enterprise. In 2019, the Ministry of Defence awarded BDL a contract worth ₹1,187 crore for mass production.

This milestone culminated in the successful completion and delivery of the torpedoes from BDL's Visakhapatnam unit, marking a mature collaboration between the Navy, DRDO and industry.

What stands out here? Not just delivery—but delivery with over 95% indigenous content.

Varunastra torpedo

Varunastra is a **ship-launched, electrically propelled heavyweight anti-submarine torpedo**, developed by the Naval Science and Technological Laboratory (NSTL) under DRDO.

Its primary role is simple to state but difficult to achieve—detect, track and destroy stealthy submarines in both deep ocean and shallow littoral waters. It operates effectively even in environments filled with acoustic countermeasures, where enemy submarines attempt to confuse tracking systems.

Before induction, Varunastra underwent rigorous sea trials in close coordination with the Indian Navy.

These trials evaluated performance under real operational conditions.

The torpedo successfully cleared environmental and operational tests including shock resistance, vibration tolerance, temperature variations and electromagnetic compatibility.

An exercise variant equipped with instrumentation systems was used to record dynamic parameters, ensuring precise validation. The inclusion of recovery aids and GPS-based locating systems further enhanced safety and evaluation accuracy.

Salient features

Varunastra combines advanced engineering with operational flexibility:

Weight: Approximately 1,500 kg; Length: 7–8 metres.

Range: Up to 40 km.

Speed: Variable, up to 40 knots (74 km/h).

Propulsion: Electric, powered by silver oxide zinc batteries.

Guidance: Wire-guided with active-passive acoustic homing.

Unique edge: GPS/NavIC-based locating aid, rare in global torpedo systems.

Warhead: High explosive payload of around 250 kg.

It can be deployed from multiple naval platforms including destroyers, frigates and anti-submarine warfare corvettes.

Advantages

Operational superiority—the ability to engage modern quiet submarines in complex environments.

Strategic autonomy—with over 95% indigenous content, dependence on foreign suppliers reduces sharply.

Scalability and export potential—Positioned for friendly foreign nations, opening defence export avenues.

Strengthens India's broader push towards **Atmanirbhar Bharat in defence manufacturing.**

Conclusion

Varunastra is more than a torpedo—it is a statement of capability. It demonstrates how India is moving from being a defence importer to a developer of advanced underwater weapon systems.

In a domain where silence defines survival, Varunastra ensures that India not only listens—but responds with precision and power.

Col Shashidhar M V (Retd)

Indigenous electric jet suit

A game changer in tactical mobility

Overview

Imagine a soldier rising vertically from a street corner to a rooftop within seconds—no helicopter, no ladder, no delay. What once belonged to science fiction is now entering real-world military planning. The emergence of jet suit technology signals a shift in how mobility, speed and surprise will define future operations.

A technological breakthrough

The pioneering work of **Gravity Industries** has brought this concept into operational reality. Founded by Richard M Browning, the company demonstrated its jet suit capabilities to the Indian Army in early 2026.

The demonstration near Bengaluru showcased rapid vertical movement, controlled hovering and agile manoeuvring offering a glimpse into next-generation combat mobility.

The jet suit has evolved through repetitive testing with military and emergency services globally.

It is built as a 27 kg wearable exoskeleton and combines propulsion, control systems and protective gear into a compact platform.

Designed for short-duration missions like quick insertions, rapid access and tactical repositioning rather than sustained flight.

System components

The system integrates five miniature gas turbine engines in its core with two mounted on each arm and one on the back.

The arm-mounted thrusters provide intuitive directional control, almost like extending human limbs. The backpack unit houses fuel and stabilisation systems. Advanced software ensures balance and controlled flight, even in challenging environments.

Combined with helmet systems, telemetry display and safety features, it is a fully integrated personal aerial platform.

The involvement of Indian firms such as **Absolute Composites** in Aero India 2023 highlights the growing domestic interest in this technology. Demonstrations and collaborative discussions have focused on lightweight materials, durability and potential indigenisation pathways.

DRDO joins the ecosystem

The entry of Defence Research and Development Organisation into this field signals a welcome step for indigenisation. Integration with indigenous systems like exoskeletons, advanced materials, and control software will demonstrate our capability aligned with **Make in India** initiatives.

Military applications in brief

The most immediate application lies in **urban warfare**. Special forces can have enhanced mobility and vertical access in the decisive terrain in city combat.

In counter-terrorism scenarios, this reduces exposure time and enhances surprise.

Jet suits could assist in the transportation of supplies, ammunition or medical equipment in challenging terrain where mobility is restricted.

In maritime operations it can play decisive roles in

- Vessel boarding operations where naval personnel need to quickly board and secure vessels at sea.
- Search and rescue missions.
- Harbour and port security.
- Naval special operations.
- Beyond military applications

Beyond combat, the jet suit opens possibilities in **disaster management.** Rescue teams can access collapsed structures or flood-hit zones where vehicles cannot reach.

In **urban policing**, it can assist in surveillance and rapid response. In **counter-terrorism,** it provides a tactical edge in dense environments like metros, high-rises or hostage situations.

Conclusion

Bridging a critical gap between ground movement and aerial insertion these can be successfully employed in short bursts, high impact, decisive outcomes.

India has understood the opportunity presented and its intent to adapt and indigenise highlights that mobility will not just be about speed but vertical dominance in future battlefield.

Col Shashidhar M V (Retd)

DRONAAM
ANTI - DRONE GUN

The image of a silent drone hovering overhead is no longer futuristic. It is today's battlefield reality. From conflict zones to crowded cities, unmanned aerial systems have altered the threat landscape. India's response, quietly but decisively, has been the development of **DRONAAM**, an indigenous anti-drone gun designed to neutralise this evolving menace.

As of early 2026, the Dronaam anti-drone system has solidified its role in Indian defence, with reports stating it has successfully neutralised over 55% of illegal drone threats along the Punjab border.

WHAT IS DRONAAM?

DRONAAM is a portable, shoulder-fired anti-drone system developed under India's innovation ecosystem, notably gaining recognition after winning the iDEX (Innovation for Defence Excellence) challenge in 2021. In simple terms, it is an electronic warfare tool disguised as a gun. Instead of bullets, it emits directed radio frequency (RF) and GNSS (Global Navigation Satellite System) jamming signals.

These disrupt the drone's communication with its operator, forcing it to either land, return to origin or become inoperative.

It is a state-of-the art, modular system specifically designed for full proof protection against illegal Unmanned Aerial Systems (UAS). DRONAAM system provides directional or omni-directional coverage, dismounted or mounted operation. The system can be configured as fully integrated rifle style, safe countermeasure in back-pack configuration. In fixed installation, it can be mounted on any moving or stationary installation with option to cover directional coverage or omni-directional coverage.

Why does India need such systems?

Because drones have lowered the cost of warfare. A low-cost quad copter can bypass fences, deliver payloads, conduct surveillance or trigger panic.

Traditional air defence systems are too heavy, expensive and slow for such threats. DRONAAM fills this gap quick to deploy, precise in action and scalable for multiple environments. It essentially builds what experts call an "electronic shield" or an "iron wall" against swarm drones. It costs approximately ₹35 lakhs per unit on the Govt e-marketplace (GeM).

Utility with Armed Forces, CAPFs and BSF

For the Armed Forces and Central Armed Police Forces, DRONAAM offers tactical flexibility. It can intercept surveillance drones used for reconnaissance or smuggling along the LoC or IB. The BSF, particularly benefits from its ability to counter cross-border drone intrusions carrying arms or narcotics. Its portability ensures that even small units can carry and deploy it without logistical strain.

Can such a system be used beyond warzones?

Yes and increasingly so. During civil disturbances or sensitive operations, drones can be misused for surveillance, propaganda or even dropping harmful payloads. DRONAAM enables law enforcement agencies to neutralise such threats without kinetic damage minimising collateral risk while maintaining control.

Other uses

Large gatherings like G20 Summit (2023) and AI Impact Summit (2026), national celebrations or major sporting events present high-value targets. Here, DRONAAM acts as a silent guardian. Its deployment during the G20 Summit and AI Impact Summit in India demonstrated its capability to secure airspace discreetly. It ensures that the skies above critical venues remain controlled, without alarming the public or disrupting normal activity.

Conclusion

The question is no longer whether drones will be used, but how effectively they can be countered. DRONAAM reflects India's shift towards indigenous, technology-driven security solutions. In a world where threats are becoming smaller yet smarter, systems like DRONAAM ensure that defence remains one step ahead decisively.

Smt Deepasri

PASSIVE EUTHANASIA
A case study

Introduction

In March 2026, India's first patient who was allowed passive euthanasia, passed away in exercise of the 'right to die'. This happened days after a bench of the Supreme Court of India comprising Justices J B Pardiwala and K V Viswanathan, in the case of **Harish Rana v. Union of India & Others**, allowed a plea seeking passive euthanasia for the patient, a 32-year-old who had been in a permanent vegetative state for 13 years.

Facts of the case

The patient in question had suffered a fall, which led to quadriplegia and 100% disability. He was put under **clinically assisted nutrition and hydration** (CANH) treatment. The Delhi High Court had rejected a plea to withdraw CANH treatment, since it would lead to him starving to death and that it would not strictly amount to passive euthanasia.

History of the judicial position

The first key judgement dealing with passive euthanasia was **Aruna Ramchandra Shanbaug v. Union of India,** which involved a nurse who was strangled and assaulted, and spent nearly forty-two years in a vegetative state before passing away in 2015. In 2011, the Supreme Court declined withdrawal of life support, but laid down guidelines for passive euthanasia for the first time in India.

In the **2018** case of C**ommon Cause v. Union of India**, a 5-judge bench unanimously held that the 'right to life' under Article 21 of the Indian Constitution includes the 'right to die with dignity'. The court allowed passive euthanasia and living wills in principle, with stringent procedural safeguards.

Analysis by the court

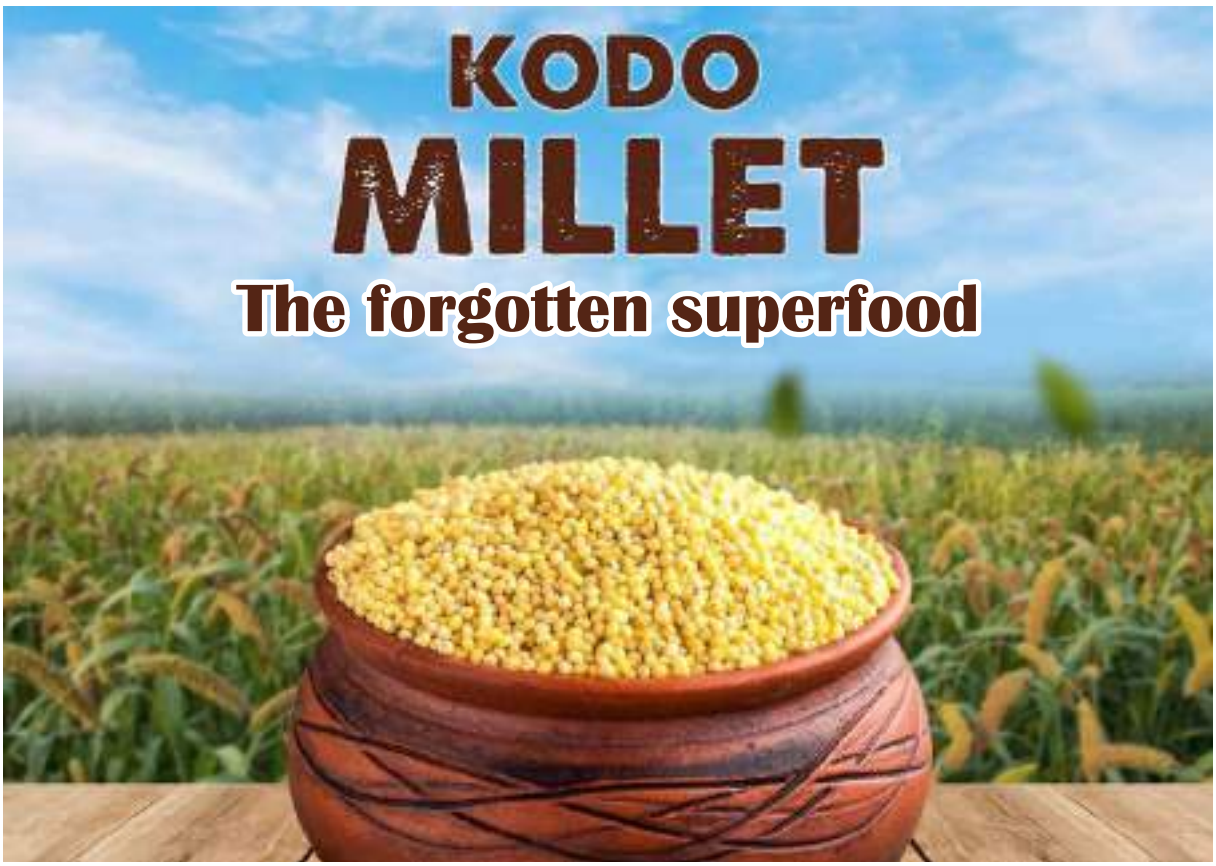
- In the present case, the Supreme Court upheld the interpretation in **Common Cause,** wherein the 'right to live with dignity' under Article 21 was held to include the 'right to die with dignity.'
- The Court referred again to Common Cause, whereunder certain guidelines for passive euthanasia were laid out by the Supreme Court, including that withdrawal of treatment should be based on the 'best interest of the patient' in the event the patient is unable to communicate their own decision.
- In this case, the court held that determining 'best interest' does not have a fixed method and involved a holistic evaluation of the patient's condition, weighing both the pros and the cons of having the patient's life artificially extended.

Decision

The court upheld that where a patient is in an irreversible persistent vegetative state with no real prospect of recovery, the continuation of life-sustaining treatment serves no therapeutic purpose, and its withdrawal – subject to established safeguards – is consistent with the constitutional guarantee of the right to dignity under Article 21 of the Constitution of India.

DO YOU KNOW ?

- **Euthanasia is the practice of killing somebody who wants to die without pain because they are suffering from a disease which cannot be cured.**
- **Active euthanasia involves administering a substance to cause death, while passive euthanasia involves withholding or withdrawing life support or any life-sustaining treatment, allowing natural death.**



Being gluten-free, it is particularly beneficial for children with gluten intolerance or allergies, and may be useful as part of dietary management in children with autism and other neurodevelopmental disorders.

Kodo millet (*Paspalum scrobiculatum*) is one of the ancient grains of India that has been consumed for thousands of years. Once a staple in traditional Indian diets, it has now re-emerged as a powerful superfood due to its exceptional nutritional profile and health benefits. In the era of lifestyle disorders, Kodo millet offers a natural, sustainable and holistic approach to health.

Vernacular names

Kodo millet is known by different names across India.

- **Hindi:** *Kodo, Kodra*
- **Tamil:** *Varagu*
- **Telugu:** *Arikelu*
- **Kannada:** *Harka*
- **Malayalam:** *Varagu*
- **Marathi:** *Kodra*

These regional names reflect its widespread traditional use across the Indian subcontinent.

Nutritional profile and health benefits

Kodo millet is rich in **dietary fibre, protein, antioxidants and essential minerals** such as iron, calcium and magnesium. **Being gluten-free, it is particularly beneficial for children with gluten intolerance or allergies, and may be useful as part of dietary management in children with autism and other neurodevelopmental disorders.**

Supports digestive health

Kodo millet is high in fibre, which helps improve digestion, prevents constipation and promotes gut health.

It acts as a natural detoxifier by cleansing the digestive tract.

Helps in diabetes management

Due to its low glycaemic index, Kodo millet releases glucose slowly into the bloodstream. This helps regulate blood sugar levels and makes it an ideal grain for people with diabetes or prediabetes.

Promotes heart health

The presence of antioxidants and fibre helps reduce bad cholesterol (LDL) levels and supports cardiovascular health. Magnesium in Kodo millet helps maintain normal blood pressure.

Aids in weight management

Being rich in fibre and protein, Kodo millet keeps you fuller for longer, reducing unnecessary snacking and helping in weight control.

Anti-inflammatory and detoxifying

Kodo millet contains polyphenols that have anti-inflammatory properties, which help reduce oxidative stress in the body.

Sattvic food

Kodo millet is considered a *sattvic* food, meaning it promotes purity, clarity of mind and balance in the body. It is light on the stomach and easy to digest.

Balancing *doshas*

According to Ayurveda:

- It helps balance *kapha* (reduces heaviness and obesity).
- It is beneficial in managing *pitta* due to its cooling nature.
- It supports digestion without aggravating *vata* when properly cooked.

Natural detoxification

Kodo millet is often recommended in naturopathy diets for **detox programmes.** Its high fibre content helps eliminate toxins and improves metabolic function.

Ideal for fasting and healing diets

In traditional Indian practices, millets like Kodo are used during fasting or recovery diets as they are nourishing yet light.

Kid-friendly recipes

Introducing millets to children can be fun and tasty when prepared creatively. Here are some simple and healthy recipes:

Kodo millet vegetable *upma*

Ingredients

- 1 cup Kodo millet
- Mixed vegetables (carrot, beans, peas)
- Mustard seeds, curry leaves
- Onion, green chilli (optional)

Method

- Wash and soak millet for 15–20 minutes.
- Crackle mustard seeds and sauté curry leaves and vegetables.
- Add millet and water (1:2 ratio).
- Cook until soft.

Why kids will love it: Soft texture and colourful vegetables make it appealing.

Kodo millet sweet porridge (*kheer* style)

Ingredients

- ½ cup Kodo millet
- Milk or coconut milk
- Jaggery
- Cardamom, nuts

Method

- Cook millet until soft
- Add milk and jaggery
- Garnish with nuts

Benefit: A healthy dessert rich in calcium and iron.

Kodo millet idli

Ingredients

- Kodo millet
- Urad dal

Method

- Soak, grind and ferment
- Steam as *idlis.*

Why it's good: Light, fluffy and easy to digest for kids.

Kodo millet pancakes

Ingredients

- Kodo millet flour
- Banana
- Milk
- A pinch of cinnamon

Method

- Mix ingredients into batter.
- Cook like pancakes.

Perfect for breakfast: Naturally sweet and nutritious.

Kodo millet fried rice

Ingredients:

- Cooked Kodo millet
- Vegetables
- Minimal oil

Method:

- Stir-fry vegetables
- Add millet and season

Kid appeal: Looks like regular fried rice but healthier.

Kodo millet is not just an ancient grain reappearing on the modern plates; it marks a return to **India's traditional wisdom of health and nutrition.** In today's world, where lifestyle diseases are on the rise, incorporating Kodo millet into daily meals can provide a simple yet powerful solution. From a naturopathy perspective, it aligns perfectly with the principles of **natural healing, detoxification and balanced nutrition**. Its ability to nourish the body while maintaining digestive ease makes it suitable for all age groups, especially children. By introducing Kodo millet through creative recipes, we can ensure that the next generation grows up with healthier food habits rooted in tradition.

"சிறுதானியம், பெரிய ஆரோக்கியம்"

(Translation - Small grains, big health benefits.**)**

Prof.Sujatha Srinivasan

Sujatha graduated with her B.Tech in Mechanical Engineering from IIT-Madras in 1992, being the only girl in a class of 60.

Our country's scientists have been constantly harnessing technology for societal impact right from the 1940s. Recent decades have witnessed the transformative potential of research and development (R&D) collaborations in academia, industries on a range of themes - from energy to education, agriculture to artificial intelligence, water to waste management, health to housing, centres of excellence to community development, among others.

Rehabilitation Research and Device Development (R2D2) of Prof. Sujatha Srinivasan, IIT Madras is one such collaboration initiative that has brought meaningful change in the lives of thousands of physically challenged. She **heads a team of engineers who design affordable products for rehabilitation needs in India and abroad.** Her group is involved in research for developing assistive technologies (AT) and devices for people with movement impairments.

Sujatha graduated with her B.Tech in Mechanical Engineering from IIT-Madras in 1992, being the only girl in a class of 60. She recalls, "I became friends with a senior in ME at IIT Madras, Radha Sarma. She was very passionate about the subject and my talks with her convinced me to stick with ME, even though I was eligible for a branch change to Computer Science or Electrical Engineering at the end of my first year. Turned out to be one of the best decisions I made!"

Her learning style through hands-on experience, tinkering, observing and understanding how things work or don't work, that probably steered her towards this

discipline has definitely turned into her core strength to develop biomechanical devices, prosthetics and mobility vehicles that help millions who are challenged.

She moved to the USA for her Master's programme at the University of Toledo. After which, she worked in the prosthetics industry till almost 2004. With her passion to translate her knowledge to practical applications that can have societal impact, she decided to pursue formal research in this field.

With determination to make a difference in people's life, she quit her job and enrolled in Ph.D. at the Ohio State University. Her dissertation used a robotics-inspired approach to develop a low-dimensional forward dynamic model of normal human walking. The analytical model captured the dynamics of how humans walk or human gait, studying limb movements, their speed, coordination between muscles, usage of joints, change in mass distribution while walking at different speeds and other variables. She compared her analysis with the movement of those who use artificial limbs below-knee (transtibial prosthesis users). The results agreed well with clinical observations and these were published in reputed journals. This kind of work requires a deep understanding of physiology, anatomy, arthrology (study of joints) along with engineering, dynamics and materials sciences.

Soon after obtaining doctoral degree, Sujatha returned to her motherland and joined IIT Madras as a faculty in 2008. Along with teaching, she devotes herself to research. She has been mentoring numerous students and contributed to departmental initiatives in biomechanics and rehabilitation engineering. Her designs to develop affordable manual standing wheelchair, low cost reconfigurable wheelchairs, robot motorised arm support, swimming pool lift for physically challenged have been a boon to many. She knocked many doors to establish a research centre with the vision of inclusion, providing dignity and independence for persons with disabilities.

In 2015, when assistive technology was still a nascent field in our country, with the generous support of TTK Group, she established the R2D2 centre at IIT Madras. This is one of India's first and most advanced research centres dedicated to rehabilitation and assistive devices.

Using appropriate technology, scientific methods and innovative translational models, R2D2 aims to enable easy accessibility and affordability of assistive devices and rehabilitation resources. They work with doctors, specialists, occupational therapists, NGOs and hospitals to field-test their designs, to evaluate assistive technologies from biomechanical and functional standpoints.

This team has commercialised '**Arise**,' the country's first standing wheelchair and NeoFly-NeoBolt, an active wheelchair and motorised add-on for seamless indoor-outdoor mobility. Not just mobility, it also aims to improve the quality of life of users through increased community participation, access to education, livelihood and overall well-being.

Under Dr.Sujatha's leadership, this team has successfully transferred technology to like-minded industrial partners, including its start-up such as **NeoMotion** and **Thryv Mobility**. Her R2D2 team has created a resource platform that provides best-in-class, personalised and practical solutions for persons with a spinal cord injury and rehabilitation professionals in India and middle- and low-income countries.

Those who are paralysed are provided training in home and community settings using digital technology, through **Touch FREEDOM**, a user-centric virtual programme.

Holistic development along with rehabilitation is doable only through community participation. To achieve this, we need platforms for user-developer-policymaker interactions as well as centres that can serve as a training resource where R&D developers, doctors, therapists, people with challenges, care-givers, rehab professionals and NGOs can collaborate.

With this in mind, the **National Centre for Assistive Health Technologies** (NCAHT-IITM) was implemented by R2D2 in 2023. This unique initiative of the Indian Council of Medical Research (ICMR) at IIT Madras has an experience zone that enables R&D in assistive technology (AT). The AT experience zone at this centre envisages user empowerment. Wheelchair skills training programmes educate wheelchair users on choosing and using devices appropriately, navigating steps, getting onto an auto/bus/train, repairing their device, etc. Moreover the capacity building centre organises regular training activities at multiple levels, creates a repository of video resources for those with mobility issues worldwide.

Decades back, former President Dr. APJ Abdul Kalam established Society for Biomedical Technology (SBMT) under DRDO that has been supporting research towards indigenous medical device development.

In association with SBMT and Mobility India, R2D2 launched an innovative indigenously developed polycentric prosthetic knee. This made in India product called **Kadam** aims to improve the quality of life for thousands of above-knee amputees.

Prof.Sujatha Srinivasan is the recipient of several awards including the **Abdul Kalam Technology Innovation National Fellowship** and **Honorary Professor of disability innovation at University College London, UK**. Her patents on assistive devices and mobility research speak volumes on her dedication towards this chosen cause. “Functional needs, socioeconomic and environmental challenges of Indian users are unique. Kadam's user-centric design takes these into account. **It meets international quality standards while being 4-5 times more affordable than comparable imported knees.**"

Her words during the launch of Kadam encapsulates her life’s mission.

Smt Ramamani N

Othuvar Tiruttani Swaminathan

Early life and spiritual awakening

Othuvar Tiruttani Swaminathan, honoured with the Padma Shri, is a shining example of devotion, discipline and dedication to Tamil sacred music. Born as Sarangapani in Alathur village near Thiru Karugavur, Tamil Nadu, he belonged to a modest Vaishnavite farming family. Even as a child, he showed a deep spiritual interest and was drawn to temple worship and devotional singing.

A turning point with Madurai Somu

A life-changing moment came in 1954, when the famous Carnatic musician Madurai Somu heard the young Sarangapani sing at the Papanasam temple. Impressed by his voice and devotion, Madurai Somu advised his father to train the boy in music. This encouragement opened the door to a new path. Swaminathan joined the Thirukadavur *pāṭśāla*, where he studied *Thevaram* for five years. Later, he continued his training at Dharmapuram Adheenam, where his love for Saivism deepened. He embraced Saivism fully and changed his name from Sarangapani to Swaminathan.

Becoming an *othuvar*

At the age of 17, Swaminathan began his career as an *othuvar*, a temple singer who renders sacred Tamil hymns during worship.

Though the salary was small, he considered the role not as a job but as a service to God. His devotion to singing ***Thevaram*** and ***Thiruvachagam*** became the foundation of his life.

The Tiruttani years

In 1975, he was appointed as an *othuvar* at the famous Tiruttani Murugan Temple. This became the most significant phase of his life. He served there for 26 years and during this period, he came to be known as Tiruttani Othuvar Swaminathan. His soulful recitations made him widely respected among devotees and temple communities.

Taking *Thevaram* to the world

Swaminathan's voice carried Tamil Saivite devotion far beyond temple walls. He performed ***Thevaram* recitals** across India and in countries such as **Malaysia, South Africa, Singapore, Switzerland and Sri Lanka.** He also released around **50 recordings,** helping younger generations discover the beauty of Tamil sacred literature. His simple yet powerful style made his recitals deeply touching.

Teacher and preserver

Even after retirement, Swaminathan continued to teach students in *pāṭśālas*, passing on not only hymns but also the stories of the **63 *nayanmars*** and temple traditions. His work has helped preserve the ancient ***othuvar* tradition** for future generations. The **Padma Shri** is a well-deserved honour for a man who has spent over six decades in the service of God, Tamil literature and culture. Truly, Othuvar Tiruttani Swaminathan is a living bridge between music, devotion and heritage.

DO YOU KNOW ?

- ***Othuvar*** **is a traditional, trained singer in Tamil Saivite temples responsible for reciting the *Thirumurai* (canonical Tamil Saiva hymns) during daily rituals and festivals. They serve as a vital link between the deity and devotees, specialising in *Pannisai*.**
- ***Devaram*** **(also spelt *Thevaram* or *Tēvāram*) is a collection of Tamil devotional hymns and poetry composed between the 7th and 8th centuries by three prominent *Nayanmar* saints (Thirugnanasambandar, Thirunavukkarasar and Sundarar) and dedicated to Lord Shiva.**

Smt Archana Sundar

CURIOSITY CORNER

Stone observatory

1. I am 27 metres tall and never tick or tock, yet I tell the time more accurately than your plastic clock. What am I?
2. I am the only thing the Jantar Mantar needs to work. Without me, the giant stones are just silent sculptures. What am I?
3. I don't look for birds or planes; I look for North. I help sailors and stargazers find their way home. What am I?
4. I am divided into 12 stone segments, each representing a sign of the sky. From Aries to Pisces, I track where the sun lies. What am I?
5. I am a bowl carved into the ground, reflecting the sky above. I look like a map of the heavens turned upside down. What am I?
6. I can tell you the time within a margin of just two seconds. Am I a digital stopwatch? No, I am made of lime and red stone. What am I?
7. I wasn't a scientist by profession, but a King of Jaipur who loved the stars so much I built five cities of instruments. Who am I?
8. I am the reason the Jantar Mantar is useless during a thunderstorm or at midnight. Who am I?
9. I have ramps, stairs and circles, but I am not a park. If you climb me, you aren't getting closer to the clouds, but closer to the truth of the stars. What am I?
10. My name comes from Sanskrit words meaning "instrument" and "formula." What is my name?
11. We are two hemispherical sun-dials built into the earth. We take turns tracking the sun as it moves across the meridian. What are we?
12. I am a massive brass plate hanging from a frame. I don't tell the time, but I measure the altitude of the sun and stars. What am I?
13. I am tilted at an angle of 27 degrees—exactly the latitude of Jaipur to make sure my shadow stays true to the Earth's spin. What am I?
14. I don't use paper or ink, yet I can tell you when the longest day of the year (summer solstice) arrives just by where my shadow falls. What am I?
15. Jaipur is my most famous home, but I have four other siblings in Delhi, Ujjain, Mathura and Varanasi. What are we?

Answers on page 66

Shri Natarajan Raman

AI Connect - Part 8

Ved: Hey Vyas, last time while discussing transformers, you said you'd share more details about them.

Vyas: Yes. We saw that transformers are multimodal. One of the interesting aspects is their ability to identify, classify and process images, pictures etc, they are known as vision transformers.

Ved: Do you mean a vision transformer can look at a picture and understand it?

Vyas: Yes absolutely. And it does not look at the picture the way we do. We touched upon this briefly earlier; it cuts the picture into tiny little squares and treats it more like a jigsaw puzzle.

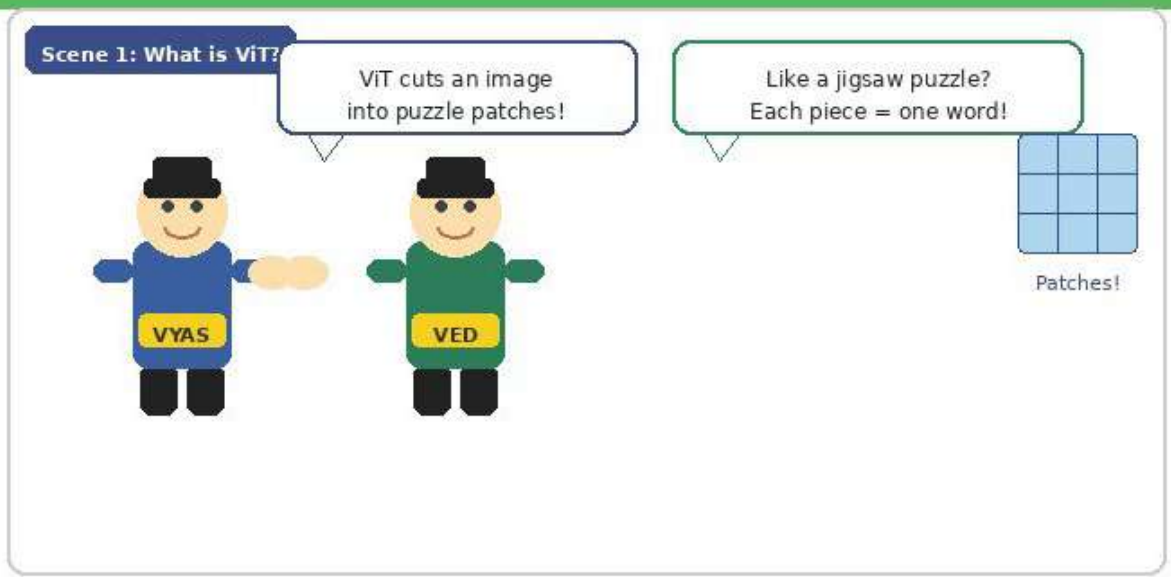
Ved: Yeah, remember you said that.

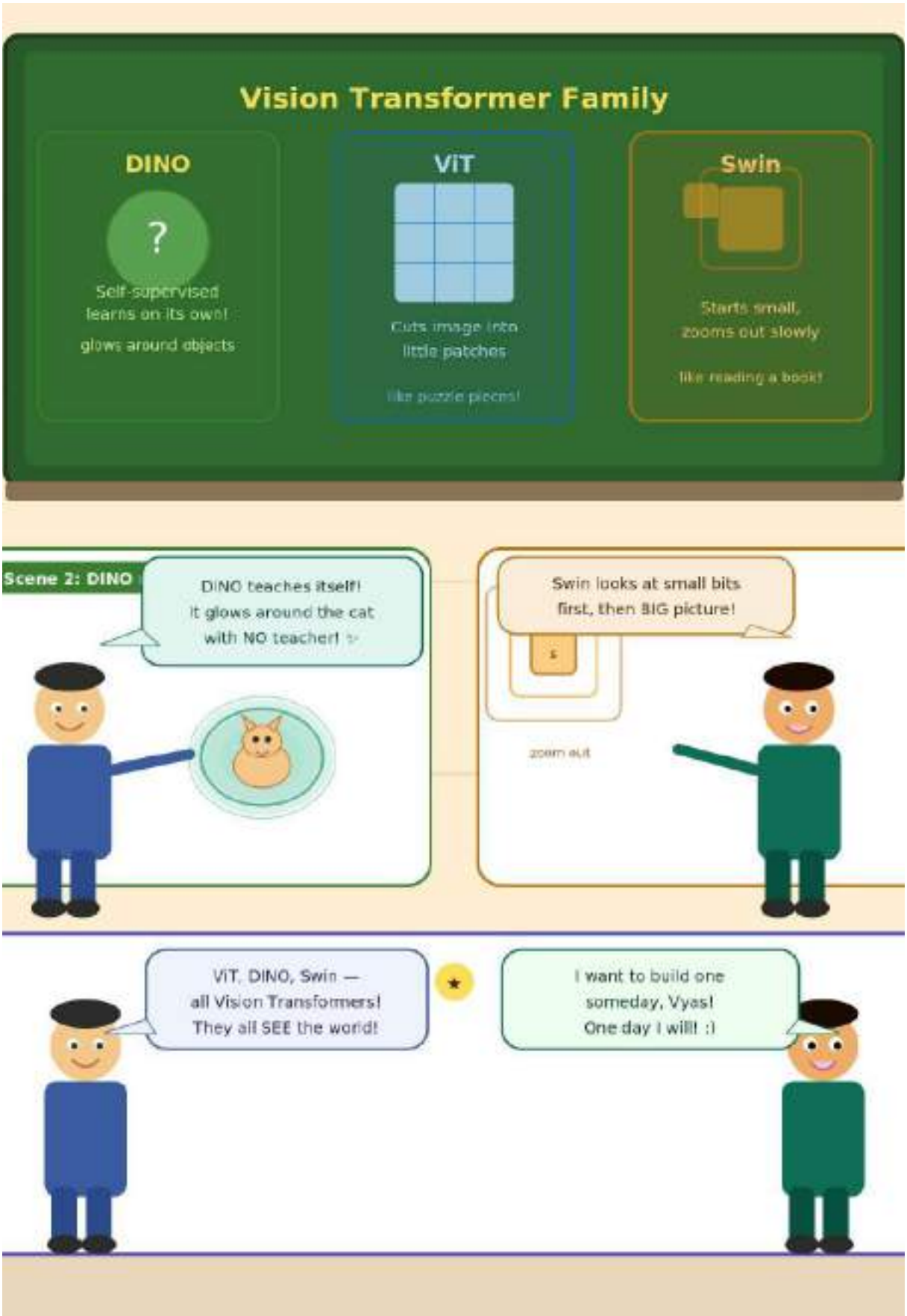
Vyas: Instead of looking at the entire lot of a big picture or image, it is like processing each object available on the image, say, glowing moon, water flowing in the stream, flowers around etc. And by processing each of these small objects, transformers process the entire image.

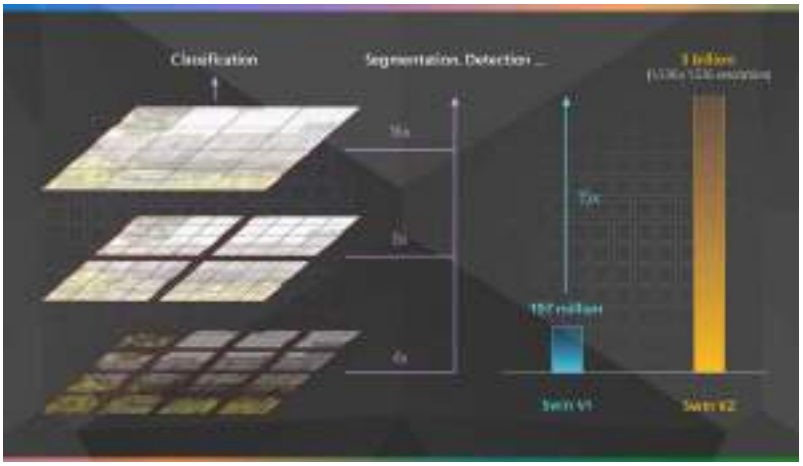
Ved: Ah, it is like we read each word, go on for a sentence and then para and the entire book.

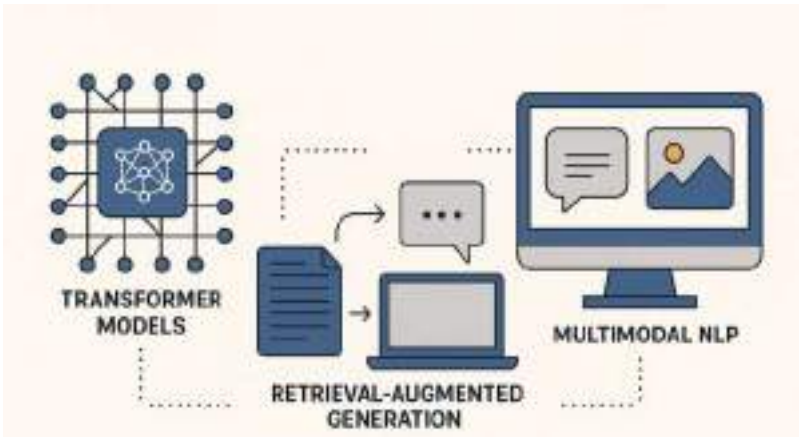
Vyas: Yup, that is a good example. Vision transformers – called as **ViT** in short – came up inspired by same transformers that read text. If it works for text, should it not work for pictures? And that is how **ViT** came up.


TRANSFORMER SCHOOL
Est. 2017


Scene 1: What is ViT?
ViT cuts an image into puzzle patches!
Like a jigsaw puzzle? Each piece = one word!
Patches!
VYAS
VED


Vision Transformer Family
DINO
?
Self-supervised
learns on its own!
glows around objects
ViT
Cuts image into
little patches
like puzzle pieces!
Swin
Starts small,
zooms out slowly
like reading a book!
Scene 2: DINO
DINO teaches itself!
it glows around the cat
with NO teacher! :-
Swin looks at small bits
first, then BIG picture!
zoom out
ViT, DINO, Swin —
all Vision Transformers!
They all SEE the world!
I want to build one
someday, Vyas!
One day I will! :)





Ved: So, we can say **ViT** is like a machine to read, but trained specifically for pictures?

Vyas: Yes! Each little patch of the image is treated like a "word." ViT looks at all the patches and figures out how they relate to each other. Like — the patch with the cow's nose is close to the patch with the cow's eyes. So together, they mean cow face!

Ved: Superb, do we have other vision transformers or only ViT?

Vyas: Great question! There is one called **DINO** — and yeah before you get excited, no, it is not a dinosaur! Sorry buddy! DINO [**Distillation with No Labels**] stands special because it has the ability to *self-learn*, I mean, it can learn about an image by itself.

We call it as self-supervised learning. It has a student/teacher network and has the ability to figure out patterns from tonnes of data that is given to it. You can compare this with a student who reads books even before any teacher prompts.

Ved: Woah, self-teaching? That sounds interesting.

Vyas: Yes, and the interesting aspect about DINO is, it is not only confirming about a picture – say a cat or dog, it has the ability to rubber band on the area where cat or dog is found.

Ved: So, can I say it is learning everything by just observing patterns from the data?

Vyas: You got it. We also have something called **Swin Transformer**. Like CNN, it builds feature maps hierarchically, starting with small patches and merging them to capture context at different scales.

Ved: So, go from small to big – like zoom out slowly?

Vyas: Absolutely right, Swin has the ability to spot both tiny as well big shapes in each picture, it is for this reason, Swin is used in things like medical scan and even satellite images.

Ved: It is amazing. to see the ability vision transformers bring to processing. DINO and Swin are exciting to learn about.

Vyas: Yes, absolutely! All these ViT, DINO and Swin are all part of the same big family – Vision Transformers – we shall see more about rest of the types in the coming days.

Ved: Thanks Vyas, I can't wait to build one myself!

Vyas: Wow! Why not? Bye Ved. See you soon.

Ved: Bye, Vyas!

LANCE NAIK NAZIR AHMAD WANI

In the history of India's brave hearts, the story of Lance Naik Nazir Ahmad Wani stands out as a powerful testament to courage and the spirit of redemption. His journey from a turbulent youth to becoming a decorated national hero is an inspiration for every student aiming to serve with purpose.

On 25th November 2018, Lance Naik Wani was involved in a fierce counter-terrorism operation while attached to the 34 Rashtriya Rifles (RR). In a high-stakes close encounter with six terrorists, his bravery was unparalleled.He personally killed two terrorists and injured a third. Despite the chaos of battle, he assisted in the evacuation of an injured fellow soldier. While fighting with extraordinary grit, he sustained severe injuries and eventually succumbed in the hospital, making the ultimate sacrifice for his country.

A journey of transformation

What makes Wani's story truly unique is his path to the uniform. In the late 1980s and early 90s, during a period of intense militancy in Kashmir triggered by external forces, many young men were misled into crossing the border for training. Wani was an ***Ikhwan*** (a reformed militant) who realised that those who claimed to be "handlers" had no genuine care for the Kashmiri people.

Choosing the path of light over shadows, he enrolled in the 162 Infantry Battalion Territorial Army (Home & Hearth) in 2004. His transition from a disillusioned youth to a dedicated soldier proves that our past does not define our potential.

The highest honours

Recognising his "stupendous achievements," the nation honoured him with its highest peacetime gallantry award:

- **The Ashok Chakra:** Awarded posthumously by the President of India during the 70th Republic Day parade.
- **Two-time Sena Medal:** Even before his final operation, he was already a two-time awardee for gallantry.

Wani's wife, Mehjabeen, and his mother receiving the award at the regal Rajpath moved millions, cementing his status as a "*Desh ke Sahas Veer*" (Brave hero of the nation). **His life is a reminder that true heroism lies in the courage to change and the selfless will to protect others.**

Smt Archana Sundar

Spade and spirit : The unstoppable Gowri Naik

What's your excuse today?

In the town of Sirsi, Karnataka, the earth is stubborn, but Gowri Naik is tougher. At 57, while most are slowing down, Gowri has just completed her third marathon—not on a track, but deep underground. Known locally as "**Lady Bhagiratha,**" she recently struck "the elixir of life" after digging a 45-foot well to quench the thirst of children at a local *anganwadi*.

Gowri's story is one of pure, unadulterated grit. Born into a family of nomadic labourers, she learned self-reliance early, famously out-climbing boys to the tops of jackfruit trees. This physical agility evolved into a legendary iron will. When the pandemic hit and her family faced a dire water crisis, Gowri didn't wait for a miracle. She grabbed a spade and rope, slipping out at 6.30 AM to dig her first family well. Despite the sceptical whispers of neighbours who made her the butt of jokes, she remained focused, eventually striking water at a staggering 67 feet.

Her latest mission at the *anganwadi*, however, proved to be her most political challenge yet.

As she hammered away at the dry earth to help children who were trekking two kilometres for a pail of water, government officials intervened. Citing safety concerns and a lack of permits, they seized her tools and fenced off the site. Even the District In-charge Minister urged her to stop, promising the government would take over.

Gowri's response? Undaunted defiance

Supported by protesting villagers and eventually a local MP,

she refused to let bureaucracy bury her mission. "I am responsible for my life," she declared in a written statement. Though miffed by the administration's insistence on providing two helpers—fearing they would only slow her precise, solo pace—she pushed through health complications to see the task through.

After 35 days of back-breaking labour, the side of the pit finally turned damp. Water erupted. Villagers gathered to perform puja, celebrating the woman who refused to resign to fate. Having secured water for her family and her community, she claims she is finally hanging up her tools. But as those who know her say: only Gowri can truly stop Gowri.

Smt Ghana Saraswathy M

Gwalior Fort

In India, architecture has always been highly advanced, combining art with engineering. From temples to forts, Indian builders used local materials, understood climate and created designs that were both beautiful and practical. One such shining example is the magnificent Gwalior Fort.

Standing tall on a rocky hill in Gwalior, this fort is often called the "**Gibraltar of India**" because of its strong structure and strategic location. The fort dates back to ancient times and has been ruled by several dynasties, each adding their own architectural touch.

One of the most striking features of Gwalior Fort is its massive sandstone walls, which rise almost 100 metres above the ground. These walls are not just strong but also beautifully decorated. The exterior of the fort displays blue ceramic tiles with patterns of ducks, elephants and geometric designs—something very rare in fort architecture.

Inside the fort, there are many impressive structures. The **Man Singh Palace** is a highlight, known for its colourful tiles, carved balconies and detailed lattice work. The palace shows how kings lived with both luxury and artistic taste. Another important structure is the **Sas Bahu Temples,** famous for their intricate carvings and detailed pillars, reflecting the beauty of temple architecture within a fort.

The design of Gwalior Fort also shows smart planning. Its high position helped in defence, while narrow pathways and strong gates made it difficult for enemies to enter. At the same time, the fort includes water storage systems, temples and living spaces, making it a self-sufficient complex.

Best time to visit

The best time to visit Gwalior Fort is October to March, when the weather is cool and comfortable for exploring the large fort area.

How to reach?

Nearest Railway station: Gwalior Junction.

Nearest Airport: Rajmata Vijaya Raje Scindia Airport, Gwalior.

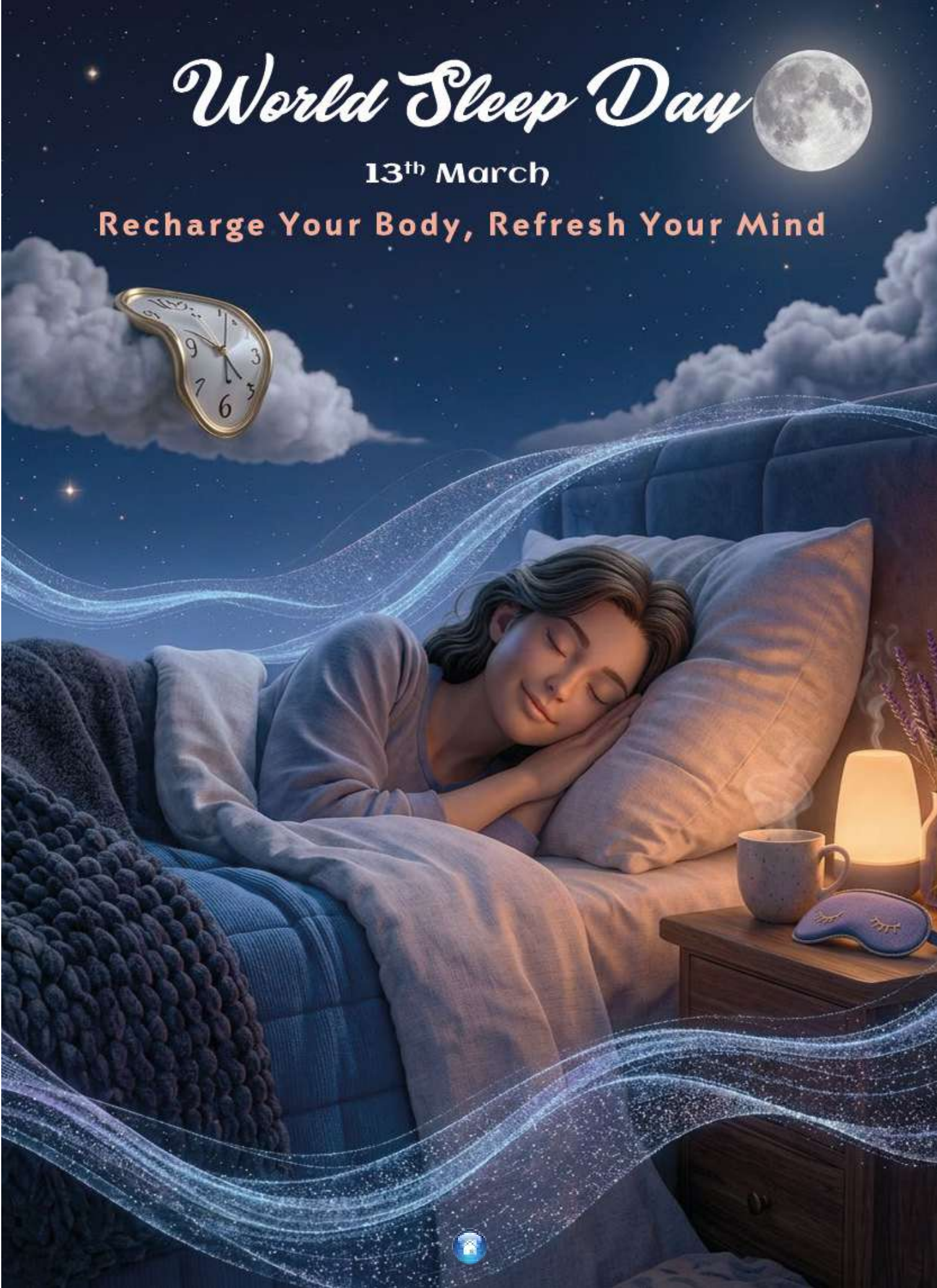
DO YOU KNOW ?

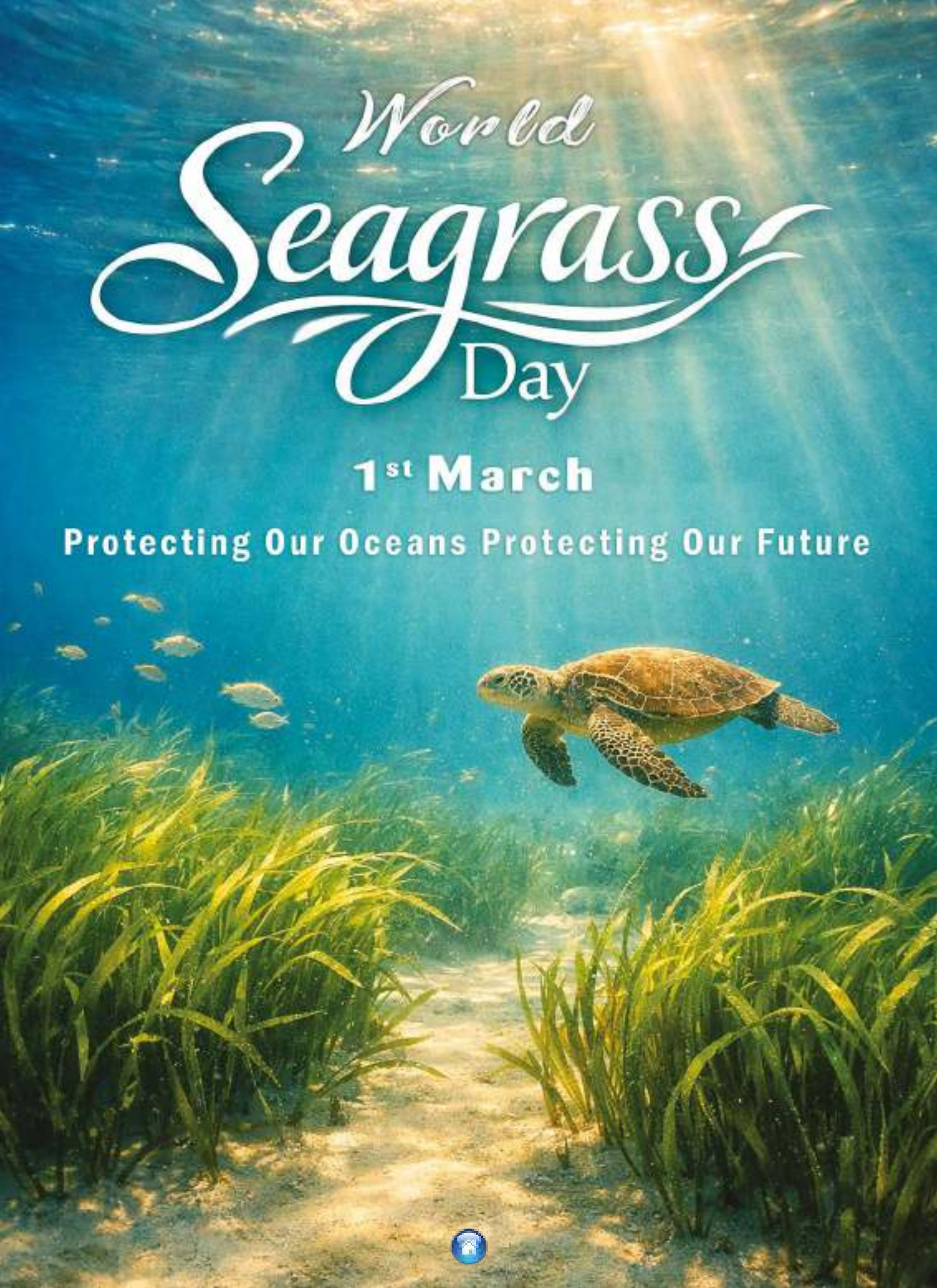
- The fort has rock-cut Jain statues, some of which are over 50 feet tall, carved directly into the hill.
- The famous musician Tansen, one of the nine gems of Akbar's court, is closely associated with Gwalior.

Answers of page 58

Stone observatory

1. The *Vrihat Samrat Yantra* / Giant Sundial
2. The Sun / sunlight.
3. The *Dhruva Matsya Yantra* / Pole star instrument
4. The *Rashivalaya Yantra*
5. The *Jai Prakash Yantra*
6. The *Samrat Yantra*
7. Maharaja Sawai Jai Singh II
8. Sunlight
9. An astronomical observatory
10. Jantar Mantar
11. *Kapali Yantra*
12. The *Yantra Raj*
13. The Gnomon/Wall of the *Samrat Yantra*
14. The *Dakshinottara Bhitti*
15. The five Jantar Mantars of India.


World Sleep Day
13th March
Recharge Your Body, Refresh Your Mind


World
Seagrass
Day
1st March
Protecting Our Oceans Protecting Our Future